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### TECHNIQUES FOR MOTION MITIGATION

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#### Abstract

The present disclosure generally relates to the performance of motion mitigation techniques. Some techniques are for shifting the display of content, shifting the output of a sound field, altering content based on a gaze of a user, and/or altering content based on a state of a user.

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## Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application claims priority to U.S. Provisional Patent Application Ser. No. 63/657,587, entitled “TECHNIQUES FOR MOTION MITIGATION” filed Jun. 7, 2024, to U.S. Provisional Patent Application Ser. No. 63/645,666, entitled “TECHNIQUES FOR MOTION MITIGATION” filed May 10, 2024, and to U.S. Provisional Patent Application Ser. No. 63/552,602, entitled “TECHNIQUES FOR MOTION MITIGATION” filed Feb. 12, 2024, which are hereby incorporated by reference in their entireties for all purposes.

### BACKGROUND

[0002] Various hardware exists for providing visual and sound effects, such as speakers, lights, and displays. Such hardware can be controlled and/or programmed to provide visual and sound effects under various circumstances.

### BRIEF SUMMARY

[0003] In some embodiments, a method includes: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.

[0004] In some embodiments, a computer-readable storage medium (e.g., a non-transitory computer-readable storage medium or a transitory computer-readable storage medium) stores one or more programs configured to be executed by one or more processors of a computer system that is in communication with a display and one or more input devices. The one or more programs include instructions for: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.

[0005] In some embodiments, a computer system includes a display, one or more input devices, one or more processors, and memory storing one or more programs configured to be executed by the one or more processors. The one or more programs include instructions for: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.

[0006] In some embodiments, a computer system includes: while displaying a user interface object in an initial manner, means for detecting acceleration in a first direction; in response to detecting the acceleration in the first direction, means for displaying the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user

interface object in the subsequent manner based on the acceleration, means for continuing to detect the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, means for displaying the user interface object in the initial manner.

[0007] In some embodiments, a computer program product includes one or more programs configured to be executed by one or more processors of a computer system that is in communication with a display and one or more input devices. The one or more programs include instructions for: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.

[0008] In some embodiments, a method that is performed at a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the method comprises: while displaying, via the display generation component, content, detecting, via the input device, motion that satisfies a first set of one or more criteria; in response to detecting the motion that satisfies the first set of one or more criteria: continuing display of a first portion of the content; and ceasing display of a second portion, different from the first portion, of the content; while displaying the first portion of the content and not displaying the second portion of the content, detecting, via the input device, motion that no longer satisfies the first set of one or more criteria; and in response to detecting the motion that no longer satisfies the first set of one or more criteria: continuing display of the first portion of the content; and displaying, via the display generation component, the second portion of the content.

[0009] In some embodiments, a non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion that satisfies a first set of one or more criteria; in response to detecting the motion that satisfies the first set of one or more criteria: continuing display of a first portion of the content; and ceasing display of a second portion, different from the first portion, of the content; while displaying the first portion of the content and not displaying the second portion of the content, detecting, via the input device, motion that no longer satisfies the first set of one or more criteria; and in response to detecting the motion that no longer satisfies the first set of one or more criteria: continuing display of the first portion of the content; and displaying, via the display generation component, the second portion of the content.

[0010] In some embodiments, a transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion that satisfies a first set of one or more criteria; in response to detecting the motion that satisfies the first set of one or more criteria: continuing display of a first portion of the content; and ceasing display of a second portion, different from the first portion, of the content; while displaying the first portion of the content and not displaying the second portion of the content, detecting, via the input device, motion that no longer satisfies the first set of one or more criteria; and in response to detecting the motion that no longer satisfies the first set of one or more criteria: continuing display of the first portion of the content; and displaying, via the display generation component, the second portion of the content.

[0011] In some embodiments, a computer system configured to communicate with an input device

and a display generation component is described. In some embodiments, the computer system comprises one or more processors and memory storing one or more programs configured to be executed by the one or more processors. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion that satisfies a first set of one or more criteria; in response to detecting the motion that satisfies the first set of one or more criteria: continuing display of a first portion of the content; and ceasing display of a second portion, different from the first portion, of the content; while displaying the first portion of the content and not displaying the second portion of the content, detecting, via the input device, motion that no longer satisfies the first set of one or more criteria; and in response to detecting the motion that no longer satisfies the first set of one or more criteria: continuing display of the first portion of the content; and displaying, via the display generation component, the second portion of the content.

[0012] In some embodiments, a computer system configured to communicate with an input device and a display generation component is described. In some embodiments, the computer system comprises means for performing each of the following steps: while displaying, via the display generation component, content, detecting, via the input device, motion that satisfies a first set of one or more criteria; in response to detecting the motion that satisfies the first set of one or more criteria: continuing display of a first portion of the content; and ceasing display of a second portion, different from the first portion, of the content; while displaying the first portion of the content and not displaying the second portion of the content, detecting, via the input device, motion that no longer satisfies the first set of one or more criteria; and in response to detecting the motion that no longer satisfies the first set of one or more criteria: continuing display of the first portion of the content; and displaying, via the display generation component, the second portion of the content.

[0013] In some embodiments, a computer program product is described. In some embodiments, the computer program product comprises one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component. In some embodiments, the one or more programs include instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion that satisfies a first set of one or more criteria; in response to detecting the motion that satisfies the first set of one or more criteria: continuing display of a first portion of the content; and ceasing display of a second portion, different from the first portion, of the content; while displaying the first portion of the content and not displaying the second portion of the content, detecting, via the input device, motion that no longer satisfies the first set of one or more criteria; and in response to detecting the motion that no longer satisfies the first set of one or more criteria: continuing display of the first portion of the content; and displaying, via the display generation component, the second portion of the content.

[0014] In some embodiments, a method that is performed at a computer system that is in communication with an input device, a display generation component, and an audio generation component is described. In some embodiments, the method comprises: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion, altering, via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount; and in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion different from the first amount of motion, altering, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount different from the first amount.

[0015] In some embodiments, a non-transitory computer-readable storage medium storing one or

more programs configured to be executed by one or more processors of a computer system that is in communication with an input device, a display generation component, and an audio generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion, altering, via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount; and in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion different from the first amount of motion, altering, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount different from the first amount.

[0016] In some embodiments, a transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device, a display generation component, and an audio generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion, altering, via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount; and in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion different from the first amount of motion, altering, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount different from the first amount.

[0017] In some embodiments, a computer system configured to communicate with an input device, a display generation component, and an audio generation component is described. In some embodiments, the computer system comprises one or more processors and memory storing one or more programs configured to be executed by the one or more processors. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion, altering, via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount; and in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion different from the first amount of motion, altering, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount different from the first amount.

[0018] In some embodiments, a computer system configured to communicate with an input device, a display generation component, and an audio generation component is described. In some embodiments, the computer system comprises means for performing each of the following steps: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion, altering, via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount;

and in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion different from the first amount of motion, altering, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount different from the first amount.

[0019] In some embodiments, a computer program product is described. In some embodiments, the computer program product comprises one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device, a display generation component, and an audio generation component. In some embodiments, the one or more programs include instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion, altering, via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount; and in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion different from the first amount of motion, altering, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount different from the first amount.

[0020] In some embodiments, a method that is performed at a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the method comprises: while displaying, via the display generation component, content in a first manner, detecting, via the input device, motion; and in response to detecting the motion: in accordance with a determination that a user is directing attention to a first portion of the content, displaying, via the display generation component, the first portion of the content in a second manner, different from the first manner, based on the motion; and in accordance with a determination that the user is directing attention to a second portion of the content different from the first portion of the content, continuing display of, via the display generation component, the first portion of the content in the first manner.

[0021] In some embodiments, a non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content in a first manner, detecting, via the input device, motion; and in response to detecting the motion: in accordance with a determination that a user is directing attention to a first portion of the content, displaying, via the display generation component, the first portion of the content in a second manner, different from the first manner, based on the motion; and in accordance with a determination that the user is directing attention to a second portion of the content different from the first portion of the content, continuing display of, via the display generation component, the first portion of the content in the first manner.

[0022] In some embodiments, a transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content in a first manner, detecting, via the input device, motion; and in response to detecting the motion: in accordance with a determination that a user is directing attention to a first portion of the content, displaying, via the display generation component, the first portion of the content in a second manner, different from the first manner, based on the motion; and in accordance with a determination that the user is directing attention to a second portion of the

content different from the first portion of the content, continuing display of, via the display generation component, the first portion of the content in the first manner.

[0023] In some embodiments, a computer system configured to communicate with an input device and a display generation component is described. In some embodiments, the computer system comprises one or more processors and memory storing one or more programs configured to be executed by the one or more processors. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content in a first manner, detecting, via the input device, motion; and in response to detecting the motion: in accordance with a determination that a user is directing attention to a first portion of the content, displaying, via the display generation component, the first portion of the content in a second manner, different from the first manner, based on the motion; and in accordance with a determination that the user is directing attention to a second portion of the content different from the first portion of the content, continuing display of, via the display generation component, the first portion of the content in the first manner.

[0024] In some embodiments, a computer system configured to communicate with an input device and a display generation component is described. In some embodiments, the computer system comprises means for performing each of the following steps: while displaying, via the display generation component, content in a first manner, detecting, via the input device, motion; and in response to detecting the motion: in accordance with a determination that a user is directing attention to a first portion of the content, displaying, via the display generation component, the first portion of the content in a second manner, different from the first manner, based on the motion; and in accordance with a determination that the user is directing attention to a second portion of the content different from the first portion of the content, continuing display of, via the display generation component, the first portion of the content in the first manner.

[0025] In some embodiments, a computer program product is described. In some embodiments, the computer program product comprises one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component. In some embodiments, the one or more programs include instructions for: while displaying, via the display generation component, content in a first manner, detecting, via the input device, motion; and in response to detecting the motion: in accordance with a determination that a user is directing attention to a first portion of the content, displaying, via the display generation component, the first portion of the content in a second manner, different from the first manner, based on the motion; and in accordance with a determination that the user is directing attention to a second portion of the content different from the first portion of the content, continuing display of, via the display generation component, the first portion of the content in the first manner.

[0026] In some embodiments, a method that is performed at a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the method comprises: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: continuing display of, via the display generation component, a first portion of the content; and ceasing display of, via the display generation component, a second portion of the content different from the first portion of the content; while forgoing display of the second portion of the content, continuing to detect, via the input device, the motion; and in response to continuing to detect the motion: in accordance with a determination that a user satisfies a first set of one or more criteria, ceasing display of, via the display generation component, a third portion of the content different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content; and in accordance with a determination that the user does not satisfy the first set of one or more criteria, continuing display of, via the display component, the first portion of the content without ceasing display of the third portion of the

content.

[0027] In some embodiments, a non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: continuing display of, via the display generation component, a first portion of the content; and ceasing display of, via the display generation component, a second portion of the content different from the first portion of the content; while forgoing display of the second portion of the content, continuing to detect, via the input device, the motion; and in response to continuing to detect the motion: in accordance with a determination that a user satisfies a first set of one or more criteria, ceasing display of, via the display generation component, a third portion of the content different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content; and in accordance with a determination that the user does not satisfy the first set of one or more criteria, continuing display of, via the display component, the first portion of the content without ceasing display of the third portion of the content.

[0028] In some embodiments, a transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component is described. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: continuing display of, via the display generation component, a first portion of the content; and ceasing display of, via the display generation component, a second portion of the content different from the first portion of the content; while forgoing display of the second portion of the content, continuing to detect, via the input device, the motion; and in response to continuing to detect the motion: in accordance with a determination that a user satisfies a first set of one or more criteria, ceasing display of, via the display generation component, a third portion of the content different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content; and in accordance with a determination that the user does not satisfy the first set of one or more criteria, continuing display of, via the display component, the first portion of the content without ceasing display of the third portion of the content.

[0029] In some embodiments, a computer system configured to communicate with an input device and a display generation component is described. In some embodiments, the computer system comprises one or more processors and memory storing one or more programs configured to be executed by the one or more processors. In some embodiments, the one or more programs includes instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: continuing display of, via the display generation component, a first portion of the content; and ceasing display of, via the display generation component, a second portion of the content different from the first portion of the content; while forgoing display of the second portion of the content, continuing to detect, via the input device, the motion; and in response to continuing to detect the motion: in accordance with a determination that a user satisfies a first set of one or more criteria, ceasing display of, via the display generation component, a third portion of the content different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content; and in accordance with a determination that the user does not satisfy the first set of one or more criteria, continuing display of, via the display component, the first portion of the content without ceasing display of the third portion of the content.

[0030] In some embodiments, a computer system configured to communicate with an input device



and a display generation component is described. In some embodiments, the computer system comprises means for performing each of the following steps: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: continuing display of, via the display generation component, a first portion of the content; and ceasing display of, via the display generation component, a second portion of the content different from the first portion of the content; while forgoing display of the second portion of the content, continuing to detect, via the input device, the motion; and in response to continuing to detect the motion: in accordance with a determination that a user satisfies a first set of one or more criteria, ceasing display of, via the display generation component, a third portion of the content different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content; and in accordance with a determination that the user does not satisfy the first set of one or more criteria, continuing display of, via the display component, the first portion of the content without ceasing display of the third portion of the content.

[0031] In some embodiments, a computer program product is described. In some embodiments, the computer program product comprises one or more programs configured to be executed by one or more processors of a computer system that is in communication with an input device and a display generation component. In some embodiments, the one or more programs include instructions for: while displaying, via the display generation component, content, detecting, via the input device, motion; in response to detecting the motion: continuing display of, via the display generation component, a first portion of the content; and ceasing display of, via the display generation component, a second portion of the content different from the first portion of the content; while forgoing display of the second portion of the content, continuing to detect, via the input device, the motion; and in response to continuing to detect the motion: in accordance with a determination that a user satisfies a first set of one or more criteria, ceasing display of, via the display generation component, a third portion of the content different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content; and in accordance with a determination that the user does not satisfy the first set of one or more criteria, continuing display of, via the display component, the first portion of the content without ceasing display of the third portion of the content.

[0032] In some embodiments, executable instructions for performing these functions are included in a non-transitory computer-readable storage medium or other computer program product configured for execution by one or more processors. In some embodiments, executable instructions for performing these functions are included in a transitory computer-readable storage medium or other computer program product configured for execution by one or more processors.

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## Description

### BRIEF DESCRIPTION OF THE FIGURES

[0033] To better understand the various described embodiments, reference should be made to the Description of Embodiments below, along with the following drawings in which like reference numerals refer to corresponding parts throughout the figures.

[0034] FIG. 1A illustrates an example system for implementing the techniques described herein.

[0035] FIGS. 1B-1G illustrate the use of Application Programming Interfaces (APIs) to perform operations in accordance with some embodiments.

[0036] FIGS. 2A-2Q illustrate techniques for displaying user interfaces based on detected motion according to some embodiments.

[0037] FIG. 3 is a flow diagram that illustrates a method for displaying user interfaces based on detected motion according to some embodiments.

[0038] FIGS. 4A-4C illustrate example techniques for displaying user interface elements based on motion in accordance with some embodiments.

[0039] FIGS. 5A-5D illustrate example graphs for how a graphical element can change as the graphical element changes position in accordance with some embodiments.

[0040] FIG. 6 is a flow diagram that illustrates a method for displaying user interfaces based on detected motion according to some embodiments.

[0041] FIGS. 7A-7H illustrate exemplary user interfaces for mitigating the effects of motion in accordance with some embodiments.

[0042] FIG. 8 is a flow diagram illustrating a method for shifting the display of content in accordance with some embodiments.

[0043] FIG. 9 is a flow diagram illustrating a method for shifting the output of a sound field in accordance with some embodiments.

[0044] FIGS. 10A-10G illustrate exemplary user interfaces for altering content based on a gaze of a user in accordance with some embodiments.

[0045] FIG. 11 is a flow diagram illustrating a method for altering content based on a gaze of a user in accordance with some embodiments.

[0046] FIGS. 12A-12L illustrate exemplary user interfaces altering content based on a state of a user in accordance with some embodiments.

[0047] FIG. 13 is a flow diagram illustrating a method for altering content based on a state of a user in accordance with some embodiments.

#### DESCRIPTION OF EMBODIMENTS

[0048] The following description sets forth exemplary methods, parameters, and the like. However, such description is not intended as a limitation on the scope of the present disclosure but is instead provided as a description of exemplary embodiments.

[0049] Although the following description uses terms “first,” “second,” etc. to describe various elements, these elements should not be limited by the terms. In some embodiments, these terms are used to distinguish one element from another. For example, a first item could be termed a second item, and, similarly, a second item could be termed a first item, without departing from the scope of the various described embodiments. In some embodiments, the first item and the second item are two separate references to the same item. In some embodiments, the first item and the second item are both the same type of item, but they are not the same item.

[0050] The terminology used in the description of the various described embodiments herein is for the purpose of describing particular embodiments only and is not intended to be limiting. The singular forms “a,” “an,” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. The term “and/or” refers to and encompasses any and all possible combinations of one or more of the associated listed items. The terms “includes,” “including,” “comprises,” and/or “comprising” specify the presence of stated features, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, steps, operations, elements, components, and/or groups thereof.

[0051] The processes described below enhance the operability of the devices and make the user-device interfaces more efficient (e.g., by helping the user to provide proper inputs and reducing user mistakes when operating/interacting with the device) through various techniques, including by providing improved visual feedback to the user, reducing the number of inputs needed to perform an operation, providing additional control options without cluttering the user interface with additional displayed controls, performing an operation when a set of conditions has been met without requiring further user input, and/or additional techniques. These techniques also reduce power usage and improve battery life of the device by enabling the user to use the device more quickly and efficiently.

[0052] Embodiments of electronic devices, user interfaces for such devices, and associated processes for using such devices are described. In some embodiments, the device is a portable

communications device, such as a mobile telephone, that also contains other functions, such as PDA and/or music player functions. Exemplary embodiments of portable multifunction devices include, without limitation, the iPhone®, iPod Touch®, and iPad® devices from Apple Inc. of Cupertino, California. Other portable electronic devices, such as laptops or tablet computers with touch-sensitive surfaces (e.g., touch screen displays and/or touchpads), are, optionally, used. It should also be understood that, in some embodiments, the device is not a portable communications device, but is a desktop computer with a touch-sensitive surface (e.g., a touch screen display and/or a touchpad). In some embodiments, the electronic device is a computer system that is in communication (e.g., via wireless communication, via wired communication) with a display generation component. The display generation component is configured to provide visual output, such as display via a CRT display, display via an LED display, or display via image projection. In some embodiments, the display generation component is integrated with the computer system. In some embodiments, the display generation component is separate from the computer system. As used herein, “displaying” content includes causing to display the content (e.g., video data rendered or decoded by display controller **156**) by transmitting, via a wired or wireless connection, data (e.g., image data or video data) to an integrated or external display generation component to visually produce the content.

[0053] In the discussion that follows, an electronic device that includes a display and a touch-sensitive surface is described. It should be understood, however, that the electronic device optionally includes one or more other physical user-interface devices, such as a physical keyboard, a mouse, and/or a joystick.

[0054] The device typically supports a variety of applications, such as one or more of the following: a drawing application, a presentation application, a word processing application, a website creation application, a disk authoring application, a spreadsheet application, a gaming application, a telephone application, a video conferencing application, an e-mail application, an instant messaging application, a workout support application, a photo management application, a digital camera application, a digital video camera application, a web browsing application, a digital music player application, and/or a digital video player application.

[0055] The various applications that are executed on the device optionally use at least one common physical user-interface device, such as the touch-sensitive surface. One or more functions of the touch-sensitive surface as well as corresponding information displayed on the device are, optionally, adjusted and/or varied from one application to the next and/or within a respective application. In this way, a common physical architecture (such as the touch-sensitive surface) of the device optionally supports the variety of applications with user interfaces that are intuitive and transparent to the user.

[0056] FIG. **1A** illustrates an example system **100** for implementing the techniques described herein. System **100** can perform any of the methods described in FIGS. **3** and/or **6** (e.g., methods **300** and/or **600**) or portions thereof.

[0057] In FIG. **1A**, system **100** includes device **101**. Device **101** includes various components, such as processor(s) **103**, RF circuitry(ies) **105**, memory(ies) **107**, image sensor(s) **109**, orientation sensor(s) **110**, microphone(s) **113**, location sensor(s) **117**, speaker(s) **119**, display(s) **121**, and touch-sensitive surface(s) **115**. These components optionally communicate over communication bus(es) **123** of device **101**. In some embodiments, system **100** includes two or more devices that include some or all of the features of device **101**.

[0058] In some examples, system **100** is a desktop computer, embedded computer, and/or a server. In some examples, system **100** is a mobile device such as, e.g., a smartphone, smartwatch, laptop computer, and/or tablet computer. In some examples, system **100** is a head-mounted display (HMD) device. In some examples, system **100** is a wearable HUD device.

[0059] System **100** includes processor(s) **103** and memory(ies) **107**. Processor(s) **103** include one or more general processors, one or more graphics processors, and/or one or more digital signal

processors. In some examples, memory(ies) **107** are one or more non-transitory computer-readable storage mediums (e.g., flash memory and/or random access memory) that store computer-readable instructions configured to be executed by processor(s) **103** to perform the techniques described herein.

[0060] System **100** includes RF circuitry(ies) **105**. RF circuitry(ies) **105** optionally include circuitry for communicating with electronic devices, networks, such as the Internet, intranets, and/or a wireless network, such as cellular networks and wireless local area networks (LANs). RF circuitry(ies) **105** optionally includes circuitry for communicating using near-field communication and/or short-range communication, such as Bluetooth®.

[0061] System **100** includes display(s) **121**. In some examples, display(s) **121** include one or more monitors, projectors, and/or screens. In some examples, display(s) **121** include a first display for displaying images to a first eye of the user and a second display for displaying images to a second eye of the user. Corresponding images are simultaneously displayed on the first display and the second display. Optionally, the corresponding images include the same virtual objects and/or representations of the same physical objects from different viewpoints, resulting in a parallax effect that provides a user with the illusion of depth of the objects on the displays. In some examples, display(s) **121** include a single display. Corresponding images are simultaneously displayed on a first area and a second area of the single display for each eye of the user. Optionally, the corresponding images include the same virtual objects and/or representations of the same physical objects from different viewpoints, resulting in a parallax effect that provides a user with the illusion of depth of the objects on the single display.

[0062] In some examples, system **100** includes touch-sensitive surface(s) **115** for receiving user inputs, such as tap inputs and swipe inputs. In some examples, display(s) **121** and touch-sensitive surface(s) **115** form touch-sensitive display(s).

[0063] System **100** includes image sensor(s) **109**. Image sensor(s) **109** optionally include one or more visible light image sensor, such as charged coupled device (CCD) sensors, and/or complementary metal-oxide-semiconductor (CMOS) sensors operable to obtain images of physical objects. Image sensor(s) also optionally include one or more infrared (IR) sensor(s), such as a passive IR sensor or an active IR sensor, for detecting infrared light. For example, an active IR sensor includes an IR emitter, such as an IR dot emitter, for emitting infrared light. Image sensor(s) **109** also optionally include one or more camera(s) configured to capture movement of physical objects. Image sensor(s) **109** also optionally include one or more depth sensor(s) configured to detect the distance of physical objects from system **100**. In some examples, system **100** uses CCD sensors, cameras, and depth sensors in combination to detect the physical environment around system **100**. In some examples, image sensor(s) **109** include a first image sensor and a second image sensor. In some examples, system **100** uses image sensor(s) **109** to receive user inputs, such as hand gestures. In some examples, system **100** uses image sensor(s) **109** to detect the position and orientation of system **100** in the physical environment.

[0064] In some examples, system **100** includes microphones(s) **113**. System **100** uses microphone(s) **113** to detect sound from the user and/or the physical environment of the user. In some examples, microphone(s) **113** includes an array of microphones (including a plurality of microphones) that optionally operate in tandem, such as to identify ambient noise or to locate the source of sound in space of the physical environment.

[0065] System **100** includes orientation sensor(s) **111** for detecting orientation and/or movement of system **100**. For example, system **100** uses orientation sensor(s) **111** to track changes in the position and/or orientation of system **100**, such as with respect to physical objects in the physical environment. Orientation sensor(s) **111** optionally include one or more gyroscopes, one or more inertial measurement units, and/or one or more accelerometers.

[0066] Implementations within the scope of the present disclosure can be partially or entirely realized using a tangible computer-readable storage medium (or multiple tangible computer-

readable storage media of one or more types) encoding one or more computer-readable instructions. It should be recognized that computer-readable instructions can be organized in any format, including applications, widgets, processes, software, and/or components.

[0067] Implementations within the scope of the present disclosure include a computer-readable storage medium that encodes instructions organized as an application (e.g., application **1160**) that, when executed by one or more processing units, control an electronic device (e.g., device **1150**) to perform the method of FIG. 1B, the method of FIG. 1C, and/or one or more other processes and/or methods described herein.

[0068] It should be recognized that application **1160** (shown in FIG. 1D) can be any suitable type of application, including, for example, one or more of: a browser application, an application that functions as an execution environment for plug-ins, widgets or other applications, a fitness application, a health application, a digital payments application, a media application, a social network application, a messaging application, and/or a maps application. In some embodiments, application **1160** is an application that is pre-installed on device **1150** at purchase (e.g., a first party application). In some embodiments, application **1160** is an application that is provided to device **1150** via an operating system update file (e.g., a first party application or a second-party application). In some embodiments, application **1160** is an application that is provided via an application store. In some embodiments, the application store can be an application store that is pre-installed on device **1150** at purchase (e.g., a first-party application store). In some embodiments, the application store is a third-party application store (e.g., an application store that is provided by another application store, downloaded via a network, and/or read from a storage device).

[0069] Referring to FIG. 1B and FIG. 1F, application **1160** obtains information (e.g., **1010**). In some embodiments, at **1010**, information is obtained from at least one hardware component of device **1150**. In some embodiments, at **1010**, information is obtained from at least one software module of device **1150**. In some embodiments, at **1010**, information is obtained from at least one hardware component external to device **1150** (e.g., a peripheral device, an accessory device, and/or a server, etc.). In some embodiments, the information obtained at **1010** includes positional information, time information, notification information, user information, environment information, electronic device state information, weather information, media information, historical information, event information, hardware information, and/or motion information. In some embodiments, in response to and/or after obtaining the information at **1010**, application **1160** provides the information to a system (e.g., **1020**).

[0070] In some embodiments, the system (e.g., **1110** shown in FIG. 1E) is an operating system hosted on device **1150**. In some embodiments, the system (e.g., **1110** shown in FIG. 1E) is an external device (e.g., a server, a peripheral device, an accessory, and/or a personal computing device.) that includes an operating system.

[0071] Referring to FIG. 1C and FIG. 1G, application **1160** obtains information (e.g., **1030**). In some embodiments, the information obtained at **1030** includes positional information, time information, notification information, user information, environment information, electronic device state information, weather information, media information, historical information, event information, hardware information, and/or motion information. In response to and/or after obtaining the information at **1030**, application **1160** performs an operation with the information (e.g., **1040**). In some embodiments, the operation performed at **1040** includes: providing a notification based on the information, sending a message based on the information, displaying the information, controlling a user interface of a fitness application based on the information, controlling a user interface of a health application based on the information, controlling a focus mode based on the information, setting a reminder based on the information, adding a calendar entry based on the information, and/or calling an API of system **1110** based on the information.

[0072] In some embodiments, one or more steps of the method of FIG. 1B and/or the method of

FIG. 1C is performed in response to a trigger. In some embodiments, the trigger includes detection of an event, a notification received from system **1110**, a user input, and/or a response to a call to an API provided by system **1110**.

[0073] In some embodiments, the instructions of application **1160**, when executed, control device **1150** to perform the method of FIG. 1B and/or the method of FIG. 1C by calling an application programming interface (API) (e.g., API **1190**) provided by system **1110**. In some embodiments, application **1160** performs at least a portion of the method of FIG. 1B and/or the method of FIG. 1C without calling API **1190**.

[0074] In some embodiments, one or more steps of the method of FIG. 1B and/or the method of FIG. 1C includes calling an API (e.g., API **1190**) using one or more parameters defined by the API. In some embodiments, the one or more parameters include a constant, a key, a data structure, an object, an object class, a variable, a data type, a pointer, an array, a list or a pointer to a function or method, and/or another way to reference a data or other item to be passed via the API.

[0075] Referring to FIG. 1D, device **1150** is illustrated. In some embodiments, device **1150** is a personal computing device, a smart phone, a smart watch, a fitness tracker, a head mounted display (HMD) device, a media device, a communal device, a speaker, a television, and/or a tablet. As illustrated in FIG. 1D, device **1150** includes application **1160** and an operating system (e.g., system **1110** shown in FIG. 1E). Application **1160** includes application implementation module **1170** and API-calling module **1180**. System **1110** includes API **1190** and implementation module **1100**. It should be recognized that device **1150**, application **1160**, and/or system **1110** can include more, fewer, and/or different components than illustrated in FIGS. 1D and 1E.

[0076] In some embodiments, application implementation module **1170** includes a set of one or more instructions corresponding to one or more operations performed by application **1160**. For example, when application **1160** is a messaging application, application implementation module **1170** can include operations to receive and send messages. In some embodiments, application implementation module **1170** communicates with API-calling module **1180** to communicate with system **1110** via API **1190** (shown in FIG. 1E).

[0077] In some embodiments, API **1190** is a software module (e.g., a collection of computer-readable instructions) that provides an interface that allows a different module (e.g., API-calling module **1180**) to access and/or use one or more functions, methods, procedures, data structures, classes, and/or other services provided by implementation module **1100** of system **1110**. For example, API-calling module **1180** can access a feature of implementation module **1100** through one or more API calls or invocations (e.g., embodied by a function or a method call) exposed by API **1190** (e.g., a software and/or hardware module that can receive API calls, respond to API calls, and/or send API calls) and can pass data and/or control information using one or more parameters via the API calls or invocations. In some embodiments, API **1190** allows application **1160** to use a service provided by a Software Development Kit (SDK) library. In some embodiments, application **1160** incorporates a call to a function or method provided by the SDK library and provided by API **1190** or uses data types or objects defined in the SDK library and provided by API **1190**. In some embodiments, API-calling module **1180** makes an API call via API **1190** to access and use a feature of implementation module **1100** that is specified by API **1190**. In such embodiments, implementation module **1100** can return a value via API **1190** to API-calling module **1180** in response to the API call. The value can report to application **1160** the capabilities or state of a hardware component of device **1150**, including those related to aspects such as input capabilities and state, output capabilities and state, processing capability, power state, storage capacity and state, and/or communications capability. In some embodiments, API **1190** is implemented in part by firmware, microcode, or other low-level logic that executes in part on the hardware component.

[0078] In some embodiments, API **1190** allows a developer of API-calling module **1180** (which can be a third-party developer) to leverage a feature provided by implementation module **1100**. In such embodiments, there can be one or more API-calling modules (e.g., including API-calling module

**1180**) that communicate with implementation module **1100**. In some embodiments, API **1190** allows multiple API-calling modules written in different programming languages to communicate with implementation module **1100** (e.g., API **1190** can include features for translating calls and returns between implementation module **1100** and API-calling module **1180**) while API **1190** is implemented in terms of a specific programming language. In some embodiments, API-calling module **1180** calls APIs from different providers such as a set of APIs from an OS provider, another set of APIs from a plug-in provider, and/or another set of APIs from another provider (e.g., the provider of a software library) or creator of the another set of APIs.

[0079] Examples of API **1190** can include one or more of: a pairing API (e.g., for establishing a secure connection, (e.g., with an accessory), a device detection API (e.g., for locating nearby devices (e.g., media devices and/or smartphone)), a payment API, a UIKit API (e.g., for generating user interfaces), a location detection API, a locator API, a maps API, a health sensor API, a sensor API, a messaging API, a push notification API, a streaming API, a collaboration API, a video conferencing API, an application store API, an advertising services API, a web browser API (e.g., WebKit API), a vehicle API, a networking API, a WiFi API, a Bluetooth API, an NFC API, a UWB API, a fitness API, a smart home API, contact transfer API, photos API, camera API, and/or image processing API. In some embodiments, the sensor API is an API for accessing data associated with a sensor of device **1150**. For example, the sensor API can provide access to raw sensor data. For another example, the sensor API can provide data derived (and/or generated) from the raw sensor data. In some embodiments, the sensor data includes temperature data, image data, video data, audio data, heart rate data, IMU (inertial measurement unit) data, lidar data, location data, GPS data, and/or camera data. In some embodiments, the sensor includes one or more of an accelerometer, temperature sensor, infrared sensor, optical sensor, heart rate sensor, barometer, gyroscope, proximity sensor, temperature sensor and/or biometric sensor.

[0080] In some embodiments, implementation module **1100** is a system (e.g., operating system, and/or server system) software module (e.g., a collection of computer-readable instructions) that is constructed to perform an operation in response to receiving an API call via API **1190**. In some embodiments, implementation module **1100** is constructed to provide an API response (via API **1190**) as a result of processing an API call. By way of example, implementation module **1100** and API-calling module **1180** can each be any one of an operating system, a library, a device driver, an API, an application program, or other module. It should be understood that implementation module **1100** and API-calling module **1180** can be the same or different type of module from each other. In some embodiments, implementation module **1100** is embodied at least in part in firmware, microcode, or hardware logic.

[0081] In some embodiments, implementation module **1100** returns a value through API **1190** in response to an API call from API-calling module **1180**. While API **1190** defines the syntax and result of an API call (e.g., how to invoke the API call and what the API call does), API **1190** might not reveal how implementation module **1100** accomplishes the function specified by the API call. Various API calls are transferred via the one or more application programming interfaces between API-calling module **1180** and implementation module **1100**. Transferring the API calls can include issuing, initiating, invoking, calling, receiving, returning, and/or responding to the function calls or messages. In other words, transferring can describe actions by either of API-calling module **1180** or implementation module **1100**. In some embodiments, a function call or other invocation of API **1190** sends and/or receives one or more parameters through a parameter list or other structure.

[0082] In some embodiments, implementation module **1100** provides more than one API, each providing a different view of or with different aspects of functionality implemented by implementation module **1100**. For example, one API of implementation module **1100** can provide a first set of functions and can be exposed to third party developers, and another API of implementation module **1100** can be hidden (e.g., not exposed) and provide a subset of the first set of functions and also provide another set of functions, such as testing or debugging functions which

are not in the first set of functions. In some embodiments, implementation module **1100** calls one or more other components via an underlying API and thus is both an API calling module and an implementation module. It should be recognized that implementation module **1100** can include additional functions, methods, classes, data structures, and/or other features that are not specified through API **1190** and are not available to API-calling module **1180**. It should also be recognized that API-calling module **1180** can be on the same system as implementation module **1100** or can be located remotely and access implementation module **1100** using API **1190** over a network. In some embodiments, implementation module **1100**, API **1190**, and/or API-calling module **1180** is stored in a machine-readable medium, which includes any mechanism for storing information in a form readable by a machine (e.g., a computer or other data processing system). For example, a machine-readable medium can include magnetic disks, optical disks, random access memory; read only memory, and/or flash memory devices.

[0083] An application programming interface (API) is an interface between a first software process and a second software process that specifies a format for communication between the first software process and the second software process. Limited APIs (e.g., private APIs or partner APIs) are APIs that are accessible to a limited set of software processes (e.g., only software processes within an operating system or only software processes that are approved to access the limited APIs). Public APIs that are accessible to a wider set of software processes. Some APIs enable software processes to communicate about or set a state of one or more input devices (e.g., one or more touch sensors, proximity sensors, visual sensors, motion/orientation sensors, pressure sensors, intensity sensors, sound sensors, wireless proximity sensors, biometric sensors, buttons, switches, rotatable elements, and/or external controllers). Some APIs enable software processes to communicate about and/or set a state of one or more output generation components (e.g., one or more audio output generation components, one or more display generation components, and/or one or more tactile output generation components). Some APIs enable particular capabilities (e.g., scrolling, handwriting, text entry, image editing, and/or image creation) to be accessed, performed, and/or used by a software process (e.g., generating outputs for use by a software process based on input from the software process). Some APIs enable content from a software process to be inserted into a template and displayed in a user interface that has a layout and/or behaviors that are specified by the template.

[0084] Many software platforms include a set of frameworks that provides the core objects and core behaviors that a software developer needs to build software applications that can be used on the software platform. Software developers use these objects to display content onscreen, to interact with that content, and to manage interactions with the software platform. Software applications rely on the set of frameworks for their basic behavior, and the set of frameworks provides many ways for the software developer to customize the behavior of the application to match the specific needs of the software application. Many of these core objects and core behaviors are accessed via an API. An API will typically specify a format for communication between software processes, including specifying and grouping available variables, functions, and protocols. An API call (sometimes referred to as an API request) will typically be sent from a sending software process to a receiving software process as a way to accomplish one or more of the following: the sending software process requesting information from the receiving software process (e.g., for the sending software process to take action on), the sending software process providing information to the receiving software process (e.g., for the receiving software process to take action on), the sending software process requesting action by the receiving software process, or the sending software process providing information to the receiving software process about action taken by the sending software process. Interaction with a device (e.g., using a user interface) will in some circumstances include the transfer and/or receipt of one or more API calls (e.g., multiple API calls) between multiple different software processes (e.g., different portions of an operating system, an application and an operating system, or different applications) via one or more APIs (e.g., via multiple different APIs). For example when an input is detected, the direct sensor data is frequently



processed into one or more input events that are provided (e.g., via an API) to a receiving software process that makes some determination based on the input events, and then sends (e.g., via an API) information to a software process to perform an operation (e.g., change a device state and/or user interface) based on the determination. While a determination and an operation performed in response could be made by the same software process, alternatively the determination could be made in a first software process and relayed (e.g., via an API) to a second software process, that is different from the first software process, that causes the operation to be performed by the second software process. Alternatively, the second software process could relay instructions (e.g., via an API) to a third software process that is different from the first software process and/or the second software process to perform the operation. It should be understood that some or all user interactions with a computer system could involve one or more API calls within a step of interacting with the computer system (e.g., between different software components of the computer system or between a software component of the computer system and a software component of one or more remote computer systems). It should be understood that some or all user interactions with a computer system could involve one or more API calls between steps of interacting with the computer system (e.g., between different software components of the computer system or between a software component of the computer system and a software component of one or more remote computer systems).

[0085] In some embodiments, the application can be any suitable type of application, including, for example, one or more of: a browser application, an application that functions as an execution environment for plug-ins, widgets or other applications, a fitness application, a health application, a digital payments application, a media application, a social network application, a messaging application, and/or a maps application.

[0086] In some embodiments, the application is an application that is pre-installed on the first computer system at purchase (e.g., a first party application). In some embodiments, the application is an application that is provided to the first computer system via an operating system update file (e.g., a first party application). In some embodiments, the application is an application that is provided via an application store. In some embodiments, the application store is pre-installed on the first computer system at purchase (e.g., a first-party application store) and allows download of one or more applications. In some embodiments, the application store is a third-party application store (e.g., an application store that is provided by another device, downloaded via a network, and/or read from a storage device). In some embodiments, the application is a third-party application (e.g., an app that is provided by an application store, downloaded via a network, and/or read from a storage device). In some embodiments, the application controls the first computer system to perform method **300** (FIG. 3), method **600** (FIG. 6), method **800** (FIG. 8), method **900** (FIG. 9), method **1100** (FIG. 11), and/or method **1300** (FIG. 13) by calling an application programming interface (API) provided by the system process using one or more parameters.

[0087] In some embodiments, exemplary APIs provided by the system process include one or more of: a pairing API (e.g., for establishing secure connection, e.g., with an accessory), a device detection API (e.g., for locating nearby devices, e.g., media devices and/or smartphone), a payment API, a UIKit API (e.g., for generating user interfaces), a location detection API, a locator API, a maps API, a health sensor API, a sensor API, a messaging API, a push notification API, a streaming API, a collaboration API, a video conferencing API, an application store API, an advertising services API, a web browser API (e.g., WebKit API), a vehicle API, a networking API, a WiFi API, a Bluetooth API, an NFC API, a UWB API, a fitness API, a smart home API, contact transfer API, a photos API, a camera API, and/or an image processing API.

[0088] In some embodiments, at least one API is a software module (e.g., a collection of computer-readable instructions) that provides an interface that allows a different module (e.g., API calling module) to access and use one or more functions, methods, procedures, data structures, classes, and/or other services provided by an implementation module of the system process. The API can

define one or more parameters that are passed between the API calling module and the implementation module. In some embodiments, API **1190** defines a first API call that can be provided by AP I-calling module **1180**. The implementation module is a system software module (e.g., a collection of computer-readable instructions) that is constructed to perform an operation in response to receiving an API call via the API. In some embodiments, the implementation module is constructed to provide an API response (via the API) as a result of processing an API call. In some embodiments, the implementation module is included in the device (e.g., **1150**) that runs the application. In some embodiments, the implementation module is included in an electronic device that is separate from the device that runs the application.

[0089] FIGS. 2A-2Q illustrate example techniques for displaying user interfaces based on motion. The techniques can be used to make motion more comfortable for a person. Some people experience discomfort such as motion sickness or simulation sickness when there is a disconnect between the motion that the person is physically experiencing and motion that the person perceives through sight and/or hearing. For example, a person may experience motion sickness when looking at a display and/or using an electronic device such as a smartphone, laptop computer, smartwatch, or tablet computer while riding in a car because the person feels the motion of the car but is not looking at the movement of the surrounding environment. As another example, a person may experience simulation sickness when viewing moving content on a display or content that makes it appear as though the person is moving (e.g., a first-person perspective in a virtual environment) when the person is not physically moving. In some embodiments, the techniques described can help with motion comfort while a user is viewing and/or interacting with content displayed on an electronic device.

[0090] FIG. 2A illustrates computer system **200** with display **202**. In FIG. 2A, content **204** and dynamic element **206** are displayed. In the embodiment illustrated in FIG. 2A, content **204** includes system status indicators (such as an indication of time, a cellular status indicator, a Wi-Fi status indicator, and a battery status indicator) and a user interface of a web browser application. The user interface of the web browser application includes content of a web page, controls for navigating and sharing a web page, and a text field for entering a web address and/or performing a search function. In some embodiments, the system status indicators are part of the user interface of the web browser application. In some embodiments, content **204** includes a user interface of a different application, a watch face user interface (e.g., on a smartwatch), and/or a system user interface (e.g., a desktop user interface, a home screen, a settings user interface, and/or an application springboard that includes application icons for launching and/or opening applications).

[0091] In the embodiment illustrated in FIG. 2A, dynamic element **206** includes a set of graphical elements **206a1**, **206a2**, **206b1**, **206b2**, **206c1**, **206c2**, **206d1**, and **206d2** (collectively referred to as graphical elements **206a1-206d2** or dynamic element **206**). In some embodiments, dynamic element **206** is a graphical layer (e.g., that is displayed in front of or behind content **204**). Graphical elements **206a1-206d2** are arranged in a rectangular array or grid of horizontal rows and vertical columns. The vertical spacing or distance between rows (e.g., between a center of graphical element **206a1** and a center of graphical element **206b1**) is distance DV. In the embodiment illustrated in FIG. 2A, the spacing between rows is consistent, with each graphical element being a constant distance from its adjacent graphical elements (e.g., the distance between a center of graphical element **206a1** and a center of graphical element **206b1** is the same as the distance between the center of graphical element **206b1** and a center of graphical element **206c1**). In some embodiments, the spacing between rows varies (e.g., the distance between a center of graphical element **206a1** and a center of graphical element **206b1** is different from the distance between the center of graphical element **206b1** and a center of graphical element **206c1**).

[0092] The horizontal spacing or distance between columns (e.g., between the center of graphical element **206a1** and the center of graphical element **206a2**) is distance DH. In some embodiments, the spacing between columns is consistent, with each graphical element being a constant distance

from its adjacent graphical elements (e.g., the distance between a center of graphical element **206a1** and a center of graphical element **206a2** is the same as the distance between the center of graphical element **206a2** and a center of an adjacent graphical element in a column to the right of graphical element **206a2**). In some embodiments, the spacing between columns varies (e.g., the distance between a center of graphical element **206a1** and a center of graphical element **206a2** is different from the distance between the center of graphical element **206a2** and a center of an adjacent graphical element in a column to the right of graphical element **206a2**). In some implementations, the graphical elements are not in columns or rows, but are variably spaced or patterned across the user interface (e.g., in a diagonal pattern or in a random pattern).

[0093] Dynamic element **206** is affected by detected motion such that dynamic element **206** is displayed (e.g., appears), moves, and/or changes appearance on display **202** in response to and/or in accordance with detected motion. In some embodiments, dynamic element **206** moves based on motion of a vehicle (e.g., a vehicle in which (or on which) computer system **200** or a user of computer system **200** is located), motion of a user of computer system **200**, motion of computer system **200** itself, and/or virtual or simulated motion (e.g., motion that the user is intended to perceive, but does not physically experience). In some embodiments, computer system **200** is in or on a vehicle such as, for example, a car, bus, truck, train, bike, motorcycle, boat, plane, golf cart, and/or all-terrain vehicle (ATV). In some embodiments, computer system **200** displays dynamic element **206** in accordance with a determination that computer system **200** is in a vehicle (e.g., computer system **200** does not display dynamic element **206** when computer system **200** is not in a vehicle).

[0094] In some embodiments, various characteristics of dynamic element **206** are variable and/or configurable. For example, in some embodiments, the brightness, size, transparency, number, pattern, spacing, and/or shape of the graphical elements of dynamic element **206** change based on detected motion. For example, the size, brightness, and/or opacity of the graphical elements of dynamic element **206** vary (e.g., increase or decrease) with the magnitude of motion (e.g., velocity and/or acceleration). In some embodiments, the brightness, size, transparency, number, pattern, spacing, and/or shape of the graphical elements are user configurable (e.g., are displayed and/or can be changed based on user-selectable settings).

[0095] In FIG. 2A, dynamic element **206** is in a neutral state because there is no motion affecting dynamic element **206**. In FIG. 2A (e.g., in the neutral state), dynamic element **206** is offset horizontally from the left side of display **202** by distance **X1** and offset vertically from the top of display **202** by distance **Y1**. In some embodiments, computer system **200** does not display dynamic element **206** when there is no motion, and displays dynamic element **206** and/or increases an opacity of dynamic element **206** in response to detecting motion.

[0096] In FIG. 2B, motion represented by arrow **208a** (also referred to as motion **208a**) is detected. In some embodiments, computer system **200** detects motion **208a**. In some embodiments, a computer system and/or one or more sensors that are external to and/or separate from computer system **200** detect motion **208a** and transmit data and/or information associated with motion **208a** to computer system **200**. In some embodiments, the computer system and/or one or more sensors that detect motion **208a** transmit the data and/or information associated with motion **208a** to a server, which transmits the data and/or information to computer system **200**.

[0097] As shown in FIG. 2B, dynamic element **206** increases in opacity (e.g., becomes darker and/or more opaque) and moves (e.g., changes location on display **202**) based on motion **208a** (e.g., in response to detecting motion **208a** or in response to receiving data representing motion **208a**). In FIG. 2B, motion **208a** includes a change in direction (e.g., acceleration) forward (or upward) and to the left relative to the position and/or orientation of computer system **200**. Based on motion **208a**, dynamic element **206** moves in a direction opposite of the direction of motion **208a**. Accordingly, compared to the position of dynamic element **206** in FIG. 2A, dynamic element **206** moves down due to the forward component of motion **208a** and to the right due to the leftward

component of motion **208a**. In particular, because of the forward (upward) component of motion **208a**, the vertical offset of dynamic element **206** from the top side of display **202** has increased from distance **Y1** in FIG. **2A** to distance **Y2** in FIG. **2B** (where **Y2** is greater than **Y1**). Similarly, because of the leftward component of motion **208a**, the horizontal offset of dynamic element **206** from the left side of display **202** has increased from distance **X1** in FIG. **2A** to distance **X2** in FIG. **2B** (where **X2** is greater than **X1**). In this way, dynamic element **206** simulates the perceived force on a user due to motion **208a**. For example, when a platform on which a user is located accelerates forward and to the left, the user feels as though they are being pushed backward and to the right. [0098] In FIG. **2C**, motion represented by arrow **208b** (also referred to as motion **208b**) is detected. Motion **208b** can be detected in the same manner as motion **208a** described above with reference to FIG. **2B**, and data representing or associated with motion **20b** can be transmitted and/or received in the same manner as data representing or associated with motion **208a** described with reference to FIG. **2B**. As shown in FIG. **2C**, dynamic element **206** becomes opaquer (e.g., compared to FIG. **2A**) and moves (e.g., changes location on display **202**) based on motion **208b** (e.g., in response to detecting motion **208b** or in response to receiving data representing motion **208b**).

[0099] In FIG. **2C**, motion **208b** includes a change in direction (e.g., acceleration) backward (or downward) and to the right relative to the position and/or orientation of computer system **200** (e.g., in the opposite direction of motion **208a**). Based on motion **208b**, dynamic element **206** moves in a direction opposite of the direction of motion **208b**. Accordingly, compared to the position of dynamic element **206** in FIG. **2A**, dynamic element **206** moves up due to the backward (downward) component of motion **208b** and to the left due to the rightward component of motion **208b**. In particular, because of the backward component of motion **208b**, the vertical offset of dynamic element **206** from the top side of display **202** has decreased from distance **Y1** in FIG. **2A** to distance **Y3** in FIG. **2C** (where **Y3** is less than **Y1**). Similarly, because of the rightward component of motion **208b**, the horizontal offset of dynamic element **206** from the left side of display **202** has decreased from distance **X1** in FIG. **2A** to distance **X3** in FIG. **2C** (where **X3** is less than **X1**). In this way, dynamic element **206** simulates the perceived force on a user due to motion **208b**. For example, when a platform on which a user is located accelerates backward and to the right, the user feels as though they are being pushed forward and to the left.

[0100] In some embodiments, the magnitude of the change dynamic element **206** (e.g., the change in position, opaqueness, brightness, and/or size) of dynamic element **206** is proportional to the magnitude of the motion. For example, in response to motion in the direction of motion **208a**, but with greater magnitude, dynamic element **206** becomes opaquer and moves in the same direction, but by a greater amount, than as shown in FIG. **2B** (e.g., **X2** and **Y2** are greater than as shown in FIG. **2B**).

[0101] In some embodiments, the position and/or movement of dynamic element **206** is independent from the display of content **204**. For example, in FIGS. **2B** and **2C**, dynamic element **206** moves based on motion **208a** and motion **208b** without affecting content **204** (e.g., content **204** does not change or move in FIGS. **2B** and **2C** based on motion **208a**, motion **208b**, or the movement of dynamic element **206**).

[0102] Conversely, a user can change and/or navigate content **204** without affecting the position and/or movement of dynamic element **206**. FIG. **2D** illustrates content **204** and dynamic element **206** in the same state as in FIG. **2A**. In FIG. **2D**, computer system **200** detects input **210a** corresponding to a request to navigate (e.g., scroll) content **204**. In response to detecting input **210a**, computer system **200** scrolls content **204** and maintains the position of dynamic element **206**, as shown in FIG. **2E** (e.g., dynamic element **206** has the same position in FIG. **2E** as in FIG. **2D**). In this way, dynamic element **206** is independent from content **204**.

[0103] In FIG. **2E**, computer system **200** detects input **210b** (e.g., selection of home button **212**) corresponding to a request to navigate to a home screen (e.g., to close (or move to the background) the web browsing application displayed in FIG. **2E**). In response to detecting input **210b**, computer

system **200** displays home screen **214** and maintains the position of dynamic element **206**, as shown in FIG. 2F (e.g., dynamic element **206** has the same position in FIG. 2F as in FIG. 2E). In this way, dynamic element **206** is independent from the content displayed on display **202** (e.g., graphical objects and features other than dynamic element **206**).

[0104] FIGS. 2G-2L illustrate example techniques for making motion more comfortable. The techniques described can make a user more comfortable while the user is viewing and/or interacting with content displayed on an electronic device. In FIG. 2G, computer system **200** displays content **204** (e.g., as in FIGS. 2A-2E) and dynamic element **215**. In some embodiments, dynamic element **215** moves in a manner analogous to dynamic element **206** described with reference to FIGS. 2A-2F. In some embodiments, the movement of dynamic element **215** simulates the movement of a mass on a spring. Dynamic element **215** includes a single graphical element (e.g., a square). In some embodiments, dynamic element **215** is a circle, triangle, star, cube, pyramid, or sphere.

[0105] Dynamic element **215** is affected by detected motion such that dynamic element **215** moves on display **202** in response to and/or in accordance with detected motion. In some embodiments, dynamic element **215** moves based on motion of a vehicle (e.g., a vehicle in which (or on which) computer system **200** or a user of computer system **200** is located), motion of a user of computer system **200**, motion of computer system **200** itself, and/or virtual or simulated motion (e.g., motion that the user is intended to perceive, but does not physically experience).

[0106] In FIG. 2G, dynamic element **215** is in a neutral state because there is no motion affecting the element. In FIG. 2G (e.g., in the neutral state), dynamic element **215** is offset horizontally from the left side of display **202** by distance **X4** (e.g., half of the length of display **202** in the horizontal direction) and offset vertically from the top of display **202** by distance **Y4** (e.g., half of the length of display **202** in the vertical direction).

[0107] In FIG. 2H, motion represented by arrow **208c** (also referred to as motion **208c**) is detected. Motion **208c** can be detected in the same manner as motion **208a** and/or motion **208b** described above with reference to FIGS. 2B and 2C, and data representing or associated with motion **208c** can be transmitted and/or received in the same manner as data representing or associated with motion **208a** and/or motion **208b** described with reference to FIGS. 2B and 2C.

[0108] As shown in FIG. 2H, dynamic element **215** moves (e.g., changes location on display **202**) based on motion **208c** (e.g., in response to detecting motion **208c** or in response to receiving data representing motion **208c**). In FIG. 2H, motion **208c** includes a change in direction (e.g., acceleration) forward (or upward) and to the left relative to the position and/or orientation of computer system **200**. Based on motion **208c**, dynamic element **215** moves in a direction opposite of the direction of motion **208c**. Accordingly, compared to the position of dynamic element **215** in FIG. 2G, dynamic element **215** moves down due to the forward component of motion **208c** and to the right due to the leftward component of motion **208c**. In particular, because of the forward (upward) component of motion **208c**, the vertical offset of dynamic element **215** from the top side of display **202** has increased from distance **Y4** in FIG. 2G to distance **Y5** in FIG. 2H (where **Y5** is greater than **Y4**). Similarly, because of the leftward component of motion **208c**, the horizontal offset of dynamic element **215** from the left side of display **202** has increased from distance **X4** in FIG. 2G to distance **X5** in FIG. 2H (where **X5** is greater than **X4**). In this way, dynamic element **215** simulates the perceived force on a user due to motion **208c**. For example, when a platform on which a user is located accelerates forward and to the left, the user feels as though they are being pushed backward and to the right.

[0109] In FIG. 2I, motion represented by arrow **208d** (also referred to as motion **208d**) is detected. Motion **208d** can be detected in the same manner as motion **208a**, motion **208b**, and/or motion **208c** described above, and data representing or associated with motion **208d** can be transmitted and/or received in the same manner as data representing or associated with motion **208a**, motion **208b**, and/or motion **208c** described above.

[0110] As shown in FIG. 2I, dynamic element **215** moves (e.g., changes location on display **202**) based on motion **208d** (e.g., in response to detecting motion **208d** or in response to receiving data representing motion **208d**). In FIG. 2I, motion **208d** includes a change in direction (e.g., acceleration) backward (or downward) and to the right relative to the position and/or orientation of computer system **200** (e.g., in the opposite direction of motion **208c**). Based on motion **208d**, dynamic element **215** moves in a direction opposite of the direction of motion **208c**. Accordingly, compared to the position of dynamic element **215** in FIG. 2G, dynamic element **215** moves up due to the backward (downward) component of motion **208d** and to the left due to the rightward component of motion **208d**. In particular, because of the backward component of motion **208d**, the vertical offset of dynamic element **215** from the top side of display **202** has decreased from distance **Y4** in FIG. 2G to distance **Y6** in FIG. 2I (where **Y6** is less than **Y4**). Similarly, because of the rightward component of motion **208d**, the horizontal offset of dynamic element **215** from the left side of display **202** has decreased from distance **X4** in FIG. 2G to distance **X6** in FIG. 2I (where **X6** is less than **X4**). In this way, dynamic element **215** simulates the perceived force on a user due to motion **208d**. For example, when a platform on which a user is located accelerates backward and to the right, the user feels as though they are being pushed forward and to the left. [0111] In some embodiments, the magnitude of the change in position of dynamic element **215** is proportional to the magnitude of the motion. For example, in response to motion in the direction of motion **208c**, but with greater magnitude, dynamic element **215** moves in the same direction, but by a greater amount, than as shown in FIG. 2H (e.g., **X5** is greater than as shown in FIG. 2H and **Y5** is less than as shown in FIG. 2H).

[0112] In some embodiments, the position and/or movement of dynamic element **215** is independent from the display of content **204**. For example, in FIGS. 2H and 2I, dynamic element **215** moves based on motion **208c** and motion **208d** without affecting content **204** (e.g., content **204** does not change or move in FIGS. 2H and 2I based on motion **208c**, motion **208d**, or the movement of dynamic element **215**).

[0113] Conversely, a user can change and/or navigate content **204** without affecting the position and/or movement of dynamic element **215**. FIG. 2J illustrates content **204** and dynamic element **215** in the same state as in FIG. 2G. In FIG. 2J, computer system **200** detects input **210c** corresponding to a request to navigate (e.g., scroll) content **204**. In response to detecting input **210c**, computer system **200** scrolls content **204** and maintains the position of dynamic element **215**, as shown in FIG. 2K (e.g., dynamic element **215** has the same position in FIG. 2K as in FIG. 2J). In this way, dynamic element **215** is independent from content **204**.

[0114] In FIG. 2K, computer system **200** detects input **210d** (e.g., selection of home button **212**) corresponding to a request to navigate to a home screen (e.g., to close (or move to the background) the web browsing application displayed in FIG. 2K). In response to detecting input **210d**, computer system **200** displays home screen **214** and maintains the position of dynamic element **215**, as shown in FIG. 2L (e.g., dynamic element **215** has the same position in FIG. 2L as in FIG. 2K). In this way, dynamic element **215** is independent from the content displayed on display **202** (e.g., graphical objects and features other than dynamic element **215**).

[0115] FIGS. 2M-2O illustrate example techniques for mitigating discomfort caused by motion. The techniques described can help a user feel comfortable while viewing and/or interacting with content displayed on an electronic device.

[0116] In FIG. 2M, content **204** (e.g., the content shown in FIGS. 2A-2L), dynamic element **216**, and dynamic element **218** are displayed. Dynamic element **216** includes a set of six graphical elements **216a**, **216b**, **216c**, **216d**, **216e**, and **216f** (collectively referred to as graphical elements **216a-216f** or dynamic element **216**). Graphical elements **216a-216f** are arranged horizontally (e.g., along a horizontal line). In some embodiments, dynamic element **216** includes fewer than six graphical elements (e.g., 3, 4, or 5 graphical elements) arranged horizontally. In some embodiments, dynamic element **216** includes more than six graphical elements (e.g., 7, 8, 9, 10, 11,

or 12 graphical elements) arranged horizontally.

[0117] Graphical elements **216a-216f** can have a first visual state (e.g., filled in, highlighted, a first color, solid outline, and/or a first pattern) or a second visual state (e.g., not filled in, not highlighted, a second color (different from the first color), dashed outline, a second pattern (different from the first pattern), and/or not displayed), where the first visual state is different from (e.g., visually distinguishable from) the second visual state. For example, in FIG. 2M, graphical element **216a**, graphical element **216b**, and graphical element **216c** have a first visual state (e.g., filled in and/or solid outline), while graphical element **216d**, graphical element **216e**, and graphical element **216f** have a second visual state (e.g., not filled in, dashed outline, and/or not displayed). In some embodiments, graphical elements **216a-216f** can have more than two different visual states (e.g., a third visual state or a transitional visual state when changing from the first visual state to the second visual state).

[0118] Dynamic element **216** is affected by detected motion (e.g., motion along the horizontal direction) such that the visual state of dynamic element **216** changes (e.g., by changing the visual state of one or more of graphical elements **216a-216f**) in response to and/or in accordance with detected motion. In some embodiments, dynamic element **216** changes visual states based on motion of a vehicle (e.g., a vehicle in which (or on which) computer system **200** or a user of computer system **200** is located), motion of a user of computer system **200**, motion of computer system **200** itself, and/or virtual or simulated motion (e.g., motion that the user is intended to perceive, but does not physically experience).

[0119] In FIG. 2M, dynamic element **216** is in a neutral state because there is no motion affecting dynamic element **216**. In FIG. 2M (e.g., in the neutral state), the graphical elements on the left side (e.g., left half) of dynamic element **216** (e.g., graphical elements **216a-216c**) have a first visual state, and the graphical elements on the right side (e.g., right half) of dynamic element **216** (e.g., graphical elements **216d-216f**) have a second visual state.

[0120] Dynamic element **218** includes a set of six graphical elements **218a**, **218b**, **218c**, **218d**, **218e**, and **218f** (collectively referred to as graphical elements **218a-218f** or dynamic element **218**). Graphical elements **218a-218f** are arranged vertically (e.g., along a vertical line). In some embodiments, dynamic element **218** includes fewer than six graphical elements (e.g., 3, 4, or 5 graphical elements) arranged vertically. In some embodiments, dynamic element **218** includes more than six graphical elements (e.g., 7, 8, 9, 10, 11, or 12 graphical elements) arranged vertically.

[0121] Graphical elements **218a-218f** can have a first visual state (e.g., filled in, highlighted, a first color, solid outline, and/or a first pattern) or a second visual state (e.g., not filled in, highlighted, a second color (different from the first color), dashed outline, a second pattern (different from the first pattern), and/or not displayed), where the first visual state is different from (e.g., visually distinguishable from) the second visual state. For example, in FIG. 2M, graphical element **218a**, graphical element **218b**, and graphical element **218c** have a first visual state, while graphical element **218d**, graphical element **218e**, and graphical element **218f** have a second visual state. In some embodiments, graphical elements **218a-218f** can have more than two different visual states (e.g., a third visual state or a transitional visual state when changing from the first visual state to the second visual state).

[0122] Dynamic element **218** is affected by detected motion (e.g., motion along the forward-backward direction) such that the visual state of dynamic element **218** changes (e.g., by changing the visual state of one or more of graphical elements **218a-218f**) in response to and/or in accordance with detected motion. In some embodiments, dynamic element **218** changes visual states based on motion of a vehicle (e.g., a vehicle in which (or on which) computer system **200** or a user of computer system **200** is located), motion of a user of computer system **200**, motion of computer system **200** itself, and/or virtual or simulated motion (e.g., motion that the user is intended to perceive, but does not physically experience).

[0123] In FIG. 2M, dynamic element **218** is in a neutral state because there is no motion affecting

dynamic element **218**. In FIG. 2M (e.g., in the neutral state), the graphical elements on the lower side (e.g., lower half) of dynamic element **216** (e.g., graphical elements **216a-216c**) have a first visual state (e.g., filled in and/or solid outline), and the graphical elements on the upper side (e.g., upper half) of dynamic element **218** (e.g., graphical elements **218d-218f**) have a second visual state (e.g., not filled in, dashed outline, and/or not displayed).

[0124] In FIG. 2N, motion represented by arrow **208e** (also referred to as motion **208e**) is detected. Motion **208e** can be detected in the same manner as motion **208a**, motion **208b**, motion **208c**, and/or motion **208d** described above, and data representing or associated with motion **208e** can be transmitted and/or received in the same manner as data representing or associated with motion **208a**, motion **208b**, motion **208c**, and/or motion **208d** described above. As shown in FIG. 2N, dynamic element **216** and dynamic element **218** are displayed in a state (e.g., changed state) based on motion **208e** (e.g., in response to detecting motion **208e** or in response to receiving data representing motion **208e**). In FIG. 2N, motion **208e** includes a change in direction (e.g., acceleration) forward (or upward) and to the left relative to the position and/or orientation of computer system **200**.

[0125] Based on motion **208e**, graphical elements **216a-216e** are displayed with the first visual state, and graphical element **216f** is displayed with the second visual state. Accordingly, due to motion **208e**, graphical elements **216d** and **216e** have changed from the second visual state to the first visual state (e.g., the first visual state has “moved” to the right, in the opposite direction of the lateral component of motion **208e**), compared to FIG. 2M. Accordingly, compared to the state of dynamic element **216** in FIG. 2M, the right side of dynamic element **216** includes a graphical element (e.g., graphical element **216d**) that has the first visual state due to the leftward component of motion **208e**. In particular, because of the leftward component of motion **208e**, the majority of dynamic element **216** (e.g., the entire left half and a left portion of the right half of dynamic element **216**) has the first visual state. In this way, dynamic element **216** simulates the perceived force on a user due to motion **208e**. For example, when a platform on which a user is located accelerates at least partially to the left, the user feels as though they are being pushed to the right.

[0126] Based on motion **208e**, graphical elements **218a-218b** are displayed with the first visual state (e.g., filled in and/or solid outline), and graphical elements **218c-218f** are displayed with the second visual state (e.g., not filled in, dashed outline, and/or not displayed). Accordingly, due to motion **208e**, graphical element **218c** has changed from the first visual state to the second visual state (e.g., the first visual state has “moved” down, in the opposite direction of the vertical component of motion **208e**), compared to FIG. 2M. Accordingly, compared to the state of dynamic element **218** in FIG. 2M, the lower side of dynamic element **218** includes a graphical element (e.g., graphical element **218c**) that has the second visual state due to the forward component of motion **208e**. In particular, because of the forward component of motion **208e**, the majority of dynamic element **218** (e.g., the entire upper half and a upper-most portion of the lower half of dynamic element **218**) has the second visual state. In this way, dynamic element **218** simulates the perceived force on a user due to motion **208e**. For example, when a platform on which a user is located accelerates at least partially forward (or upward), the user feels as though they are being pushed back (or down).

[0127] In FIG. 2O, motion represented by arrow **208f** (also referred to as motion **208f**) is detected. Motion **208f** can be detected in the same manner as motion **208a**, motion **208b**, motion **208c**, motion **208d**, and/or motion **208e** described above, and data representing or associated with motion **208f** can be transmitted and/or received in the same manner as data representing or associated with motion **208a**, motion **208b**, motion **208c**, motion **208d**, and/or motion **208e** described above.

[0128] As shown in FIG. 2O, dynamic element **216** and dynamic element **218** are displayed in a state (e.g., changed state) based on motion **208f** (e.g., in response to detecting motion **208f** or in response to receiving data representing motion **208f**). In FIG. 2O, motion **208f** includes a change in direction (e.g., acceleration) backward (or downward) and to the right relative to the position



and/or orientation of computer system **200**.

[0129] Based on motion **208f**, graphical elements **216a-216b** are displayed with the first visual state, and graphical elements **216c-216f** are displayed with the second visual state. Accordingly, due to motion **208f**, graphical element **216c** has changed from the first visual state to the second visual state (e.g., the first visual state has “moved” to the left, in the opposite direction of the lateral component of motion **208f**), compared to FIG. 2M. Accordingly, compared to the state of dynamic element **216** in FIG. 2M, the left side of dynamic element **216** includes a graphical element (e.g., graphical element **216c**) that has the second visual state due to the rightward component of motion **208f**. In particular, because of the rightward component of motion **208f**, the minority of dynamic element **216** (e.g., only a portion of the left half of dynamic element **216**) has the first visual state. In this way, dynamic element **216** simulates the perceived force on a user due to motion **208f**. For example, when a platform on which a user is located accelerates at least partially to the right, the user feels as though they are being pushed to the left.

[0130] Based on motion **208f**, graphical elements **218a-218e** are displayed with the first visual state, and graphical element **218f** is displayed with the second visual state. Accordingly, due to motion **208f**, graphical elements **218d-218e** have changed from the second visual state to the first visual state (e.g., the first visual state has “moved” up, in the opposite direction of the vertical component of motion **208f**), compared to FIG. 2M. Accordingly, compared to the state of dynamic element **218** in FIG. 2M, the upper side of dynamic element **218** includes a graphical element (e.g., graphical elements **218d-218e**) that has the first visual state due to the backward component of motion **208f**. In particular, because of the backward component of motion **208f**, the majority of dynamic element **218** (e.g., the entire lower half and a lower-most portion of the upper half of dynamic element **218**) has the first visual state. In this way, dynamic element **218** simulates the perceived force on a user due to motion **208f**. For example, when a platform on which a user is located accelerates at least partially backward (or downward), the user feels as though they are being pushed forward (or up).

[0131] In some embodiments, the magnitude of the change in state of dynamic element **216** and/or dynamic element **218** is proportional to the magnitude of the motion. For example, in response to motion in the direction of motion **208e**, but with greater magnitude, the state of dynamic element **216** and/or dynamic element **218** changes in the same direction, but by a greater amount, than as shown in FIG. 2N (e.g., the fill state is changed for graphical elements **216d**, **216e**, **216f**, **218a**, **218b**, and **218c**).

[0132] Similar to dynamic element **206** described with reference to FIGS. 2D-2F, in some embodiments, dynamic element **216** and/or dynamic element **218** is independent from other displayed content, such as content **204**. For example, content **204** can be navigated, modified, scrolled, and/or changed (e.g., as shown in FIGS. 2D-2F) independently of (e.g., without affecting) dynamic element **216** and/or dynamic element **218**.

[0133] In some embodiments, the state of dynamic element **216** is independent from the display of content **204**. For example, in FIGS. 2N and 2O, dynamic element **216** changes state based on motion **208e** and motion **208f** without affecting content **204** (e.g., content **204** does not change or move in FIGS. 2N and 2O based on motion **208e**, motion **208f**, or the change in state of dynamic element **216**). Similarly, the state of dynamic element **218** is independent from the display of content **204**. For example, in FIGS. 2N and 2O, dynamic element **218** changes state based on motion **208e** and motion **208f** without affecting content **204** (e.g., content **204** does not change or move in FIGS. 2N and 2O based on motion **208e**, motion **208f**, or the change in state of dynamic element **218**).

[0134] Conversely, a user can change and/or navigate content **204** without affecting the state of dynamic element **216** and/or dynamic element **218**. For example, in response to detecting a request (e.g., input **210a** shown in FIG. 2D) to navigate content **204**, computer system **200** scrolls content **204** (e.g., as described with reference to FIGS. 2D and 2E) and maintains the state of dynamic

element **216** and/or dynamic element **218**. As another example, in response to detecting a request (e.g., selection of home button **212**) to navigate to a different user interface (e.g., home screen **214**, a user interface of a different application, a system user interface, and/or a watch face user interface), computer system displays a different user interface (e.g., as described with reference to FIGS. 2E and 2F) without changing the state of the dynamic element **216** and/or dynamic element **218**. In this way, dynamic element **216** and/or dynamic element **218** are independent from the content displayed on display **202** (e.g., graphical objects and features other than dynamic element **216** and/or dynamic element **218**).

[0135] In some embodiments, characteristics of dynamic elements **216** and/or **218** are configurable. These characteristics can include such as the size, shape, spacing, and/or color of the individual elements of dynamic elements **216** and/or **218**.

[0136] FIGS. 2P-2Q illustrate example techniques for mitigating discomfort caused by motion. The techniques described can help with motion comfort while a user is viewing and/or interacting with content displayed on an electronic device.

[0137] In FIG. 2P, content **204** (e.g., the content shown in FIGS. 2A-2O) and dynamic element **220** are displayed. Dynamic element **220** includes first portion **220a** (e.g., an upper portion), second portion **220b** (e.g., a lower portion), and boundary **220c** (e.g., a line) between first portion **220a** and second portion **220b**. In some embodiments, first portion **220a**, second portion **220b**, and boundary **220c** are included in a circular region (e.g., as shown in FIGS. 2P and 2Q) or a region that has another shape (e.g., rectangular, square, or triangular). In some embodiments, dynamic element **220** is overlaid on content **204** (e.g., as shown in FIG. 2P). In some embodiments, dynamic element **220** is displayed behind content **204** (e.g., content **204** is overlaid on dynamic element **220** and/or dynamic element **220** is displayed in a background and/or as a background element).

[0138] In some embodiments, dynamic element **220** is displayed at or near the bottom of display **202** (e.g., as shown in FIG. 2P). In some embodiments, dynamic element **220** is displayed at or near the top of display **202**. In some embodiments, dynamic element **220** is displayed at or near the middle of display **202** (e.g., relative to the top and bottom of display **202**). In some embodiments, dynamic element **220** is displayed at or near the left side of display **202**. In some embodiments, dynamic element **220** is displayed at or near the right side of display **202** e.g., as shown in FIG. 2P). In some embodiments, dynamic element **220** is displayed at or near the middle of display **202** (e.g., relative to the left side and right side of display **202**).

[0139] Dynamic element **220** is affected by detected motion such that the position and/or orientation of boundary **220c** changes in response to and/or in accordance with detected motion. In some embodiments, dynamic element **220** according to a physical model that simulates the motion of water in a container as the container is moved. The water can “slosh” around according to the motion.

In some embodiments, dynamic element **220** changes based on motion of a vehicle (e.g., a vehicle in which (or on which) computer system **200** or a user of computer system **200** is located), motion of a user of computer system **200**, motion of computer system **200** itself, and/or virtual or simulated motion (e.g., motion that the user is intended to perceive, but does not physically experience). In FIG. 2P, dynamic element **220** is in a neutral state because there is no motion affecting dynamic element **220**. In FIG. 2P (e.g., in the neutral state), boundary **220c** is horizontal and in the middle of dynamic element **220** (from top to bottom).

[0140] FIG. 2Q illustrates example motions **222a-222g** and corresponding states **224a-224g** of dynamic element **220**. Motion **222a** corresponds to motion with constant velocity (e.g., no acceleration). In response to motion **222a**, dynamic element **220** has state **224a** (e.g., the neutral state) described with reference to FIG. 2P. Motion **222b** corresponds to breaking (e.g., slowing down) motion with decreasing velocity (e.g., deceleration or backward acceleration solely in the backward or longitudinal direction). In response to motion **222b**, dynamic element **220** has state **224b** in which boundary **220c** is higher (e.g., boundary **220c** is more towards the top of dynamic

element **220**; first portion **220a** is smaller; second portion **220b** is larger) compared to state **224a** (e.g., the “water” has sloshed forward due to the deceleration). Because there is no lateral motion, boundary **220c** is horizontal in state **224b**.

[0141] Motion **222c** corresponds to forward, upward, or longitudinal acceleration (e.g., speeding up solely in the longitudinal direction). In response to motion **222c**, dynamic element **220** has state **224c** in which boundary **220c** is lower (e.g., boundary **220c** is more towards the bottom of dynamic element **220**; first portion **220a** is larger; second portion **220b** is smaller) compared to state **224a** (e.g., the “water” has sloshed backward due to the forward acceleration). Because there is no lateral motion, boundary **220c** is horizontal in state **224c**.

[0142] Motion **222d** corresponds to a first amount of lateral acceleration to the left (e.g., a slight left turn; acceleration solely in the leftward direction; no longitudinal acceleration). In response to motion **222d**, dynamic element **220** has state **224d** in which boundary **220c** is oriented counterclockwise (e.g., boundary **220c** is tilted or rotated counterclockwise; first portion **220a** is the same size; second portion **220b** is the same size) compared to state **224a** (e.g., the “water” has sloshed upward on the right side of dynamic element **220** and downward on the left side of dynamic element **220**, in the opposite direction or away from the direction of acceleration). Because there is no longitudinal acceleration, the size of first portion **220a** and the size of second portion **220b** are the same as in state **224a** (e.g., first portion **220a** and second portion **220b** are the same size as one another).

[0143] Motion **222e** corresponds to a second amount of lateral acceleration to the left (e.g., a greater amount of lateral acceleration to the left compared to motion **222d**; a tighter or harder left turn compared to motion **222d**; acceleration solely in the leftward direction; no longitudinal acceleration). In response to motion **222e**, dynamic element **220** has state **224e** in which boundary **220c** is oriented further counterclockwise (e.g., boundary **220c** is tilted or rotated further counterclockwise; first portion **220a** is the same size; second portion **220b** is the same size) compared to state **224e** (e.g., the “water” has sloshed further upward on the right side of dynamic element **220** and further downward on the left side of dynamic element **220**, in the opposite direction or away from the direction of acceleration). Because there is no longitudinal acceleration, the size of first portion **220a** and the size of second portion **220b** are the same as in state **224a** (e.g., first portion **220a** and second portion **220b** are the same size as one another).

[0144] Motion **222f** corresponds to a first amount of lateral acceleration to the right (e.g., a slight right turn; acceleration solely in the rightward direction; no longitudinal acceleration). In response to motion **222f**, dynamic element **220** has state **224f** in which boundary **220c** is oriented clockwise (e.g., boundary **220c** is tilted or rotated clockwise; first portion **220a** is the same size; second portion **220b** is the same size) compared to state **224a** (e.g., the “water” has sloshed upward on the left side of dynamic element **220** and downward on the right side of dynamic element **220**, in the opposite direction or away from the direction of acceleration). Because there is no longitudinal acceleration, the size of first portion **220a** and the size of second portion **220b** are the same as in state **224a** (e.g., first portion **220a** and second portion **220b** are the same size as one another).

[0145] Motion **222g** corresponds to a second amount of lateral acceleration to the right (e.g., a greater amount of lateral acceleration to the right compared to motion **222f**; a tighter or harder right turn compared to motion **222f**; acceleration solely in the leftward direction; no longitudinal acceleration). In response to motion **222g**, dynamic element **220** has state **224g** in which boundary **220c** is oriented further clockwise (e.g., boundary **220c** is tilted or rotated further clockwise; first portion **220a** is the same size; second portion **220b** is the same size) compared to state **224f** (e.g., the “water” has sloshed further upward on the left side of dynamic element **220** and further downward on the right side of dynamic element **220**, in the opposite direction or away from the direction of acceleration). Because there is no longitudinal acceleration, the size of first portion **220a** and the size of second portion **220b** are the same as in state **224a** (e.g., first portion **220a** and second portion **220b** are the same size as one another).

[0146] Similar to dynamic element **206** described with reference to FIGS. 2D-2F, in some embodiments, dynamic element **220** is independent from other displayed content, such as content **204**. For example, content **204** can be navigated, modified, scrolled, and/or changed (e.g., as shown in FIGS. 2D-2F) independently of (e.g., without affecting) dynamic element **220**. In some embodiments, the dynamic element (e.g., dynamic element **206**, **215**, **216**, **218**, and/or **220**) can update concurrently with (but independently) from displayed content. For example, the dynamic element can update in response to motion concurrently while navigating content.

[0147] In some embodiments, the dynamic element (e.g., dynamic element **206**, **215**, **216**, **218**, and/or **220**) is displayed behind other content (e.g., as a background element). For example, in FIGS. 2A-2L, dynamic elements **206** and **215** are displayed behind content **204**. In some embodiments, the dynamic element (e.g., dynamic element **206**, **215**, **216**, **218**, and/or **220**) is displayed in front of other content (e.g., as a foreground element). For example, in FIGS. 2M-2P, dynamic elements **216**, **218**, and **220** are displayed in front of content **204**.

[0148] The user interfaces in FIGS. 2A-2Q are used to illustrate the methods described below, including the methods in FIG. 3. FIG. 3 is a flow diagram that illustrates method **300** for displaying user interfaces based on detected motion according to some embodiments. In some embodiments, method **300** is performed at a computer system (e.g., a desktop computer, a laptop computer, a tablet computer, a smartphone, a smartwatch, a television, a monitor, a head-mounted display system) that is in communication with a display (e.g., a monitor, a touch-sensitive display, a head-mounted display, a three-dimensional display, and/or a projector). Some operations in method **300** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

[0149] At block **302**, a dynamic graphical element (e.g., **206**, **215**, **216**, **218**, and/or **220**) and graphical content (e.g., **204** and/or **214**) are displayed (e.g., concurrently displayed; via a monitor, a touch-screen, a holographic display, and/or a head-mounted display). The dynamic graphical element is displayed in a first state (e.g., the state of **206** in FIG. 2A; the state of **215** in FIG. 2G; the state of **216** and/or **218** in FIG. 2M; and/or the state of **220** in FIG. 2P) (e.g., a static state, a dynamic state, a first position, a first orientation, a first size, a first color, a first shape, a first motion, and/or a first configuration). The graphical content is displayed in a second state (e.g., the state of **204** in FIG. 2A). In some embodiments, the graphical content includes, e.g., a home screen, a messaging application, an email application, a web browser, a word processing application, a presentation application, an audio application, a video application, and/or content thereof). In some embodiments, the second state includes, e.g., a static state, a dynamic state (such as displaying video or scrolling), a second position, a second orientation, a second size, a second color, a second shape, a second motion, and/or a second configuration). In some embodiments, the graphical content is separate and distinct from the dynamic graphical element (e.g., the graphical content does not include the dynamic graphical element, and the dynamic graphical element does not include the graphical content). In some embodiments, manipulating (e.g., scrolling, zooming, panning, closing, and/or navigating) the graphical content does not affect the dynamic graphical element (e.g., does not affect the state of the dynamic graphical element and/or does not cause the dynamic graphical element (or the state of the dynamic graphical element) to change).

[0150] At block **304**, while displaying the graphical content in the second state, the graphical content is displayed in the second state (e.g., the state of **204** in FIG. 2B) (e.g., maintaining the state of the graphical content, maintaining the position, orientation, size, color, shape, motion, and/or configuration of the graphical content) and the dynamic graphical element is displayed (e.g., concurrently with the graphical content in the second state) in a third state (e.g., the state of **204** in FIG. 2B or 2C; the state of **215** in FIG. 2H or 2I; the state of **216** and/or **218** in FIG. 2N or 2O; and/or the state of **220** in FIG. 2Q) (e.g., a static state, a dynamic state, a third position, a third orientation, a third size, a third color, a third shape, a third motion, and/or a third configuration). In some embodiments, the third state is different from the first state (e.g., the position, orientation,

size, color, shape, motion, and/or configuration of the dynamic graphical element is changed; the state of the dynamic graphical element is changed). In some embodiments, the third state (or a difference between the third state and the first state) is based on detected motion (e.g., **208a**, **208b**, **208c**, **208d**, **208e**, **208f**, **222a**, **222b**, **222c**, **222d**, **222e**, **222f**, **222g**, **404a**, **404b**, **404c1**, **404d**, **404e**, **406a**, **406b**, **406c**, **612**, **616**, **618**, **620**, **812**, **814**, **816**, **818**, **820**, and/or **822**) (e.g., speed, velocity, acceleration, rotation, and/or vibration; motion of a vehicle) (e.g., the state of the dynamic graphical element is independent from the state of the graphical content; the state of the graphical content is not (e.g., does not change) based on the movement of the vehicle).

[0151] In some embodiments, in accordance with (or in response to) a determination that the detected motion includes first motion, the third state has a first set of parameters; and in accordance with a determination that the detected motion includes second motion that is different from the first motion, the third state has a second set of parameters that is different from the first set of parameters. In some embodiments, data associated with detected motion is received, and the dynamic graphical element is displayed in the third state (e.g., the state of the dynamic graphical element is changed) in response to receiving the data associated with detected motion. In some embodiments, the method is performed at a computer system such as, e.g., a desktop computer, a laptop computer, a tablet computer, a smartphone, a smartwatch, and/or a headset (e.g., a headset that includes a display and/or speakers; a virtual reality or augmented reality headset).

[0152] In some embodiments, the dynamic graphical element includes a plurality of graphical objects (e.g., **206**) (e.g., blurry circles) that move concurrently with one another. In some embodiments, the plurality of graphical objects are arranged in a two-dimensional array. In some embodiments, the plurality of graphical objects are periodically spaced. In some embodiments, the plurality of graphical objects maintain their positions relative to each other as they change state (e.g., as they move, as they change from the first state to the third state, and/or the entire grid moves together). In some embodiments, the plurality of graphical objects are in an infinite grid (e.g., the plurality of graphical objects do not appear to have a beginning/end in horizontal or vertical direction). In some embodiments, the dynamic graphical element includes a single graphical element (e.g., **215**) (e.g., a circular element and/or a representation of a sphere). In some embodiments, the dynamic graphical element simulates a mass on a spring that is subject to the detected motion. In some embodiments, the dynamic graphical element moves according to a physical model of a mass on a spring.

[0153] In some embodiments, the dynamic graphical element includes a first element (e.g., **216**) (e.g., a set of sub-elements, a set of dots, and/or a bar) that is aligned along a first display dimension (e.g., a first dimension relative to a display; horizontally on display **202** as oriented in FIG. 2M), and wherein the first element has a first visual state (e.g., color or fill state; the state of **216** in FIG. 2M, 2N, or 2O) along the first display dimension that is based on a component of the detected motion in a first physical dimension. In some embodiments, the dynamic graphical element includes a second element (e.g., **218**) (e.g., a set of sub-elements, a set of dots, and/or a bar) that is aligned along a second display dimension (e.g., a second dimension relative to a display; vertically on display **202** as oriented in FIG. 2M) that is different from (e.g., perpendicular to) the first display dimension, and wherein the second element has a second visual state (e.g., color or fill state) along the second display dimension that is based on a component of the detected motion in a second physical dimension that is different from (e.g., perpendicular to) the first physical dimension.

[0154] In some embodiments, the dynamic graphical element (e.g., **220**) includes a boundary (e.g., **220c**), wherein a position (e.g., spatial location and/or angular orientation) of the boundary is based on the detected motion. In some embodiments, the boundary is between a first portion of the dynamic graphical element and a second portion of the dynamic graphical element. In some embodiments, the boundary is a straight line. In some embodiments, a spatial position (e.g., height) of the boundary is based on a component of the detected motion in a first dimension, and an

angular orientation of the boundary is based on a component of the detected motion in a second dimension (e.g., perpendicular to the first dimension). In some embodiments, the boundary simulates a water line (e.g., a surface of water in a bucket that is subject to the detected motion). [0155] In some embodiments, while displaying the dynamic graphical element in the third state, a request (e.g., **210a**, **210b**, **210c**, and/or **210d**) (e.g., an input corresponding to a request) to change the graphical content (e.g., move the graphical content, scroll the graphical content, and/or display different graphical content such as a different user interface) is detected. In some embodiments, in response to detecting the request to change the graphical content, the graphical content is displayed in a fourth state (e.g., the state of **204** in FIG. 2E or 2K; **214** in FIG. 2F or 2L) that is different from the second state, and the dynamic graphical element is displayed in the third state (e.g., the state of **206** in FIG. 2A or 2D) (e.g., concurrently with the graphical content in the fourth state).

[0156] In some embodiments, the detected motion includes an acceleration (e.g., a change in velocity, a linear acceleration, and/or an angular acceleration). In some embodiments, the detected motion includes a change in location (e.g., spatial location). In some embodiments, the third state of the dynamic graphical element is in a direction relative to the first state of the dynamic graphical element that is based on a direction of the detected motion. In some embodiments, the direction of the third state relative to the first state is the same as the direction of the detected motion. In some embodiments, the direction of the third state relative to the first state is opposite of the direction of the detected motion. In some embodiments, in accordance with a first direction of detected motion, the third state is in a first direction relative to the first state; and in accordance with a second direction of detected motion that is different from the first direction of detected motion, the third state is in a second direction relative to the first state that is different from the first direction relative to the first state.

[0157] In some embodiments, the third state of the dynamic graphical element is different from the first state of the dynamic graphical element by an amount (e.g., a distance) that is based on a magnitude of the detected motion. In some embodiments, the amount is directly proportional to the magnitude of the detected motion. In some embodiments, in accordance with a first magnitude of detected motion, the amount is a first amount; and in accordance with a second magnitude of detected motion that is different from the first magnitude of detected motion, the amount is a second amount that is different from the first amount (e.g., if the second magnitude is greater than the first magnitude, then the second amount is greater than the first amount; if the second magnitude is less than the first magnitude, then the second amount is less than the first amount). In some embodiments, the detected motion is motion of an external object (e.g., **400**, **401**, **600**, **800**) (e.g., an object external to a device that displays the graphical content and the dynamic graphical element). In some embodiments, the external object is a platform, vehicle, car, bus, train, plane, or boat.

[0158] In some embodiments, the dynamic graphical element is displayed in a foreground (e.g., **216** and/or **218** in FIG. 2M-2O; **220** in FIG. 2P) (e.g., of a user interface, in front of the graphical content; the dynamic graphical content is overlaid on the graphical content). In some embodiments, the dynamic graphical element is displayed in a background (e.g., **206** in FIGS. 2A-2F; **215** in FIGS. 2G-2L) (e.g., of a user interface; behind the graphical content; the graphical content is overlaid on or in front of the dynamic graphical element).

[0159] Details of the features described above with respect to method **300** (e.g., FIG. 3) are also applicable in an analogous manner to the methods described below. For example, method **600** optionally includes one or more of the characteristics of the various methods described above with reference to method **300**.

[0160] FIGS. 4A-4C illustrate example techniques for displaying user interface elements based on motion in accordance with some embodiments. The techniques can be used to make motion more comfortable for a person. Some people experience discomfort such as motion sickness or simulation sickness when there is a disconnect between the motion that the person is physically

experiencing and motion that the person senses or when there is a conflict between how different systems of the person (e.g., the ocular system of the person and/or the vestibular system of the person) sense motion. For example, a person may experience motion sickness when looking at a display and/or using an electronic device such as a smartphone, laptop computer, smartwatch, or tablet computer while riding in a car because the person feels the motion of the car but the motion that the person sees on the screen does not correlate with the motion of the car. As another example, a person may experience simulator sickness when viewing moving content on a display or content that makes it appear as though the person is moving (e.g., a first-person perspective in a virtual environment) when the person is not physically moving. In some embodiments, the techniques described can help with motion comfort while a user is viewing and/or interacting with content displayed on an electronic device.

[0161] FIG. 4A illustrates computer system **400** with display **402**. It should be recognized that computer system **400** can be various types of computer systems, such as a tablet, a smart watch, a laptop, a personal gaming system, a desktop computer, a fitness tracking device, a display in a vehicle, and/or head-mounted display (HMD) device. At FIG. 4A, computer system **400** displays content **404**. In the embodiment illustrated in FIG. 4A, content **404** includes system status indicators (such as an indication of time, a Wi-Fi status indicator, and a battery status indicator) and a user interface of a web browser application. The user interface of the web browser application includes content of a web page (e.g., left balloon **404a**, middle balloon **404b**, and right balloon **404c**), controls for navigating a web page, and a text field for entering a web address and/or performing a search function. In some embodiments, the system status indicators are part of the user interface of the web browser application. In some embodiments, content **404** includes a user interface of a different application, a watch face user interface (e.g., on a smartwatch), and/or a system user interface (e.g., a desktop user interface, a home screen, a settings user interface, and/or an application springboard that includes application icons for launching and/or opening applications).

[0162] Notably, FIG. 4A does not include display of a user interface element responsive to motion (e.g., as described further below with respect to FIGS. 4B-4C). In some embodiments, computer system **400** does not display a user interface element responsive to motion when computer system **400** is not moving, not in a vehicle, and/or not detecting motion (e.g., velocity and/or acceleration) via a sensor included and/or in communication with computer system **400**. In other embodiments, computer system **400** does not display a user interface element responsive to motion when computer system **400** has not detected an input (e.g., user input, such as a tap on a user interface element, a press on a physical button, and/or a verbal request) corresponding to a request to display a user interface element responsive to motion.

[0163] At FIG. 4B, computer system **400** displays content **404** (e.g., continues to display content **404**), dynamic element **406L**, and dynamic element **406R** (e.g., initially displays dynamic element **406L** and dynamic element **406R**). In the embodiment illustrated in FIG. 4B, dynamic element **406L** includes a set of graphical elements **406a1**, **406a2**, **406a3**, **406a4**, **406a5**, and **406a6**, and dynamic element **406R** includes a set of graphical elements **406b1**, **406b2**, **406b3**, and **406b4** (collectively referred to as graphical elements **406a1-406b4** or dynamic element **406**). It should be recognized that while, dynamic element **406** is illustrated as including a left side (e.g., dynamic element **406L**) and a right side (e.g., dynamic element **406R**), dynamic element **406** can also and/or instead include a top side (e.g., starting at a top edge of content **404** and extending down for a particular amount) (e.g., that responds similar to as described for dynamic element **406L** and dynamic element **406R**) a bottom side (e.g., starting at a bottom edge of content **404** and extending up for a particular amount) (e.g., that responds similar to as described for dynamic element **406L** and dynamic element **406R**), a center portion that extends radially from the center of display **402** and/or other configurations. In some embodiments, dynamic element **406** is system wide such that dynamic element **406** is displayed with content from different applications including other user

applications and/or operating system applications. In some embodiments, dynamic element **406** is a graphical layer that is displayed in front of, overlaid on, and/or behind content **404**. One or more graphical elements of dynamic element **406** can be displayed on top of or behind a portion of content **404** while another portion of content **404** does not include a graphical element of dynamic element **406** on top or behind (e.g., as illustrated by left balloon **404a** having graphical element **406a4** on top and middle balloon **404b** not having a graphical element of dynamic element **406** on top). In some embodiments, graphical elements included in dynamic element **406L** and/or dynamic element **406R** are a set of one or more images.

[0164] In some embodiments, a color of a graphical element of dynamic element **406** is based on a color of content behind or in front of the graphical element. For example, the color of graphical element **406a4** with left balloon **404a** behind graphical element **406a4** can be a different color than the color of graphical element **406b4** with right balloon **404c** behind graphical element **406c**. In such an example, the different color can be an inverse (e.g., an inverted color) of a color behind or in front of a graphical element (e.g., left balloon **404a** is a different color than right balloon **404c**, as illustrated by diagonal lines in left balloon **404a**) and/or a blur of the inverse of the color. Alternatively, the different color can be a subset of colors (e.g., black or white) that is furthest and/or most different from a color behind or in front of a graphical element.

[0165] As illustrated in FIG. **4B**, graphical elements in dynamic element **406L** are arranged in a hexagonal array or grid of horizontal rows and vertical columns, and graphical elements in dynamic element **406R** are arranged in a separate hexagonal array or grid of horizontal rows and vertical columns. The vertical spacing or distance between rows in dynamic element **406L** (e.g., between a center of graphical element **406a1** and a center of graphical element **406a2**) is distance **412**. In some embodiments, the vertical spacing or distance between rows with the same size of dynamic elements in dynamic element **406L** (e.g., between a center of graphical element **406a1** and a center of graphical element **406a5**) is twice of distance **412**. The vertical spacing or distance between rows in dynamic element **406R** (e.g., between a center of graphical element **406b1** and a center of graphical element **406b2**) is distance **418** (e.g., the same as or different from distance **412**). In some embodiments, the spacing between rows varies in dynamic element **406L** and/or dynamic element **406R** (e.g., the distance between a center of graphical element **406a1** and a center of graphical element **406a2** is different from the distance between the center of graphical element **406a2** and a center of graphical element **406a5**). It should be recognized that the vertical spacing or distance between rows in dynamic element **406L** (e.g., either between rows with dynamic elements of the same size or different) can be different in some embodiments. The horizontal spacing or distance between columns (e.g., between the center of graphical element **406a1** and the center of graphical element **406a3**) is distance **410** (e.g., the same as or different from distance **412** and/or **418**). In some embodiments, the spacing between columns is consistent, with each graphical element being a constant distance from its adjacent graphical elements (e.g., the distance between the center of graphical element **406a1** and the center of graphical element **406a2** is the same as the distance between the center of graphical element **406a1** and the center of graphical element **406a3**). In some embodiments, the spacing between columns varies (e.g., the distance between the center of graphical element **406a1** and the center of graphical element **406a2** is different from the distance between the center of graphical element **406a1** and the center of graphical element **406a3**). It should be recognized that the horizontal spacing or distance between columns in dynamic element **406L** (e.g., either between columns with dynamic elements of the same size or different) can be different in some embodiments. In some embodiments, the graphical elements are not in columns or rows, but are variably spaced or patterned across the user interface (e.g., in a grid pattern or in a random pattern). In some embodiments, when the graphical elements are variably spaced across the user interface, the graphical elements are dynamically variably spaced (e.g., the variability of the spacing of the graphical elements is constantly changing). In some embodiments, the graphical elements have a random size, random color, random shape, and/or random motion (e.g., the motion



follows a random logic). In some embodiments, such a quasi-random implementation results in a three-dimensional effect that leverages the parallax effect (e.g., computer system **400** moves the graphical elements that are smaller in size at a slower rate and computer system **400** moves the graphical elements that are larger in size at a faster rate).

[0166] As illustrated in FIG. **4B**, dynamic element **406L** is within area **408** and dynamic element **406R** is within area **414** (e.g., same size or different size as area **408**). In some embodiments, graphical elements of dynamic element **406L** are not visible outside (e.g., to the left and/or the right) of area **408** and graphical elements of dynamic element **406R** are not visible outside (e.g., to the left and/or the right) of area **414**. It should be recognized that area **408** and/or area **414** can be smaller, larger, a different shape than illustrated in FIG. **4B**.

[0167] As illustrated in FIG. **4B**, graphical elements in different rows in dynamic element **406L** (e.g., (1) graphical element **406a1** and (2) graphical element **406a2** or graphical element **406a3**) are different sizes. In some embodiments, a graphical element in dynamic element **406** changes a visual characteristic (e.g., size, color, shape, and/or opacity) as the graphical element moves from left to right or right to left (e.g., based on motion, as described further below). For example, graphical element **406a1** and graphical element **406a2** are different sizes while they are at different horizontal positions within area **408**. Further, graphical element **406a1** and graphical element **406a6** are the same size in FIG. **4B** as a result of them being at the same horizontal position within area **408**. It should be recognized that, in some embodiments, graphical elements in different rows within dynamic element **406L** and/or **406R** have a different visual characteristic (e.g., size, color, shape, and/or opacity) at the same horizontal position within area **408**. It should also be recognized that such changes in a visual characteristic of a graphical element can equally apply to vertical positions instead of and/or in addition to horizontal positions.

[0168] Dynamic element **406** is affected by detected motion such that dynamic element **406** is displayed (e.g., appears), moves, and/or changes appearance on display **402** in response to and/or in accordance with detected motion (e.g., as illustrated by arrow **420** indicating that computer system **400** detects (e.g., via one or more sensors in communication with and/or included in computer system **400**) forward motion (e.g., position, velocity and/or acceleration)). In some embodiments, dynamic element **406** is displayed in response to and/or based on a determination that a magnitude of the detected motion (e.g., velocity and/or acceleration) is greater than a predetermined motion threshold. In some embodiments, computer system **400** displays dynamic element **406** based on a determination that a magnitude of the detected motion (e.g., velocity and/or acceleration) is greater than a predetermined motion threshold for at least a predetermined amount of time. In some embodiments, the movement of dynamic element **406** is based on a hysteresis function. For example, based on a determination that detected motion transitions having a leftward directionality to having a rightward directionality, dynamic element **406** deaccelerates in the rightward manner until dynamic element **406** comes to a rest, after dynamic element **406** has come to a rest, dynamic element **406** begins to move in the leftward manner. In some embodiments, dynamic element **406** moves based on motion of a vehicle (e.g., a vehicle in which (or on which) computer system **400** or a user of computer system **400** is located), motion of a user of computer system **400**, motion of computer system **400** itself, motion of another computer system in communication with computer system **400**, and/or virtual or simulated motion (e.g., motion that the user is intended to perceive, but does not physically experience). In some embodiments, computer system **400** is in or on a vehicle such as, for example, a car, bus, truck, train, bike, motorcycle, boat, plane, golf cart, all-terrain vehicle (ATV), and/or mobility devices (e.g., electric wheelchairs and/or scooters). In such embodiments, computer system **400** displays dynamic element **406** in accordance with a determination that computer system **400** is in the vehicle (e.g., computer system **400** does not display dynamic element **406** when computer system **400** is not in the vehicle).

[0169] In some embodiments, the appearance of dynamic element **406** and the manner in which dynamic element **406** moves is dependent on the type of vehicle that computer system **400** is

within. For example, computer system **400** moves dynamic element **406** differently when computer system **400** is positioned within a plane versus when computer system **400** is positioned within a boat. In some embodiments, computer system **400** adjusts the size, color and or pattern (e.g., how many cues and/or shape) of dynamic element **406** in response to detecting a user input. That is, one or more visible characteristics of dynamic element **406** is customizable by the user. In some embodiments, one or more characteristics of the movement and/or appearance of dynamic element **406** is dependent on the context of computer system **400**. For example, computer system **400** sets the maximum frame rate of display **402** to a first value (e.g., 60 frames per second or 120 frames per second) when computer system **400** displays text for a user to read and computer system **400** sets the maximum frame rate of display **402** to a second value (e.g., 60 frames per second or 120 frames per second) different from the first value when computer system **400** displays video media. As another example, computer system **400** decreases the brightness of dynamic element **406** while a brightness setting of computer system **400** is set to a low value in contrast to when the brightness setting of computer system **400** is set to a high value. As another example, computer system **400** moves dynamic element **406** slower when computer system **400** is mounted to (e.g., magnetically mounted and/or fixed to) hardware in contrast to when a user holds computer system **400**. In some embodiments, computer system **400** moves dynamic element **406** based on the battery power of computer system **400**. For example, computer system **400** moves dynamic element **406** at a slower rate when the battery power of computer system **400** is at 10% in contrast to when the battery power of computer system **400** is at 85%. In some embodiments, computer system **400** moves dynamic element **406** slower (e.g., or faster) when a setting (e.g., a power saving setting, a brightness setting, a refresh rate setting, and/or a display resolution setting) of computer system **400** is active in contrast to when the setting of computer system is not active. In some embodiments, as a part of displaying dynamic content **406**, computer system **400** performs additional operations to increase the accessibility of display content. For example, as a part of displaying dynamic content **406**, computer system **400** increases the size of displayed text to help decrease the amount of discomfort a passenger experiences as a result of the motion. In some embodiments, computer system **400** adjusts the refresh rate of the display of dynamic element **406** in response to detecting a user input that corresponds to the adjustment of a refresh rate setting of computer system **400**. For example, in response to detecting a user input that corresponds to the adjustment of the refresh rate setting of computer system **400**, computer system **400** sets the maximum frame rate of display **402** to 60 frames per second.

[0170] In some embodiments, as a part of displaying dynamic element and to assist in mitigating any discomfort a user experiences as a result of motion, computer system **400** transmits instructions to a computer system of a vehicle that causes the adjustment of one or more settings of the vehicle. For example, as a part of displaying dynamic element **406**, computer system **400** transmits instructions to the computer system of the vehicle that adjust the temperature, amount of airflow and/or position of one or more seats of the vehicle. In some embodiments, as part of displaying dynamic element **406**, computer system **400** causes an external display (e.g., an external display of the vehicle) to display a user interface that includes content describing additional measures passengers of the vehicle can take to help mitigate discomfort the passengers are experiencing as a result of the motion.

[0171] In some embodiments, computer system **400** does not display dynamic element **406** based on a determination that computer system **400** will be in motion for less than a threshold amount of time. For example, computer system **400** does not display dynamic element **406** when it is determined that computer system **400** will be in motion for 25 seconds or less. In some embodiments, computer system **400** proactively displays dynamic element **406** based on a predicted path of computer system **400**. For example, computer system **400** proactively displays dynamic element **406** if the predicted path of computer system **400** includes frequent turns and/or a high magnitude of motion and/or acceleration. In some embodiments, the predicted path of

computer system **400** is determined by analyzing a future path of a vehicle that computer system **400** is positioned within. In some embodiments, computer system **400** proactively displays dynamic element **406** based on a context of the user. For example, based on a determination that the user is reading, computer system **400** proactively displays dynamic element **406**. In some embodiments, computer system **400** displays dynamic element **406** based on a lower magnitude of motion when the user is engaged in a first activity (e.g., reading) than when the user is determined to be engaged in a second activity (e.g., watching a movie). In some embodiments, computer system **400** proactively displays dynamic element **406** based on the receipt of information from the vehicle that computer system **400** is positioned within. For example, computer system **400** proactively displays dynamic element **406** in response to receiving information from the vehicle that the vehicle will make a sharp turn in the next five seconds. In some embodiments, while computer system **400** is not configured to display dynamic element **406**, computer system **400** displays an option that, when selected, configures computer system **400** to display left visual elements **406L** and/or right visual elements **406R** when a determination is made that the magnitude of the motion of computer system **400** is greater than a threshold.

[0172] At FIG. **4C**, computer system **400** continues to detect forward motion (e.g., velocity and/or acceleration). However, at FIG. **4C**, the forward motion is to the right. That is, at FIG. **4C**, one or more characteristics of the motion (e.g., direction and/or magnitude) change as computer system **400** continues to detect the forward motion. At FIG. **4C**, computer system **400** continues displaying content **404**, dynamic element **406L**, and dynamic element **406R** while detecting (e.g., via one or more sensors in communication with and/or included in computer system **400**) motion (e.g., velocity and/or acceleration) to the right (e.g., as illustrated by arrow **420**).

[0173] As illustrated in FIG. **4C**, dynamic element **406** moves in response to detecting the motion to the right. For example, each row of graphic elements (e.g., the row including graphic element **406a1** and the row including graphic element **406a2** and graphic element **406a3**) moves as a response to the motion. As illustrated in FIG. **4C**, each row moves according to the horizontal component of the motion, such as in an opposite direction of the horizontal component. For example, graphical element **406a1** and graphical element **406a3** moves to the left in response to the motion to the right. In some embodiments, computer system **400** ceases to display a respective graphical element as the respective graphical element moves towards the center of display **402**. For example, computer system **400** ceases to display graphical element **406b5** once graphical element **406b5** reaches the leftmost boundary of area **414**. In some embodiments, computer system **400** redisplayes respective graphical elements on an opposite side of a centerline of display **402** in response to computer system **400** continuing to detect motion. For example, computer system **400** redisplayes graphical element **406b5** at the rightmost boundary of area **408** in response to computer system **400** continuing to detect the motion to the right. In some embodiments, a speed of movement of a graphical element of dynamic element **406** is consistent, based on, and/or the same speed as the horizontal component of the motion. For example, in response to a detected motion accelerating at a first rate to the right, graphical elements are displayed as moving at a corresponding rate from the right of display **402** to the left of display **402**. It should be recognized that graphical elements of dynamic element **406** can move differently than described above, such as in the same direction as the motion or at an angle opposite of or matching the motion (e.g., the horizontal and vertical component of the motion). In some embodiments, each column of graphical elements moves synchronously. In some embodiments, each row of graphical elements (e.g., the row including graphical element **406a2** and graphical element **406a3**) moves synchronously. In some embodiments, rows of graphical elements and columns of graphical elements move differently. For example, in some embodiments, as computer system **400** moves dynamic element **406L** and dynamic element **406R** across display **412**, computer system **400** ceases to display graphical elements included in different rows of dynamic element **406L** and dynamic element **406R** at different locations on display **412**.

[0174] As also illustrated in FIG. 4C, dynamic element **406** changes appearance in response to detecting the motion to the right. For example, each graphical element of graphic elements changes appearance as a response to the motion. As illustrated in FIG. 4C, each graphical element changes size according to the horizontal component of the motion (and/or according to movement of each graphical element). For example, graphical element **406a1** becomes smaller as graphical element **406a1** moves to the left and graphical element **406a3** becomes larger as graphical element **406a3** moves to the left. It should be recognized that graphical elements of dynamic element **406** can change appearance differently than described above, such as changing color, shape, and/or opacity.

[0175] As also illustrated in FIG. 4C, a size of dynamic element **406R** changes in response to detecting the motion to the right. For example, the size of dynamic element **406R** changes from area **414** as illustrated in FIG. 4B to area **422** as illustrated in FIG. 4C, reducing the number of columns of graphical elements within dynamic element **406R** from 3 to 2. In some embodiments, reducing the number of columns of graphical elements within dynamic element **406R** causes a maximum size to be smaller and/or a distance for which a graphical element increases from zero to a maximum size, decreases from a maximum size to zero, and/or maintains a maximum size to be smaller and/or moved to the right relative to width of content **404**. Notably, the side of dynamic element **406** that is reduced is in the direction of the motion and the other size (e.g., dynamic element **406L**) is not reduced. It should be recognized that, in some embodiments, the other size of dynamic element **406** (e.g., dynamic element **406L**) can become larger or also be reduced. It should also be recognized that FIG. 4C illustrates one example of a change in size and that other changes of size can be performed, including a change in size that is proximate to magnitude of the motion (e.g., greater magnitude of motion to the right causes dynamic element **406L** to become smaller and/or dynamic element **406R** to become larger).

[0176] In some embodiments, computer system **400** does not display, ceases displaying, and/or fades out display of dynamic element **406** when computer system **400** is not moving, not in a vehicle, and/or not detecting motion (e.g., velocity and/or acceleration) via a sensor included and/or in communication with computer system **400**. In some embodiments, computer system **400** does not display, ceases displaying, and/or fades out display of dynamic element **406** when the acceleration rate of computer system **400** is below a threshold and/or when a determination is made that a magnitude (e.g., speed and/or acceleration) of the detected motion is below a threshold.

[0177] FIGS. 5A-5D illustrate example graphs for how a graphical element can change as the graphical element changes position in accordance with some embodiments. The graphs include position on the x-axis and size on the y-axis. Accordingly, as you move from the origin of a graph to the right, the position of a graphical element is moving across a user interface from a left side of the user interface to a right side of the user interface (e.g., as a result of a computer system detecting motion (e.g., to the left) as described above with respect to FIGS. 4A-4C). It should be recognized that the left side and/or the right side of the user interface can be different for different graphical elements and/or start at a location other than a left edge and/or a right edge of the user interface. In addition, as you move from the origin of a graph up, the size of a graphical element is increasing. It should be recognized that size is only one example of how a graphical element can change appearance and that other changes in addition to or instead of size are within the scope of this disclosure, including color, opacity, and/or shape.

[0178] At FIG. 5A, graph **500** includes line **502** and line **504**. In some embodiments, line **502** corresponds to a graphical element within dynamic element **406L** and line **504** corresponds to a graphical element within dynamic element **406R**. As illustrated in FIG. 5A, line **502** and line **504** are mirrors of each other (e.g., the same) except that they are located at different positions (e.g., as illustrated in FIG. 4B by dynamic element **406L** and dynamic element **406R**). It should be recognized that line **502** can be different than line **504** in some embodiments, as further discussed below. In some embodiments, graph **500** illustrates size changes of a graphical element as the graphical element changes position while a computer system is detecting little or less motion (e.g.,

velocity and/or acceleration, such as in a forward direction) as compared to, for example, FIG. 5B. In such embodiments, an area that a graphical element is visible and/or a number of graphical elements visible is less than as compared to FIG. 5B. In some embodiments, line 502 and/or line 504 begin at a position on the y-axis that is greater than a value of zero (e.g., the display of the graphical elements is maintained as the graphical elements move across the display of the computer system). In some embodiments, the rate of change in the size of the graphical elements (e.g., shape of line 502 and/or line 504) is dependent on the acceleration and/or velocity of a computer system (e.g., computer system 400). In some embodiments, change in the size of the graphical elements (e.g., the shape of line 502 and/or line 504) is dependent on one or more user defined settings (e.g., one or more user customizations). In some embodiments, line 502 represents an opacity of a graphical element within dynamic element 406L and line 504 corresponds to an opacity of a graphical element within dynamic element 406R. That is, the opacity of graphical elements within dynamic element 406L and dynamic element 406R change as the graphical elements move across a display of a computer system (e.g., computer system 400). In some embodiments, computer system 400 performs post processing on line 502 and/or line 504 that changes an appearance of the graphical element included within dynamic element 406R and/or dynamic element 406L such that high frequency changes are filtered out and/or the rate of change of dynamic element 406L and/or dynamic element 406R is limited.

[0179] As illustrated in FIG. 5A, a graphical element following line 502 would start not visible at size 0 when at position 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size until the graphical element is no longer visible. For example, graphical element 406a2 in FIG. 4B can be an example of a graphical element that is somewhere between not being visible and a maximum size while graphical element 406a1 in FIG. 4B can be an example of a graphical element that is at the maximum size. As also illustrated in FIG. 5A, a graphical element following line 504 after line 502 would start not visible at size 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size until the graphical element is no longer visible at position 100. In some embodiments, the distance to increase from or to size 0 and/or the distance to maintain the maximum size can be increased or decreased depending on a size of a window (e.g., content 404). For example, when content being displayed is larger and/or takes up more area, the distance to increase from or to size 0 and/or the distance to maintain the maximum size can be larger than when content being displayed is smaller and/or takes up less area.

[0180] In some embodiments, the same or different graphical element can follow line 502 and line 504 such that when motion is detected to the left, a graphical element follows line 502 starting at position 0 and then follows line 504 until position 100. Similarly, the same or different graphical element can follow line 502 and line 504 such that when motion is detected to the right, a graphical element follows line 504 starting at position 100 and then follows line 502 until position 0. It should be recognized that a graphical element can start at any point in graph 500 and that motion causing the graphical element to move to the right would follow graph 500 to the right while motion causing the graphical element to move to the left would follow graph 500 to the left.

[0181] At FIG. 5B, graph 506 includes line 508 and line 510. In some embodiments, line 508 corresponds to a graphical element within dynamic element 406L and line 510 corresponds to a graphical element within dynamic element 406R. As illustrated in FIG. 5B, line 508 and line 510 are mirrors of each other (e.g., the same) except that they are located at different positions (e.g., as illustrated in FIG. 4B by dynamic element 406L and dynamic element 406R). It should be recognized that line 508 can be different than line 510 in some embodiments, as further discussed below. In some embodiments, graph 506 illustrates size changes of a graphical element as the graphical element changes position while a computer system is detecting more motion (e.g., velocity and/or acceleration, such as in a forward direction) as compared to, for example, FIG. 5A. In such embodiments, an area that a graphical element is visible and/or a number of graphical

elements visible (e.g., while, in some embodiments, maintaining a distance between each graphical element in a row and/or a column) is more than as compared to FIG. 5A.

[0182] As illustrated in FIG. 5B, a graphical element following line **508** would start not visible at size 0 when at position 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size until the graphical element is no longer visible. As also illustrated in FIG. 5B, a graphical element following line **510** after line **508** would start not visible at size 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size until the graphical element is no longer visible at position 100. Notably, the distance to increase from or to size 0 and/or the distance to maintain the maximum size can be increased with respect to FIG. 5B relative to FIG. 5A (e.g., as a result of increased motion).

[0183] At FIG. 5C, graph **512** includes line **514** and line **516**. In some embodiments, line **514** corresponds to a graphical element within dynamic element **406L** and line **516** corresponds to a graphical element within dynamic element **406R**. As illustrated in FIG. 5C, line **514** and line **516** do not mirror each other (e.g., instead, are different) and are located at different positions (e.g., as illustrated in FIG. 4C by dynamic element **406L** and dynamic element **406R**). In some embodiments, graph **512** illustrates size changes of a graphical element as the graphical element changes position while a computer system is detecting motion to the right (e.g., as illustrated in FIG. 4C). In such embodiments, one side (e.g., dynamic element **406L** or dynamic element **406R**) can shrink and/or reduce number of graphical elements (e.g., by reducing a column, a row, and/or individual graphical elements) (e.g., while, in some embodiments, maintaining a distance between each graphical element in a row and/or a column) as illustrated by line **516** relative to FIG. 5B while another side can enlarge and/or increase number of graphical elements (e.g., by adding a column, a row, and/or individual graphical elements) (e.g., while, in some embodiments, maintaining a distance between each graphical element in a row and/or a column) as illustrated by line **514** relative to FIG. 5B. It should be recognized that, in some embodiments, one side can shrink and/or reduce number of graphical elements while the other side maintains its size or one side can enlarge and/or increase number of graphical elements while the other side maintains its size.

[0184] As illustrated in FIG. 5C, a graphical element following line **514** would start not visible at size 0 when at position 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size until the graphical element is no longer visible. As also illustrated in FIG. 5C, a graphical element following line **516** after line **514** would start not visible at size 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size until the graphical element is no longer visible at position 100.

[0185] At FIG. 5D, graph **518** includes line **520** and line **522**. In some embodiments, line **520** corresponds to a graphical element within dynamic element **406L** and line **522** corresponds to a graphical element within dynamic element **406R**. As illustrated in FIG. 5D, line **514** and line **516** are mirrors of each other (e.g., the same) except that they are located at different positions. In some embodiments, graph **518** illustrates size changes of a graphical element as the graphical element changes position while a computer system is detecting more motion as compared to, for example, FIG. 5B (e.g., motion that exceeds a threshold, that would cause a graphical element to increase and/or reduce size too quickly for a speed that the graphical element is moving). In such embodiments, an area that a graphical element is visible, a distance for which a graphical element reduces to size 0, a distance for which a graphical element increases to a maximum size, and/or a number of graphical elements visible (e.g., while, in some embodiments, maintaining a distance between each graphical element in a row and/or a column) is more than as compared to FIG. 5B. In some embodiments, graph **518** is produced by applying a lowpass filter to each point in graph **506** (e.g., each point while decreasing to zero while increasing position in line **508** and each point while increasing to a maximum size while increasing position in line **510**). It should be recognized that

graph **518** is just one example of how line **520** and line **522** can be when detecting more motion and that the left side in addition to or instead of the right side of line **520** can be elongated and/or a number of graphical elements visible (e.g., while, in some embodiments, maintaining a distance between each graphical element in a row and/or a column) can be increased and/or that the right side in addition to or instead of the left side of line **522** can be elongated and/or a number of graphical elements visible (e.g., while, in some embodiments, maintaining a distance between each graphical element in a row and/or a column) can be increased. It should also be recognized that, while graph **518** illustrates extending one side of each line (e.g., line **520** and line **522**) relative to graph **506**, an area in which a graphical element is displayed can be maintained such that a distance that the graphical element is at a maximum size is reduced to make more distance to increase and/or reduce the size of the graphical element.

[0186] As illustrated in FIG. **5D**, a graphical element following line **520** would start not visible at size 0 when at position 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size over a larger distance than when increasing size until the graphical element is no longer visible. As also illustrated in FIG. **5C**, a graphical element following line **516** after line **514** would start not visible at size 0, increase size as the position increases until reaching a maximum size, maintain the maximum size for a distance, and then decrease size over a shorter distance than when increasing size until the graphical element is no longer visible at position 100.

[0187] The user interfaces in FIGS. **4A-4C** and graphs in FIGS. **5A-5D** are used to illustrate the methods described below, including the methods in FIG. **6**. FIG. **6** is a flow diagram that illustrates method **600** for displaying user interfaces based on detected motion according to some embodiments. In some embodiments, method **600** is performed at a computer system (e.g., a desktop computer, a laptop computer, a tablet computer, a smartphone, a smartwatch, a television, a monitor, a head-mounted display system) that is in communication with and/or includes a display (e.g., a monitor, a touch-sensitive display, a head-mounted display, a three-dimensional display, and/or a projector) and one or more input devices (e.g., a physical input mechanism (e.g., a hardware input mechanism, a rotatable input mechanism, a crown, a knob, a dial, a physical slider, and/or a hardware button), a camera, a touch-sensitive display, a microphone, an accelerometer, and/or a button). Some operations in method **600** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

[0188] While displaying, via the display, a user interface object (e.g., a textual user interface object and/or a graphical user interface object) in an initial (e.g., neutral, first, particular, and/or starting) manner, the computer system detects (e.g., **602**), via the one or more input devices, acceleration in a first direction (e.g., of the computer system and/or a sensor (e.g., a sensor of the computer system and/or a sensor of an external structure)) (e.g., translational acceleration and/or rotational acceleration) (e.g., the computer system is accelerating, de-accelerating, moving to the left, moving to the right, and/or moving in a forward direction) (e.g., a forward direction, a side direction, and/or a backward direction). In some embodiments, the computer system is accelerated via a moveable component. In some embodiments, the computer system is accelerated via a user. In some embodiments, the acceleration of the external structure (e.g., an automobile, boat, or airplane) that is accelerating) causes the computer system to accelerate.

[0189] In response to (and/or in conjunction with, after, and/or while) detecting the acceleration in the first direction, the computer system displays (e.g., **604**), via the display, the user interface object in a subsequent (e.g., second) manner different than the initial manner based on the acceleration (e.g., the user interface object is displayed with a different color, opacity, and/or size while displayed in the subsequent manner in contrast to when the user interface object is displayed in the initial manner).

[0190] After (e.g., and/or while) displaying the user interface object in the subsequent manner based on the acceleration (e.g., and/or while displaying the user interface object in another manner

different from the subsequent manner and/or the initial manner), the computer system continues (e.g., **606**) to detect, via the one or more input devices, the acceleration in the first direction. In some embodiments, continuing to detect the acceleration in the first direction includes detecting a change in the acceleration rate, velocity, and/or direction of the computer system.

[0191] In response to continuing to detect the acceleration in the first direction, the computer system displays, via the display, the user interface object in the initial manner (e.g., and not the subsequent manner). In some embodiments, the computer system displays the user interface object in the subsequent manner in accordance with a determination that the acceleration rate of the acceleration is greater than an acceleration threshold. In some embodiments, the computer system ceases displaying the user interface object in the subsequent manner in response to ceasing to detect the acceleration (e.g., the computer system displays the user interface object in the initial manner or ceases to display the user interface object). In some embodiments, the subsequent manner is user selected. In some embodiments, the computer system does not display the user interface object in the subsequent manner in response to continuing to detect the acceleration in the first direction (e.g., the computer system continues to display the user interface object in the initial manner). In some embodiments, the one or more input devices are included in an external computer system. In some embodiments, the user interface object is a set of one or more user interface objects.

[0192] Transitioning from displaying the user interface object in the initial manner, to the subsequent manner, and back to the initial manner in response to continuing to detect the acceleration in the first direction allows the computer system to provide a dynamic user interface object that changes between appearances during motion so that, in some embodiments, to reduce and/or stop motion discomfort, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0193] In some embodiments, the acceleration in the first direction is a first acceleration. In some embodiments, before (e.g., immediately before or within a predetermined period of time (e.g., 1-20 seconds) before) detecting the first acceleration, the computer system detects, via the one or more input devices, a second acceleration (e.g., of the computer system and/or a sensor (e.g., a sensor of the computer system and/or a sensor of an external structure)) (e.g., translational acceleration and/or rotational acceleration) (e.g., the computer system is accelerating, de-accelerating, moving to the left, moving to the right, and/or moving in a forward direction). In some embodiments, the computer system is accelerated via a moveable component. In some embodiments, the computer system is accelerated by a user. In some embodiments, the computer system is positioned within an external structure that is accelerating. In some embodiments, in response to detecting the second acceleration, the computer system displays, via the display, the user interface object (e.g., with (e.g., in) the initial manner or in a manner that is different from the initial manner) (e.g., the user interface object was not displayed before detecting the second acceleration). In some embodiments, the computer system ceases to display the user interface object before detecting the first acceleration. In some embodiments, the computer system displays the user interface object in response to detecting a respective acceleration that has an acceleration rate that is greater than a threshold. Displaying the user interface object in response to detecting the second acceleration allows the computer system to provide an indication of the state of the computer system and/or a state of an external structure (e.g., that the computer system and/or the external structure is accelerating), thereby providing improved visual feedback and providing additional control options without cluttering the user interface with additional displayed controls.

[0194] In some embodiments, displaying the user interface object in the subsequent manner includes displaying the user interface object with (e.g., in and/or at) a particular size (e.g., length, width, and/or diameter), opacity, shape, color (e.g., a color included in the gray scale or a color not included in the gray scale), or any combination thereof.

[0195] In some embodiments, displaying the user interface object in the subsequent manner



includes changing a first visual characteristic (e.g., opacity, size, and/or color) of the user interface object at a first point in time (e.g., after detecting the acceleration in the first direction), and changing a second visual characteristic (e.g., opacity, size, and/or color) of the user interface object, different from the first visual characteristic of the user interface object, at the first point in time. In some embodiments, displaying the user interface object in the subsequent manner includes changing the first visual characteristic of the user interface object before or after changing the second visual characteristic of the user interface object. Concurrently changing the first visual characteristic and the second visual characteristic allows the computer system to perform a display operation that indicates how quickly the computer system is accelerating and/or deaccelerating, thereby providing additional control options without cluttering the user interface with additional displayed controls.

[0196] In some embodiments, while displaying the user interface object, the computer system ceases to detect the acceleration in the first direction. In some embodiments, in response to ceasing to detect the acceleration in the first direction, the computer system ceases to display the user interface object. In some embodiments, the computer system redisplay the user interface object in response to detecting a subsequent acceleration. In some embodiments, the computer system ceases to display the user interface in response to detecting that the acceleration is below an acceleration threshold. Ceasing to display the user interface object in response to ceasing to detect the acceleration in the first direction allows the computer system to control the display of the user interface object based on the acceleration of the computer system and/or the acceleration of an external structure, thereby providing additional control options without cluttering the user interface with additional displayed controls.

[0197] In some embodiments, in response to (e.g., in conjunction with or while) detecting the acceleration in the first direction and in accordance with a determination that the first direction is in a first orientation (e.g., heading and/or bearing) (e.g., a forward direction, a side direction, a left turn, and/or a right turn), the computer system moves, via the display, the user interface object in a first manner (e.g., the user interface object is moved in a lateral direction and/or a rotational direction). In some embodiments, in response to (e.g., in conjunction with or while) detecting the acceleration in the first direction and in accordance with a determination that the first direction is in a second orientation (e.g., heading and/or bearing) different from the first orientation, the computer system moves, via the display, the user interface object in a second manner different from the first manner. In some embodiments, the computer system moves the user interface object in a direction that is opposite the detected direction of the acceleration. In some embodiments, computer system moves the user interface object in the same direction as the detected direction of the acceleration. In some embodiments, the speed at which the user interface object moves is based on the rate of the acceleration. In some embodiments, the user interface object does not move in response to detecting the acceleration. Moving the user interface object in different orientation when a set of conditions is met automatically allows the computer system to provide an indication of the direction of acceleration of the computer system and/or a direction of acceleration an external structure, thereby performing an operation when a set of conditions has been met without requiring further user input. In some embodiments, the computer system (e.g., **400**) displays (e.g., before displaying the user interface object, while displaying the user interface object, and/or after displaying the user interface object), via the display generation component, content (e.g., **404**) (e.g., a user interface, a user interface object, and/or media (e.g., video and/or photo)), wherein displaying the user interface object (e.g., **406**) includes overlaying the user interface object on (e.g., on top of, covering and/or over) the content. In some embodiments, the user interface object obstructs the view of the content. In some embodiments, the user interface object does not obstruct the view of the content (e.g., the user interface object is translucent). In some embodiments, the user interface object covers a majority or a minority of the content. In some embodiments, the content includes a single continuous portion of content. In some embodiments, the content is

displayed in response to detecting motion. In some embodiments, the content is displayed in response to detecting an input. Displaying the user interface object as overlaid on top of the content allows the computer system to concurrently display both the content and the user interface object such that both the user interface object and the content are simultaneously visible to a user, thereby providing improved feedback.

[0198] In some embodiments, the acceleration in the first direction is a first acceleration. In some embodiments, after detecting the first acceleration, the computer system (e.g., **400**) detects, via one or more input devices, a second acceleration in the first direction. In some embodiments, the second acceleration is a continuation of and/or same as the first acceleration. In some embodiments, the second acceleration is different from the first acceleration. In some embodiments, the second acceleration is detected in a direction that is different from the first direction. In some embodiments, in response to detecting the second acceleration, the computer system ceases to display, via the display generation component, the user interface object (e.g., **406L** and/or **406R**). In some embodiments, the computer system applies a visual effect (e.g., a blur effect, decrease in opacity, and/or fading out) as a part of ceasing to display the user interface object. In some embodiments, the computer system does not cease to display the user interface object in response to detecting the second acceleration in the first direction. In some embodiments, the manner in which the computer system ceases to display the user interface object is dependent on the second acceleration (e.g., the direction of the second acceleration and/or the magnitude of the second acceleration). In some embodiments, the manner in which the computer system ceases to display the user interface object is user dependent (e.g., the computer system gradually ceases to display the user interface object for a first user and abruptly ceases to display the user interface object for a second user different from the first user). Ceasing to display the user interface object in response to detecting the second acceleration allows the computer system to provide an indication with respect to the state of the computer system, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0199] In some embodiments, after ceasing display of the user interface object (and/or while no longer displaying the user interface object), the computer system (e.g., **400**) detects, via the one or more input devices, a third acceleration (e.g., **420** at FIGS. **4B** and/or **4C**) in the first direction; and In some embodiments, the third acceleration is detected in a direction that is different from the first direction. In some embodiments, the third acceleration is different from the first acceleration and/or the second acceleration. In some embodiments, the third acceleration is the same as the first acceleration and/or the second acceleration. In some embodiments, in response to detecting the third acceleration, the computer system displays, via the display generation component, the user interface object (e.g., **406L** and/or **406R**) in the initial manner. In some embodiments, the computer system displays the user interface object in a manner different from the initial manner. In some embodiments, displaying the user interface object in the initial manner includes displaying the user interface object with the size, opacity, and/or color as the user interface object was initially displayed with but displaying the user interface object at a different location of the display generation component. In some embodiments, the amount of time it takes for the computer system to redisplay the user interface object depends on the speed (e.g., the computer system gradually displays the user interface object when the speed is low or the computer system abruptly displays the user interface object when the speed is high). Displaying the user interface object in the initial manner in response to detecting the third acceleration allows the computer system to provide an indication with respect to the state of the computer system, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0200] In some embodiments, displaying the user interface object (e.g., **406L** and/or **406R**) includes moving the user interface object. In some embodiments, in accordance with a

determination that the acceleration has a first magnitude (e.g., instantaneous magnitudes, average magnitude, and/or median magnitude) (e.g., rate and/or change in speed), the user interface object is moved at a first rate (e.g., speed, pace, and/or tempo). In some embodiments, in accordance with a determination that the acceleration has a second magnitude (e.g., instantaneous magnitudes, average magnitude, and/or media magnitude) (e.g., rate and/or change in speed), different from the first magnitude, the user interface object is moved at a second rate (e.g., speed, pace, and/or tempo) different from the first rate. In some embodiments, the magnitude of the acceleration and the rate at which the user interface object is moved has a direct correlation. In some embodiments, the magnitude of the acceleration and the rate at which the user interface object is moved has an inverse correlation. In some embodiments, the rate at which the user interface object is moved is based on the direction of the acceleration. In some embodiments, the direction in which the user interface object is moved is based on the acceleration. In some embodiments, the speed at which the user interface object is moved is based on the acceleration (e.g., the speed of the movement of the user interface object is directly correlated to the speed and/or direction of the acceleration and/or the speed of the movement of the user interface object is inversely correlated to the speed and/or direction of the acceleration). Moving the user interface object at a particular rate when a set of prescribed conditions is met (e.g., the acceleration has a first magnitude or a second magnitude) automatically allows the computer system to tailor the performance of a motion mitigation technique to the detected motion, thereby performing an operation when a set of conditions has been met without requiring further user input and/or providing improved feedback.

[0201] In some embodiments, while displaying the user interface object (e.g., in the initial manner, in the subsequent manner, or in a respective manner that is different than the initial manner and/or the subsequent manner), the computer system detects, via the input device, that a magnitude (e.g., instantaneous magnitudes, average magnitude, and/or median magnitude) (e.g., rate and/or change in speed) of the acceleration is less than an acceleration threshold (e.g., a default threshold, a user specific threshold, and/or a context specific threshold). In some embodiments, in response to detecting that the magnitude of the acceleration is less than the acceleration threshold, the computer system ceases to display, via the display generation component, the user interface object (e.g., as discussed above at FIG. 4C). In some embodiments, the computer system continues to display the user interface object in response to detecting that the magnitude of the acceleration is less than the acceleration threshold. In some embodiments, the computer system redisplay the user interface object in response to detecting that the magnitude of the acceleration transitions from being less than the acceleration threshold to being greater than the acceleration threshold. Ceasing to display the user interface object in response to detecting that the magnitude of the acceleration is less than the acceleration threshold allows the computer system to cease display of the user interface object at a point in time when the display of the user interface object is no longer necessary (e.g., the computer system and/or an external structure is slowing down), thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0202] In some embodiments, continuing to detect the acceleration includes detecting, via the input device, a change in one or more attributes (e.g., direction of acceleration, magnitude of acceleration, and/or acceleration force (e.g., exerted on the computer system and/or on the user)) of the acceleration (e.g., as discussed above at FIG. 4C). In some embodiments, continuing to detect the acceleration does not include detecting a change in one or more attributes of the acceleration. In some embodiments, a first attribute of the acceleration changes by a different amount than a second attribute of the acceleration. In some embodiments, the one or more attribute of the acceleration change by the same amount.

[0203] In some embodiments, while displaying the user interface object (e.g., **406L** and/or **406R**) (e.g., in the initial manner or in the subsequent manner), the computer system (e.g., **400**) ceases to detect, via the input device, the acceleration in the first direction (e.g., or any acceleration). In some

embodiments, in response to ceasing to detect the acceleration in the first direction, the computer system ceases to display, via the display generation component, the user interface object. In some embodiments, the computer system redisplay, via the display generation component, the user interface object in response to detecting initiation of the acceleration. In some embodiments, the computer system ceases to display the user interface object in response to detecting an input. In some embodiments, the computer system ceases to display the user interface object while the acceleration is detected. In some embodiments, the computer system continues to display the user interface object in response to ceasing to detect the acceleration. In some embodiments, the computer system applies a visual effect (e.g., blurring, fading out, reducing the opacity) to the user interface object as a part of ceasing to display the user interface object. In some embodiments, the computer system gradually ceases to display the user interface object as the acceleration gradually decreases. Ceasing to display the user interface object in response to ceasing to detect the acceleration in the first direction allows the computer system to cease display of the user interface object at a point in time when the display of the user interface object is no long necessary, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0204] In some embodiments, a magnitude (e.g., instantaneous magnitudes, average magnitude, and/or median magnitude) (e.g., rate and/or change in speed) of the acceleration in the first direction (e.g., **420** at FIGS. **4B** and/or **4C**) is greater than an acceleration threshold (e.g., as discussed above at FIG. **4B**). In some embodiments, the acceleration threshold is a default acceleration threshold. In some embodiments, the acceleration threshold is a user specific acceleration threshold. In some embodiments, the acceleration threshold is a context specific threshold. Displaying the user interface object in response to detecting that a magnitude of the acceleration in the first direction is greater than a threshold allows the computer system to avoid displaying the user interface object in response to detecting insignificant acceleration rates, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0205] In some embodiments, the acceleration (e.g., **420** at FIGS. **4B** and or **4C**) in the first direction corresponds to an external structure (e.g., as discussed above at FIG. **4B**) (e.g., an automobile, a plane, a train, and/or a boat). In some embodiments, the acceleration in the first direction corresponds to the computer system. In some embodiments, the acceleration in the first direction corresponds to a body portion (e.g., head, arms, torso, and/or legs) of a user. In some embodiments, the computer system is positioned within the external structure. In some embodiments, the computer system is coupled to the external structure. In some embodiments, the computer system is not within the structure and/or coupled to the external structure.

[0206] In some embodiments, the user interface object is a first user interface object (e.g., **406a1**, **406a2**, **406a3**, **406a4**, **406a5**, **406a6**, **406b1**, **406b2**, **406b3**, **406b4**, **406b5**, and/or **406b6**), wherein the first user interface object is displayed at a first location while detecting the acceleration in the first direction (e.g., when the user interface object is displayed in the initial manner), wherein the first user interface object is displayed at a second location, different from the first location, in response to detecting the acceleration in the first direction (e.g., when the user interface object is displayed in the subsequent manner). In some embodiments, while displaying the first user interface object in the initial manner (e.g., while detecting the acceleration in the first direction), the computer system (e.g., **400**) displays, via the display generation component, a second user interface object (e.g., **406a1**, **406a2**, **406a3**, **406a4**, **406a5**, **406a6**, **406b1**, **406b2**, **406b3**, **406b4**, **406b5**, and/or **406b6**), different from the first user interface object, at a third location different from the first location (and/or the second location), wherein the first location is in a first direction from the second location (e.g., the first user interface object and the second user interface object are within a row of user interface objects). In some embodiments, in response to (and/or in conjunction with, after, and/or while) detecting the acceleration (e.g., **420** at FIGS. **4B** and/**4C**) in the first

direction, the computer system displays, via the display generation component (e.g., **402**), the second user interface object at a fourth location different from the second location and the third location (and/or the first location), wherein the fourth location is in the first direction from the third location, wherein a distance between the second location and the first location is a first distance, wherein a distance between the fourth location and the third location is a second distance, and wherein the second distance is the same as the first distance (e.g., as discussed above at FIG. **4C**). In some embodiments, in response to (and/or in conjunction with, after, and/or while) detecting the acceleration in the first direction, the computer system moves the second user interface object in a synchronized manner with the first user interface object (e.g., the second user interface object moves in the same direction, speed, and/or manner as the first user interface object) based on the acceleration in the first direction. In some embodiments, the first user interface object and the second user interface object have the same appearance but are located at different locations. In some embodiments, the first user interface object and the second user interface object have different appearances and are located at different locations. Moving the second user interface object in a synchronized manner with the first user interface object allows the computer system to perform a motion mitigation technique that aids in alleviating discomfort a user is experiencing as a result of the motion, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0207] In some embodiments, while displaying the first user interface object (e.g., **406a1**, **406a2**, **406a3**, **406a4**, **406a5**, **406a6**, **406b1**, **406b2**, **406b3**, **406b4**, **406b5**, and/or **406b6**) at the first location and the second user interface object (e.g., **406a1**, **406a2**, **406a3**, **406a4**, **406a5**, **406a6**, **406b1**, **406b2**, **406b3**, **406b4**, **406b5**, and/or **406b6**) at the third location, the computer system (e.g., **400**) displays, via the display generation component (e.g., **402**), a third user interface object (e.g., **406a1**, **406a2**, **406a3**, **406a4**, **406a5**, **406a6**, **406b1**, **406b2**, **406b3**, **406b4**, **406b5**, and/or **406b6**), different from the first user interface object and the second user interface object, at a fifth location different from the first location and the third location (and/or the second location and/or the fourth location), wherein the first location is in a second direction, different from (e.g., perpendicular and/or tangential to) the first direction, from the fourth location (e.g., the first user interface object and the third user interface object are within a column of user interface objects). In some embodiments, in response to (and/or in conjunction with, after, and/or while) detecting the acceleration (e.g., **420** at FIG. **4B** and/or FIG. **4C**) in the first direction, the computer system displays, via the display generation component, the third user interface object at a sixth location different from the second location and the fourth location (and/or the first location and/or the third location), wherein the fourth location is in the second direction from the third location, wherein a distance between the sixth location and the fifth location is a third distance, and wherein the third distance is the same as the first distance and the second distance (e.g., as discussed above at FIG. **4C**). In some embodiments, in response to (and/or in conjunction with, after, and/or while) detecting the acceleration in the first direction, the computer system moves the third user interface object in a synchronized manner with the first user interface object (e.g., the third user interface object move in the same direction, speed, and/or manner as the first user interface object) based on the acceleration in the first direction. In some embodiments, the first user interface object, the second user interface object, and/or the third user interface object have the same appearance but are located at different locations. In some embodiments, the first user interface object, the second user interface object, and/or the third user interface object have different appearances and are located at different locations. Moving the third user interface object in a synchronized manner with the first user interface object allows the computer system to perform a motion mitigation technique that aids in alleviating discomfort a user is experiencing as a result of the motion, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0208] In some embodiments, the first user interface object (e.g., **406a1**, **406a2**, **406a3**, **406a4**,

**406a5, 406a6, 406b1, 406b2, 406b3, 406b4, 406b5, and/or 406b6**) is displayed in the initial manner at the same location as the second user interface object (e.g., **406a1, 406a2, 406a3, 406a4, 406a5, 406a6, 406b1, 406b2, 406b3, 406b4, 406b5, and/or 406b6**), wherein the third user interface object (e.g., **406a1, 406a2, 406a3, 406a4, 406a5, 406a6, 406b1, 406b2, 406b3, 406b4, 406b5, and/or 406b6**) is displayed in the initial manner at a different horizontal location than the first user interface object, and wherein the third user interface object is not displayed in the initial manner at the same location as the first user interface object and the second user interface object. In some embodiments, the computer system ceases displaying the first user interface object and the second user interface object at the same location (e.g., the same vertical location). In some embodiments, the computer system ceases displaying the third user interface object at a different vertical location than the first user interface object. Displaying the first user interface object and the second user interface object in the initial manner at the same location while not displaying the third user interface object in the initial manner at the same location allows the computer system to perform a motion mitigation technique that aids in alleviating discomfort a user is experiencing as a result of the motion, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0209] Note that details of the processes described above with respect to method **600** (e.g., FIG. 6) are also applicable in an analogous manner to other methods described herein. For example, method **1300** optionally includes one or more of the characteristics of the various methods described above with reference to method **600**. For example, the display of content can be shifted using one or more techniques described herein in relation to method **600**, where the content is shifted based on a state of a user described herein in relation to method **1300**. For brevity, these details are not repeated herein.

[0210] FIGS. 7A-7H illustrate exemplary user interfaces for mitigating the effects of motion in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIGS. 8-9.

[0211] The left sides of FIGS. 7A-7H illustrate computer system **700** as a smart phone displaying different user interface objects. It should be recognized that computer system **700** can be other types of computer systems, such as a tablet, a smart watch, a laptop, a personal gaming system, a desktop computer, a fitness tracking device, a head-mounted display (HMD) device. In some embodiments, computer system **700** includes and/or is in communication with one or more input devices and/or sensors (e.g., a camera, a LiDAR sensor, a motion sensor, an infrared sensor, a touch-sensitive surface, a physical input mechanism (such as a button or a slider), and/or a microphone). Such sensors can be used to detect presence of, attention of, statements from, inputs corresponding to, requests from, and/or instructions from a user in an environment. It should be recognized that, while some embodiments described herein refer to inputs being gaze inputs, other types of inputs can be used with techniques described herein, such as touch inputs that are detected via a touch-sensitive surface and/or air gestures detected via a camera (e.g., a camera that is in communication (e.g., wireless and/or wired communication) with computer system **700**). In some embodiments, computer system **700** includes and/or is in communication with one or more audio output devices (e.g., speakers, headphones, earbuds, and/or hearing aids). In some embodiments, computer system **700** is in communication with one or more devices capable of measuring and/or detecting physiological metrics (e.g., heart rate, skin temperature, body temperature, face temperature and/or respiratory rate) of the user, such as a health tracking device and/or smart watch. In some embodiments, computer system **700** determines vitals of the user based on information collected via one or more cameras connected to and/or in communication with computer system **700**. In some embodiments, computer system **700** includes one or more components and/or features described above in relation to computer system **100** and/or electronic device **200**.

[0212] FIGS. 7A-7H illustrate computer system **700** performing various display operations in

response to motion being detected. Computer system **700** performs the various display operations to alleviate user discomfort that stems from the detected motion. In some embodiments, computer system **700** performs the various display operations based on a determination that a speed of computer system **700** is greater than a speed threshold. In some embodiments, computer system **700** performs the various display operations based on a determination that an acceleration rate of computer system **700** is greater than an acceleration threshold.

[0213] The right sides of FIGS. 7A-7H include motion diagram **714** and sound diagram **720**. Motion diagram **714** is indicative of the speed and/or direction of the detected motion of computer system **700**. Speed representation **716** indicates the speed of the detected motion as measured in miles-per-hour (MPH). In the examples described in FIGS. 7A-7H, motion diagram **714** represents an absolute motion of computer system **700**. In some embodiments, speed representation **716** indicates the acceleration of computer system **700**. In some embodiments, speed representation **716** indicates a rotational rate of computer system **700**. In some embodiments, motion diagram **714** represents a relative motion. For example, in some embodiments, motion diagram **714** is representative of how computer system **700** is moving relative to another object (e.g., such as computer system **700** moving in a different orientation than a vehicle that computer system **700** is within). In some embodiments, the detected motion of computer system **700** is detected via one or more inertial measurement units (IMUs) of computer system **700** and/or one or more IMUs of an external device that is in communication with computer system **700**. In some embodiments, the motion of computer system **700** is detected via one or more camera sensors connected to and/or in communication with computer system **700**. For example, the motion of computer system **700** is determined via an analysis of media data that includes objects moving (e.g., moving relative to computer system **700**). In some embodiments, the detected motion of computer system **700** is detected via a combination of methods mentioned above (e.g., IMU and/or camera sensor). In some embodiments, the detected motion is motion of a head of the user. In some embodiments, the motion of the head of the user is detected via one or more camera sensors connected to and/or in communication with computer system **700**. For example, in some embodiments, computer system **700** detects the motion of the head of the user via comparing the motion of the head of the user to the motion of other objects. In some embodiments, the motion of the head of the user is detected via one or more sensors embedded in one or more audio output devices that move with the user's head such as earbuds and/or headphones. In some embodiments, the detected motion is of a vehicle such as a car, bus, train, and/or plane that computer system **700** is within. In some embodiments, the detected motion of the vehicle is detected via GPS connected to and/or included in the vehicle and in communication with computer system **700**.

[0214] The discussion of FIGS. 7A-7H describes how computer system **700** performs various display operations and sound operations based on a determination that a detected motion is greater than a motion threshold. However, it should be noted that, computer system **700** performs the various display operations and sound operations described in FIGS. 7A-H, when a determination is made that an acceleration value, rotational rates (rad/s), and/or rotational positions (rad) of the detected motion is greater than a threshold.

[0215] As illustrated in FIGS. 7A-7H, computer system **700** outputs sound content via one or more speakers of the computer system **700** and/or speakers external to computer system **700** such as headphones and/or earbuds that form a sound field (e.g., a perceived (e.g., perceived by the user) location of propagation of sound). As illustrated in FIGS. 7A-7H, sound diagram **720** is a visual aid representing the location of the sound field relative to the user. Sound diagram **720** includes user representation **722** that is representative of the position of the user and sound field representation **724** that is representative of the position of the sound field. The positioning of sound field representation **724** and user representation **722** within sound diagram **720** is representative of the real-world positioning of the sound field with respect to the user. Sound diagram **720** also includes inner distance **726** and outer distance **728** which represent distances from the user. In some

embodiments, computer system **700** outputs sound content that forms a sound field via two or more (e.g., a pair) of external speakers. For example, in some embodiments when computer system **700** is in communication with a car audio system consisting of a seven-speaker system, computer system **700** uses all seven speakers of the speaker system to create the sound field.

[0216] As illustrated in FIG. 7A, computer system **700** displays, via display **712**, user interface **702**, navigation controls section **704**, and status indicator section **706**. Navigation controls section **704** contains controls for navigating to various user interfaces. Status indicator section contains indicators with respect the status of computer system **700** such as battery life, signal type, signal strength, and an indicator for the current time. As illustrated in FIG. 7A, user interface **702** includes address bar **708** and main body **710**. As illustrated in FIG. 7A, main body **710** includes first object **710a**, second object **710b**, and third object **710c** below address bar **708**. As illustrated in FIG. 7A, computer system **700** displays first object **710a**, second object **710b**, and third object **710c** from left to right across user interface **702** with first object **710a** displayed at a leftmost position of user interface **702** and third object **710c** displayed at a rightmost position of user interface **702**. In some embodiments, computer system **700** displays more or less than three objects within main body **710**. In some embodiments, main body **710** includes address bar **708**.

[0217] At FIG. 7A, as indicated by speed representation **716**, no motion is detected. At FIG. 7A, as indicated by the positioning sound field representation **724** as centered over user representation **722**, computer system **700** is directing the sound field at a location that is centered with respect to the user. In some embodiments, computer system **700** directs the sound field at a default location with respect to the user (e.g., to the right of the user, to the left of the user, behind the user, and/or in front of the user). In some embodiments, computer system **700** directs the sound field towards a location that is set by the user. At FIG. 7A, motion (e.g., and/or acceleration) begins to be detected via one or more of the methods discussed above.

[0218] At FIG. 7B, as indicated by motion diagram **714**, the detected motion is a right-hand turn at fifteen miles-per-hour. At FIG. 7B, because motion is detected, motion diagram **714** includes direction representation **718**. Direction representation **718** is an arrow that points in the direction of the detected motion. At FIG. 7B, a determination is made that a magnitude of the detected motion (e.g., and/or acceleration) is greater than a motion speed threshold and/or in the right direction. At FIG. 7B, because the determination is made that the magnitude of the detected motions is greater than the first motion threshold and/or in the right direction, computer system **700** displays left visual elements **730** and right visual elements **732** as overlaid on at least a portion of the content (e.g., user interface **702**, navigation controls section **704**, and/or status indicator section **706**) that computer system **700** displays. In some embodiments, the detected motion is determined by fusing motion data from various sensors. For example, the detected motion is determined using a combination of data that is measured by an inertial measurement unit housed within headphones of the user and an accelerometer sensor that is housed within a smartphone of the user. In some embodiments, computer system **700** creates a motion discomfort index based on the detected motion and/or a user's personal susceptibility to motion discomfort. In some embodiments, a user's personal susceptibility to motion discomfort is determined by surveying the user, observing the user perform a task, sensor readings, the present and/or historical activity of the user and/or observing whether the user has symptoms (e.g., discolored skin, excessive breathing, sweating, and/or increased heartrate) of motion discomfort. For example, a determination is made that the user's susceptibility to motion discomfort has decreased if six months ago the user could read for thirty minutes of a sixty-minute car trip without experiencing discomfort, but presently the user can read for fifty minutes of the sixty-minute car trip without experiencing discomfort. In some embodiments, computer system **700** displays and/or ceases display of left visual elements **730** and/or right visual elements **732** based on a user's susceptibility of experiencing discomfort as a result of motion. In some embodiments, detected motion is a motion of computer system **700** relative to a vehicle that computer system **700** is in and/or on.



[0219] At FIG. 7B, because a determination is made that the detected motion (e.g., and/or acceleration) is in a rightward direction, computer system **700** displays left visual elements **730** and right visual elements **732** as moving from the right to the left. That is, computer system **700** displays left visual elements **730** and right visual elements **732** as moving in a direction that is opposite the direction of the detected motion. Computer system **700** displays left visual elements **730** and right visual elements **732** as moving in a direction that is opposite the direction of the detected motion to help alleviate discomfort a user may experience as a result of the detected motion. More specifically, computer system **700** displays left visual elements **730** and right visual elements **732** as moving in a direction that is opposite the direction of the detected motion such that the forces that the user experiences as a result of the detected motion align with what the user views. In some embodiments, computer system **700** displays left visual elements **730** and right visual elements **732** as moving in a direction that is the same as the direction of the detected motion. In some embodiments, based on a determination that the magnitude of the detected motion is greater than the first motion threshold and that the detected motion is in a leftward direction, computer system **700** displays left visual elements **730** and right visual elements as moving from the left to the right. In some embodiments, left visual elements **730** and right visual elements **732** are some other form of visual elements, such as a different shape, amount of visual elements, and/or a blurring effect. The above description of dynamic element **406**, as described above in FIGS. **4A-4C** and **5A-5D**, are hereby incorporated into left visual elements **730** and right visual elements **732**. In some embodiments, the orientation of computer system **700** is tracked relative to the vehicle. In some embodiments, when the orientation of computer system **700** is tracked relative to the vehicle, computer system **700** displays left visual elements **730** and right visual elements **732** based on the orientation of computer system **700** relative to the vehicle. In some embodiments, in addition to displaying left visual elements **730** and right visual elements **732**, computer system **700** proactively causes the output of audio alerts that indicate the upcoming direction of motion of computer system **700**. For example, when it is determined that computer system **700** will move in a leftward manner within a predetermined amount of time, computer system **700** causes speakers on the lefthand side of the vehicle to output an audible alert.

[0220] At FIG. 7B, a determination is made that the magnitude of the detected motion is not greater than a second motion threshold (e.g., twenty miles-per-hour). Because the determination is made that the magnitude of the detected motion is not greater than the second motion threshold, computer system **700** does not modify the display of first object **710a**, second object **710b**, and/or third object **710c**. Also, at FIG. 7B, because the determination is made that the magnitude of the detected motion is not greater than the second motion threshold, computer system **700** does not modify the output of the sound field. As described in greater detail below, when the magnitude of the detected motion is greater than the second motion threshold, computer system **700** modifies the display of first object **710a**, second object **710b**, and/or third object **710c** and/or modifies the positioning of the sound field. At FIG. 7B, the speed (e.g., and/or acceleration) of the detected motion is detected as increasing via one or more of the methods mentioned above.

[0221] At FIG. 7C, as indicated by motion diagram **714**, the detected motion (e.g., and/or acceleration) is a right-hand turn at twenty-five miles-per-hour. At FIG. 7C, a determination is made that the magnitude of the detected motion is greater than the second motion threshold. At FIG. 7C, based on the determination that the magnitude of the detected motion is greater than the second motion threshold, computer system **700** moves main body **710** (e.g., including first object **710a**, second object **710b**, and third object **710c**) to the left within user interface **702** by an amount that correlates to the magnitude of the detected motion. In some embodiments, based on the determination that the magnitude of the detected motions is greater than the second motion threshold, computer system **700** outputs cues such as visual cues, haptic cues, and/or audible cues. For example, based on the determination that the magnitude of the detected motion is greater than the second motion threshold, computer system **700** outputs a bell noise to indicate that the

magnitude of the detected motion is greater than the second motion threshold and/or that computer system **700** is altering the content of user interface **702**.

[0222] As illustrated in FIG. 7C, as a result of computer system moving main body **710**, computer system **700** continues to display a right portion of first object **710a** while ceasing to display a left portion of first object **710a**. As illustrated in FIG. 7C, as a result of computer system moving main body **710**, computer system **700** displays a left portion of fourth object **710d** and computer system **700** does not display a right portion of fourth object **710d**. In some embodiments, computer system **700** moving main body **710** to the left by an amount that corresponds to the magnitude of the detected motion does not result in computer system **700** showing any part of fourth object **710d** because there is no content included within user interface **702** to the right of third object **710c**. In some embodiments, based on the determination that the magnitude of the detected motion is greater than the second motion threshold, computer system **700** changes the display of both main body **710** and address bar **708**. For example, in some embodiments, based on the determination that the detected motion satisfies the second criteria and/or based on a determination that the detected motion is in the rightward direction, computer system **700** moves both main body **710** and address bar **708** to the left within user interface **702**.

[0223] At FIG. 7C, as indicated by sound diagram **720**, sound field representation **724** is behind and to the left of user representation **722** in line with inner distance **726** (e.g., different from the location of sound field representation **724** within sound diagram **720** in FIG. 7B). At FIG. 7C, based on the determination that the magnitude of the detected motion is greater than the second motion threshold and based on the determination that the detected motion is in the rightward direction, computer system **700** moves the sound field to the rear and to the left of the user to a location that correlates to the right-hand turn at twenty-five miles-per-hour. That is, to help alleviate discomfort the user experiences as a result of the detected motion, computer system **700** shifts the positioning of the sound field in an opposite direction than the direction of the detected motion. In some embodiments, the movement of the sound field is a gradual change. In some embodiments, the rate at which computer system **700** moves the sound field is based on the magnitude of the detected motion.

[0224] Satisfaction of the second motion threshold requires that the magnitude of the detected motion be greater than the requisite magnitude for the satisfaction of the first motion threshold. Accordingly, when the second motion threshold is satisfied, the first motion threshold is also satisfied. Accordingly, at FIG. 7C, a determination is made that the magnitude of the detected motions satisfies the first motion threshold. At FIG. 7C, because the determination is made that the magnitude of the detected motion satisfies the first motion threshold, computer system **700** maintains display of left visual elements **730** and right visual elements **732**.

[0225] At FIG. 7C, because the determination is made that the detected motion is in the rightward direction, as computer system **700** displays left visual elements **730** and right visual elements **732** as moving from the right to the left. In some embodiments, in response to detecting the motion of the right-hand turn at twenty-five miles-per-hour, computer system **700** changes how left visual elements **730** and right visual elements **732** are displayed. For example, in some embodiments, computer system **700** changes the shape and/or size of left visual elements and/or right visual elements. In some embodiments, based on the determination that the magnitude of the detected motion is greater than the second motion threshold, computer system **700** alters right visual elements **732** to include fewer vertical columns of circle elements. In some embodiments, based on the determination that the magnitude of the detected motion is greater than the second motion threshold, computer system **700** ceases to display left visual elements **730** and right visual elements **732**. At FIG. 7C, computer system **700** detects elevated user vitals via a wearable health monitoring device, such as a smart watch and/or a fitness tracking device. In some embodiments, elevated vitals of the user include heart rate and/or respiratory rate that are above normal for the user. At FIG. 7C, a change in the motion (e.g., and/or acceleration) is not detected.

[0226] At FIG. 7D, in response to detecting the elevated vitals of the user, computer system **700** changes the location of the sound field to be a greater distance from the user. As illustrated in sound diagram **720** within FIG. 7D, sound field representation **724** is in line with outer distance **728**, which is farther away from user representation **722** than sound field representation **724** is in sound diagram **720** at FIG. 7C. Computer system **700** further shifts the location of the sound field because, based on the elevated vitals of the user, the user is still experiencing discomfort from the detected motion. Accordingly, the additional shift of the sound field is an additional motion mitigation technique that computer system **700** performs.

[0227] At FIG. 7D, because there is no detected change in the detected motion (e.g., and/or acceleration), computer system **700** continues to display user interface **702**, left visual elements **730**, right visual elements **732**, first object **710a**, second object **710b**, and third object **710c** as computer system **700** previously displayed user interface **702**, left visual elements **730**, right visual elements **732**, first object **710a**, second object **710b**, and third object **710c** at FIG. 7C. At FIG. 7D, a decrease in the speed of the detected motion is detected.

[0228] At FIG. 7E, as indicated by motion diagram **714**, the speed of the detected motion is ten miles-per-hour in a straightforward direction. At FIG. 7E, a determination is made that the magnitude of the detected motion (e.g., and/or acceleration) is not greater than the first motion threshold and/or the second motion threshold. At FIG. 7E, based on the determination that the magnitude of the detected motion is not greater than the first motion threshold, computer system **700** ceases displaying left visual elements **730** and right visual elements **732**. At FIG. 7E, because a determination is made that the magnitude of the detected motion is not greater than the second motion threshold, computer system **700** ceases shifting the display of main body **710** (e.g., first object **710a**, second object **710b**, and third object **710c**). That is, at FIG. 7E, based on the determination that the magnitude of detected motion is not greater than the second motion threshold, computer system **700** moves main body **710** to the right within user interface **702** until main body **710** is displayed at its original position as illustrated in FIG. 7A. At FIG. 7E, as a part of computer system **700** moving main body **710** back to its original position, computer system **700** ceases to display fourth object **710d**.

[0229] As illustrated in FIG. 7E, sound field representation **724** is centered on user representation **722** within sound diagram **720**. At FIG. 7E, because the determination is made that the magnitude of the detected motion is less than the second motion threshold, computer system **700** moves the sound field back to the default sound field location as centered with respect to the user. In some embodiments, based on a determination that there is no detected motion, computer system **700** moves the position of the sound field back to its initial position as centered with respect to the user. At FIG. 7E, an increase in the speed of the motion is detected via one of the methods discussed above.

[0230] At FIG. 7F, as indicated in motion diagram **714**, the speed of the detected motion is at twenty-seven miles-per-hour in a straightforward direction. At FIG. 7F, a determination is made that the magnitude (e.g., and/or acceleration) of the detected motion is greater than the first motion threshold and a determination is made that the detected motion is in the straightforward path. Because a determination is made that the magnitude of the detected motion is greater than the first motion threshold, computer system **700** displays left visual elements **730** and right visual elements **732**. At FIG. 7F, computer system **700**, because the determination is made that detected motion is along the straightforward path, computer system **700** displays left visual elements **730** and right visual elements **732** as moving from the top of display **712** towards the bottom of display **712**. As explained above, computer system **700** displays left visual elements **730** and right visual elements **732** as moving in a direction that is opposite the direction of the detected motion to alleviate discomfort the user is experiencing as a result of the detected motion. In some embodiments, the speed at which computer system **700** display left visual elements **730** and right visual elements **732** as moving depends on the speed and/or acceleration of the detected motion. In some embodiments,

computer system **700** changes one or more characteristics (e.g., size, shape, and/or color) of right visual elements **732** and left visual elements **730** as a part of moving right visual elements **732** and left visual elements **730** from the top of display **712** to the bottom of display **712**.

[0231] At FIG. **7F**, a determination is made that the magnitude (e.g., and/or acceleration) of the detected motion is greater than the second motion threshold. At FIG. **7F**, because the determination is made that the magnitude of the detected motion is greater than the second motion threshold and the detected motion is in the straightforward path, computer system **700** shifts the display of main body **710** (e.g., first object **710a**, second object **710b**, and third object **710c**) downward by an amount that correlates to the magnitude of the detected motion.

[0232] At FIG. **7F**, as indicated by the positioning of sound field representation **724**, the sound field is positioned behind the user. At FIG. **7F**, because the determination is made that the magnitude (e.g., and/or acceleration) of the detected motion is greater than the second motion threshold and the detected motion is in the straightforward path, computer system **700** shifts the position of the sound field to the rear of the user by an amount that correlates to the magnitude of the detected motion.

[0233] As explained above, computer system **700** shifts the display of main body **710** (e.g., first object **710a**, second object **710b**, third object **710c**) and the sound field in a direction that is opposite the direction of the detected motion to alleviate discomfort the user is experiencing as a result of the motion. As illustrated in FIG. **7F**, computer system **700** continues to display first object **710a**, second object **710b** and third object **710c** while main body **710** is shifted downwards. As illustrated in FIG. **7F**, as a part of computer system **700** shifting main body **710** downward, computer system **700** displays a bottom portion of fifth object **710e** below address bar **708** within user interface **702**. At FIG. **7F**, computer system **700** an increase in the speed of the motion is detected via one or more of the methods discussed above.

[0234] At FIG. **7G**, as indicated by motion diagram **714**, the speed of the detected motion increases to forty miles-per-hour and the motion is in a straightforward direction. At FIG. **7G**, a determination is made that the magnitude (e.g., and/or acceleration) of the detected motion increases. Based on the determination that the magnitude of the detected motion increases, computer system **700** further shifts the sound field to the rear of the user and computer system **700** further shifts main body **710** (e.g., first object **710a**, second object **710b**, third object **710c**, and fifth object **710e**) in contrast to the positioning of the sound field and main body **710** at FIG. **7F**. That is, the amount of shift of the sound field and main body **710** is directly correlated to the magnitude of the detected motion. The greater the magnitude of the detected motion, the greater the amount of the shift of main body **710** and the sound field. In some embodiments, the amount of shift of the sound field and main body **710** is inversely correlated to the magnitude of the detected motion.

[0235] As illustrated in FIG. **7G**, computer system **700** displays less of first object **710a**, second object **710b**, and third object **710c**, as compared to the amount of first object **710a**, second object **710b** and third object **710c** computer system **700** displays at FIG. **7F** (e.g., correlated to the speed of the detected motion of twenty-seven miles-per-hour). At FIG. **7G**, computer system **700** displays more of fifth object **710e** than computer system **700** displayed at FIG. **7F** (e.g., as a result of more of fifth object **710e** being shifted below address bar **708**).

[0236] At FIG. **7G**, computer system **700** detects verbal input **705g** corresponding to the user requesting that computer system **700** return the sound field to a centered position with respect to the user (e.g., centered with respect to the user), such as “center sound.” At FIG. **7G**, a change in the motion is not detected.

[0237] At FIG. **7H**, as indicated by sound diagram **720**, the sound field is centered with respect to the user. At FIG. **7H**, in response to detecting verbal input **705g**, computer system **700** changes the location of the sound field to be centered with respect to the user. At FIG. **7H**, a determination is made that the magnitude of the detected motion is unchanged and in the straightforward direction. As illustrated in FIG. **7H**, based on the determination that the magnitude of the detected motion is

unchanged, computer system **700** maintains the shift of main body **710** (e.g., first object **710a**, second object **710b**, third object **710c**, and fifth object **710e**). In some embodiments, computer system **700** detects a user input corresponding to a request for computer system **700** to return the display of main body **710** back to its original position (e.g., as shown in FIG. 7A). In such embodiments, in response to detecting the user input, computer system **700** ceases shifting main body **710** and computer system **700** returns to displaying main body **710** in its original position as shown in FIG. 7A. For example, in response to detecting a verbal input corresponding to a request for computer system **700** to revert the display of main body **710**, computer system **700** reverts the display of main body **710**.

[0238] In some embodiments, while the motion is detected and while computer system **700** is displaying content, computer system **700** is in communication with an external display component such as a car entertainment system, a television in a ship stateroom, a plane seat entertainment system, and/or train seat entertainment system. In some embodiments, depending on the magnitude of the detected motion, computer system **700** causes the external display component to display content (e.g., first object **710a**, second object **710b**, third object **710c**, third object **710d** and/or fifth object **710e**). For example, if the magnitude of the detected motion is greater than the first and/or second motion threshold, computer system **700** causes the external display component to display the content. In some embodiments, based on a determination that the magnitude of the motion decreases below the first and/or second motion threshold, computer system **700** ceases causing content to be displayed via the external display component. In some embodiments, based on a determination that the magnitude of the motion transitions from being greater than the first motion threshold to being greater than the second motion threshold, computer system **700** transitions from causing content to be displayed via the external display component to displaying content via display **712**. In some embodiments, computer system **700** continues to cause content to be displayed via the external display component after a determination is made that the magnitude of the detected motion decreases below the first motion threshold. In some embodiments, in response to detecting a user input, computer system **700** ceases displaying content on the external display component.

[0239] In some embodiments, the motion of computer system **700** and/or the vehicle is determined to have a trajectory within a predetermined period of time (e.g., a projected motion) (e.g., 1-360 seconds). In some embodiments, the motion of computer system **700** and/or the vehicle is determined to have the trajectory within the predetermined period of time due to the vehicle being on a fixed path and having a known schedule, such as a train, trolley, and/or subway train. In some embodiments, the motion of computer system **700** and/or the vehicle is determined to have the trajectory within the predetermined period of time based on historical data of the user, such as the daily commute of the user.

[0240] In some embodiments, while computer system **700** is displaying user interface **702**, a determination is made that the projected motion of the vehicle satisfies a set of one or more criteria (e.g., the projected motion of computer system **700** and/or the vehicle includes a left turn, a right turn, and/or a straight path). In such embodiments, based on the determination that the projected motion of computer system **700** and/or the vehicle satisfies the set of one or more criteria, computer system **700** performs one or more of the various motion mitigation techniques described above (e.g., shifting the display of content, displaying left visual elements **730** and/or right visual elements **732**, and/or shifting the position of the sound field).

[0241] In some embodiments, while computer system **700** is displaying user interface **702**, a determination is made that the projected motion of computer system **700** and/or the vehicle does not satisfy the set of one or more criteria. In such embodiments, in response to a determination is made that the projected motion of computer system **700** and/or the vehicle does not satisfy the set of one or more criteria, computer system **700** does not perform one or more of the various motion mitigation techniques described above.

[0242] FIG. 8 is a flow diagram illustrating a method (e.g., method **800**) for shifting the display of content in accordance with some embodiments. Some operations in method **800** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

[0243] As described below, method **800** provides an intuitive way for shifting the display of content. Method **800** reduces the cognitive burden on a user, thereby creating a more efficient human-machine interface. For battery-operated computing devices, enabling a user to interact with such devices faster and more efficiently conserves power and increases the time between battery charges.

[0244] In some embodiments, method **800** is performed at a computer system (e.g., **700**) (e.g., a watch, a phone, a tablet, a fitness tracking device, a processor, a head-mounted display (HMD) device, a communal device, a media device, a speaker, a television, and/or a personal computing device) that is in communication with (e.g., and/or includes) an input device (e.g., a motion detection device (e.g., gyroscope, force meter, accelerometer, and/or internal or external component able to detect and/or measure motion), a camera (e.g., one or more cameras with different fields of view in relation to the computer system (e.g., front, back, wide, and/or zoom)), a depth sensor, a microphone, a hardware input mechanism, a rotatable input mechanism, a heart monitor, a temperature sensor, and/or a touch-sensitive surface) and a display generation component (e.g., **712**) (e.g., a display screen, a projector, and/or a touch-sensitive display).

[0245] While displaying (e.g., **802**), via the display generation component, content (e.g., **704**, **706**, **708**, **710a**, **710b**, and/or **710c**) (e.g., one or more user interfaces, one or more user interface objects, one or more images, text, and/or one or more characters), the computer system detects (**802**), via the input device, motion (e.g., represented by **714**, **716**, and/or **718**) (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g., relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device)) that satisfies a first set of one or more criteria (e.g., as discussed at FIGS. 7B-7D) (e.g., **714**, **716**, and/or **718** at FIGS. 7B-7D). In some embodiments, the first set of one or more criteria includes a criterion that is satisfied based on: force against and/or exerted on the input device and/or the computer system, movement of the computer system relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system within an environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, detecting the motion includes detecting relative motion (e.g., difference in motion as compared to another object, plane, and/or point) (e.g., motion of the computer system relative to a position (e.g., object, position within 3D space, and/or plane within an environment), relative to a direction (e.g., in a direction, from a direction, and/or change of direction), and/or relative to previous motion), and/or absolute motion (e.g., motion of the computer system irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane).

[0246] In response to (**804**) detecting the motion that satisfies the first set of one or more criteria, the computer system continues (**806**) display of a first portion of the content (e.g., remaining portion of **710a**, **710b**, and/or **710c** at FIGS. 7C-7D) (e.g., a subsection of the content, a majority of the content, a minority of the content, less than the entirety of the content, and/or a key portion of the content). In some embodiments, continuing display of, via the display generation component, the first portion of the content includes moving, resizing, and/or altering a visual characteristic of the first portion of the content (e.g., opacity, outline, font, boldness, and/or brightness). In some embodiments, the first portion of the content is a subsection of the content based on relevance (e.g., relevance of the subsection of the content as compared to other portions of the content and/or relevance to current context of the environment (e.g., location, weather, time of day, and/or

situation (e.g., the situation that caused the movement))), position (e.g., relative position as compared to the user interface and/or the other portions of the content), size, prominence, and/or type (e.g., text, image, and/or user interface element).

[0247] In response to **(804)** detecting the motion that satisfies the first set of one or more criteria, the computer system ceases **(808)** display of a second portion (e.g., change of **710a**, **710b**, and/or **710c** from FIGS. 7A-7B to FIGS. 7C-7D), different from the first portion, of the content (e.g., a subsection of the content, a majority of the content, a minority of the content, less than the entirety of the content, and/or a key portion of the content). In some embodiments, ceasing display of the second portion of the content includes moving, resizing, and/or altering a visual characteristic (e.g., opacity, outline, font, boldness, and/or brightness) of the second portion of the content. In some embodiments, ceasing display of the second portion of the content includes altering the second portion of the content until the second portion of the content is no longer displayed. In some embodiments, the second portion of the content is a subsection of the content based on relevance (e.g., relevance of the subsection of the content as compared to other portions of the content and/or relevance to current context of the environment (e.g., location, weather, time of day, and/or situation (e.g., the situation that caused the movement))), position (e.g., relative position as compared to the user interface and/or the other portions of the content), size, prominence, and/or type (e.g., text, image, and/or user interface element). In some embodiments, in response to detecting motion that satisfies a second set of one or more criteria different from the first set of one or more criteria, the computer system continues display of the first portion and the second portion of the content.

[0248] While displaying the first portion of the content and not displaying the second portion of the content, the computer system detects **(810)**, via the input device, motion that no longer satisfies the first set of one or more criteria (e.g., as discussed at FIG. 7E) (e.g., represented by **714**, **716**, and/or **718** at FIG. 7E) (e.g., and/or any motion that satisfies the first set of one or more criteria) (and/or motion that satisfies the second set of one or more criteria).

[0249] In response to **(812)** detecting the motion that no longer satisfies the first set of one or more criteria, the computer system continues **(814)** display of the first portion of the content. In some embodiments, continuing display of the first portion of the content includes moving, resizing, and/or altering a visual characteristic (e.g., opacity, outline, font, boldness, and/or brightness) of the first portion of the content.

[0250] In response to **(812)** detecting the motion that no longer satisfies the first set of one or more criteria, the computer system displays **(816)** (and/or redisplay), via the display generation component, the second portion of the content (e.g., change of **710a**, **710b**, and/or **710c** from FIGS. 7C-7D to FIG. 7E). In some embodiments, displaying the second portion of the content includes altering a visual characteristic (e.g., bolding, brightness, clarity, position, resizing, and/or emphasizing) of the second portion of the content until the second portion of the content is fully displayed. In some embodiments, displaying the second portion of the content includes repositioning and/or altering the first portion of the content and/or the second portion of the content to accommodate displaying both portions (e.g., returning to originally displayed size, displaying at a size that allows for the first portion of the content and the second portion of the content to be displayed simultaneously, and/or displaying the first portion of the content and the second portion of the content with consistent visual characteristics). Selectively displaying one or more portions of content based on motion satisfying a first criteria allows the computer system to (1) stop displaying a portion of the content without requiring input from a user directed to the portion and (2) emphasize a remaining portion of the content without requiring user selection of the remaining portion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0251] In some embodiments, the motion that satisfies the first set of one or more criteria (e.g., represented by **714**, **716**, and/or **718**) is a first motion (e.g., **714**, **716**, **718** at FIG. 7F). In some

embodiments, the computer system detects (e.g., before or after detecting the first motion), via the input device, second motion (e.g., **714**, **716**, **718** at FIG. 7G), different from the first motion (e.g., different in direction, intensity, acceleration, and/or duration), (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g., relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device)) that satisfies a second set of one or more criteria (e.g., as discussed at FIG. 7G) (e.g., and does not satisfy the first set of one or more criteria). In some embodiments, the second set of one or more criteria includes a criterion that is satisfied based on: an amount of force against and/or exerted on the input device, user, and/or the computer system, movement of the computer system and/or user relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system and/or user within an environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, the second motion is greater than the first motion. In some embodiments, the second set of one or more criteria is different from the first set of one or more criteria. In some embodiments, the second set of one or more criteria and the first set of one or more criteria include one or more similar criterions. In some embodiments, the second set of one or more criteria is a subset of criteria of the first set of one or more criteria. In some embodiments, the first set of one or more criteria is a subset of criteria of the second set of one or more criteria. In some embodiments, the second set of one or more criteria and the first set of one or more criteria include a majority of the same criterions. In some embodiments, the second set of one or more criteria and the first set of one or more criteria have at least one different criterion. In some embodiments, in response to detecting the second motion that satisfies the second set of one or more criteria, the computer system ceases display of a third portion of the content (e.g., **710a**, **710b**, and/or **710c** at FIG. 7G) different from the second portion of the content (e.g., **710a**, **710b**, and/or **710c** at FIGS. 7C-7D) (e.g., while maintaining display of the first portion of the content and/or the second portion of the content). In some embodiments, the third portion of the content includes a portion of the second portion of the content. In some embodiments, the third portion of the content is a subsection of the first portion of the content and/or the second portion of the content. In some embodiments, the third portion of the content is different from the first portion of the content. In some embodiments, after and/or while ceasing display of the third portion of the content, the computer system alters the first portion of the content (e.g., the computer system maximizes the display of the first portion of the content to occupy the space of the third portion, the computer system repositions the first portion of the content (e.g., overlapping and/or taking up the space occupied by the third portion of the content), and/or the computer system increases the amount of content included in the first portion of the content). Selectively displaying another portion of the content based on motion that satisfies another set of one or more criteria allows the computer system to automatically display certain portions of content based on motion satisfying one or more of the sets of criteria without a user selecting the certain portions, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0252] In some embodiments, the first motion (e.g., **714**, **716**, **718** at FIG. 7F) is in a first direction (e.g., **718** at FIGS. 7B-7D). In some embodiments, the second motion (e.g., **714**, **716**, **718** at FIG. 7G) is in a second direction (e.g., **718** at FIGS. 7E-7F) (e.g., and not the first direction) different from the first direction. In some embodiments, the first set of one or more criteria includes a criterion that is satisfied when the first motion is in a first direction, and the second set of one or more criteria includes a criterion that is satisfied when the second motion is in a second direction, different from the first direction. In some embodiments, the computer system determines direction of the first motion and/or the second motion based on a sensor reading at a particular time, a continuous sensor reading, and/or comparing a series of sensor readings. In some embodiments, the first direction and the second direction are vectors beginning and/or not-beginning at the same



location. In some embodiments, the first direction and/or the second direction correspond to an initial direction (e.g., cardinal directions and/or angular direction), change in direction, and/or continued motion in a direction. Selectively displaying portions of content based on motion in a respective direction allows the computer system to automatically adjust content to be displayed based on the direction of the motion without detecting user input, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0253] In some embodiments, the first motion is absolute motion (e.g., as discussed at FIGS. 7A-7H). In some embodiments, the second motion is relative motion (e.g., as discussed at FIGS. 7A-7H). In some embodiments, relative motion includes a difference in motion as compared to another object, plane, and/or point, motion of the computer system and/or user relative to a position (e.g., object, position within 3D space, and/or plane within an environment), motion of an object associated with the computer system (e.g., a user's hand, head, and/or body and/or an input device (e.g., a keyboard and/or a mouse)) and another object, plane, and/or position, and/or relative to a direction (e.g., in a direction, from a direction, and/or change of direction, and/or relative to previous motion). In some embodiments, absolute motion is motion of the computer system and/or user irrespective of external factors and/or motion of the computer system and/or user without comparison to an object, position, and/or plane. In some embodiments, absolute motion is motion of the user irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane. Selectively displaying portions of content based on a type of motion allows the computer system to tailor content based on the type of motion without requiring a user to specify the type of motion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0254] In some embodiments, the first motion is relative motion (e.g., as discussed at FIGS. 7A-7H). In some embodiments, the second motion is absolute motion (e.g., as discussed at FIGS. 7A-7H). In some embodiments, relative motion includes the difference in motion as compared to another object, plane, and/or point, motion of the computer system and/or user relative to a position (e.g., object, position within 3D space, and/or plane within an environment), motion of an object associated with the computer system (e.g., a user's hand, head, and/or body and/or an input device (e.g., a keyboard and/or a mouse)) and another object, plane, and/or position, and/or relative to a direction (e.g., in a direction, from a direction, and/or change of direction, and/or relative to previous motion). In some embodiments, absolute motion is motion of the computer system and/or user irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane. In some embodiments, absolute motion is motion of the user irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane. Selectively displaying portions of content based on a type of motion allows the computer system to tailor content based on the type of motion without requiring a user to specify the type of motion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0255] In some embodiments, the motion that satisfies the first set of one or more criteria (e.g., represented by **714**, **716**, and/or **718**) is a first motion (e.g., **714**, **716**, **718** at FIG. 7F). In some embodiments, the computer system detects (e.g., before or after the first motion is detected), via the input device, third motion first motion (e.g., **714**, **716**, **718** at FIG. 7E), different from the first motion (e.g., different in direction, intensity, acceleration, and/or duration), (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g., relative or absolute motion (e.g., motion of the input device relative to the computer system and/or user, motion of the input device relative to a physical environment, or absolute motion detected by the input device)) that satisfies a third set of one or more criteria (e.g., as discussed at FIG. 7E). In some embodiments, the third set of one or more criteria includes a criterion that is satisfied based on: force against and/or exerted on the input device, a user, and/or the computer system, movement of the computer system relative to an object and/or surface (e.g., change as measured from a

particular point) or absolute movement of the computer system within an environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, the third set of one or more criteria is different from the first set of one or more criteria. In some embodiments, the third set of one or more criteria and the first set of one or more criteria includes one or more similar criterions. In some embodiments, the third set of one or more criteria is a subset of criteria of the first set of one or more criteria. In some embodiments, the first set of one or more criteria is a subset of criteria of the third set of one or more criteria. In some embodiments, the third set of one or more criteria and the first set of one or more criteria include a majority of the same criterions. In some embodiments, the third set of one or more criteria and the first set of one or more criteria have at least one different criterion. In some embodiments, in response to detecting the third motion that satisfies the third set of one or more criteria, the computer system continues display of, via the display generation component (e.g., **712**), the first portion of the content (e.g., **710a**, **710b**, and/or **710c**). In some embodiments, in response to detecting the third motion that satisfies the third set of one or more criteria, the computer system continues display of, via the display generation component, the second portion of the content (e.g., **710a**, **710b**, and/or **710c**). In some embodiments, the computer system alters one or more visual characteristics (e.g., repositioning, blurring, magnifying, shrinking, and/or changing one or more colors) of the first portion of the content and/or the second portion of the content as a part of continuing display of the first portion of the content and/or the second portion of the content. Maintaining display of all portions of the content based on motion satisfying another set of one or more criteria allows the computer system to selectively display the portions of the content based on motion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0256] In some embodiments, the computer system (e.g., **700**) is in communication with an audio output device (e.g., as discussed at FIGS. 7A-7H) (e.g., speaker, smart speaker, home theater system, soundbar, headphone, earphone, earbud, television speaker, augmented reality headset speaker, audio jack, optical audio output, Bluetooth audio output, and/or HDMI audio output). In some embodiments, the audio output device includes (e.g., contains, and/or has) the input device (e.g., as discussed at FIGS. 7A-7H) (e.g., a motion detection device (e.g., gyroscope, force meter, accelerometer, and/or internal or external component able to detect and/or measure motion)). In some embodiments, the input device is the audio output device. In some embodiments, the audio output device includes one or more input components (and/or motion detecting components) along with audio components. In some embodiments, the input device is a sensor embedded in the audio output device. Detecting motion through an input device within an audio output device allows (1) the computer system another method of detecting motion without including additional components and/or (2) allows the computer system to selectively use different capabilities of connected components without user selection of the component, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0257] In some embodiments, the input device is a set of one or more cameras (e.g., as discussed at FIGS. 7A-7H). In some embodiments, the computer system uses the camera along with one or more other input devices to detect the motion. In some embodiments, detecting motion via the set of one or more cameras includes detecting motion is the field of view of the set of one or more cameras. In some embodiments, detecting motion via the set of one or more cameras includes detecting a difference in position over time of the computer system and/or the user. Detecting motion through a set of one or more cameras allows the computer system to react to inputs and/or events detected through the field of view of one or more of the cameras without requiring a user to select the cameras, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0258] In some embodiments, the input device is an inertia measurement unit (e.g., as discussed at

FIGS. 7A-7H) (e.g., IMU sensor) (and/or motion sensor, device, and/or component) of (e.g., belonging to and/or embedded within) the computer system (e.g., **700**). In some embodiments, an inertial measurement unit (IMU) is an input device that detects force against and/or exerted on, angular rate of, and orientation of the computer system (and/or relative to an object, plane, and/or position), a user, and/or a computer system that is in communication with the computer system. In some embodiments, the inertial measurement unit contains and/or is used in combination with one or more accelerometers, gyroscopes, and magnetometers. Detecting motion through an inertia measurement unit allows (1) the computer system to measure and/or react to motion through internal readings and/or (2) the computer system a modality to detect motion that is irrespective of a user, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0259] In some embodiments, the motion that satisfies the first set of one or more criteria (e.g., represented by **714**, **716**, and/or **718** at FIGS. 7C-7D) (and/or the motion that no longer satisfies the first set of one or more criteria) corresponds to motion of the computer system (e.g., **700**). In some embodiments, motion of the computer system includes relative motion (e.g., difference in motion as compared to another object, plane, and/or point) (e.g., motion of the computer system relative to a position (e.g., object, position within 3D space, and/or plane within an environment), motion of an object associated with the computer system (e.g., a user's hand, head, and/or body and/or an input device (e.g., a keyboard and/or a mouse)) and another object, plan, and/or position, relative to a direction (e.g., in a direction, from a direction, and/or change of direction), and/or relative to previous motion), and/or absolute motion (e.g., motion of the computer system irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane). Selectively displaying portions of content based on motion of the computer system allows the computer system to automatically react to the motion by displaying content compatible with the motion of the computer system without requiring a user selection of the portion of the content, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0260] In some embodiments, the motion that satisfies the first set of one or more criteria (e.g., represented by **714**, **716**, and/or **718**) (and/or the motion that no longer satisfies the first set of one or more criteria) corresponds to motion of a body portion (e.g., head, arm, torso, leg, and/or hand) of a user (e.g., as discussed at FIGS. 7A-7H) (e.g., a primary user, a non-primary user, a user that is registered with the computer system, and/or a user that is not registered with the computer system). In some embodiments, the motion of the body portion of the user includes relative motion between the body portion of the user and the computer system (e.g., movement of the input device from and/or towards the body portion of the user, repositioning of the device on the body portion of the user), relative motion between the body portion of the user and another object, position, and/or body party (e.g., measuring displacement from, angle in relation to, and/or difference in acceleration), and/or absolute motion of the body portion of the user (e.g., change in position and/or angle as measured based on the body portion of the user). Selectively displaying portions of content based on motion of a body portion of a user allows the computer system to automatically react to the motion by displaying content compatible with the motion of the portion of the user's body without requiring a user selection of the portion of the content, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0261] In some embodiments, the motion that satisfies the first set of one or more criteria (e.g., represented by **714**, **716**, and/or **718**) is first motion (e.g., **714**, **716**, **718** at FIG. 7C) (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g., relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device)). In some embodiments, in response to detecting the first motion and in accordance with a determination that the first motion satisfies a second set of one or more criteria (e.g., as discussed at

FIGS. 7A-7H) different from the first set of criteria, the computer system displays, via the display generation component (e.g., **712**), an indication (and/or one or more indications) (e.g., a graphical user interface element, such as on top of other content being displayed via the display generation component) corresponding to (e.g., based on, related to, proportional to, and/or inversely proportional to) the first motion (e.g., **730** and/or **732** at FIGS. 7B-7D). In some embodiments, the second set of one or more criteria includes a criterion that is satisfied based on: force against and/or exerted on the input device and/or the computer system, movement of the computer system relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system within an environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, the second set of one or more criteria and the first set of one or more criteria have at least one different criterion. In some embodiments, the first set of one or more criteria is a subsection of the second set of one or more criteria. In some embodiments, the first motion satisfies the second set of one or more criteria and the first set of one or more criteria. In some embodiments, the computer system displays the indication corresponding to the first motion while the computer system ceases display of the second portion. In some embodiments, in response to detecting the motion that no longer satisfies the first set of one or more criteria and in accordance with a determination that the motion (e.g., the motion that no longer satisfies the first set of one or more criteria) satisfies the second set of one or more criteria, the computer system displays, via the display generation component, the indication corresponding to the motion (e.g., the motion that no longer satisfies the first set of one or more criteria). In some embodiments, the indication corresponding to the motion includes one or more user interface elements that depict the motion. In some embodiments, the indication corresponding to the motion includes one or more user interface elements that are reactive to the motion. In some embodiments, the indication corresponding to the motion includes one or more user interface elements that counteract and/or contradict the motion (e.g., displaying content and/or altering the one or more user interface elements to lessen a user's sensation of motion and/or feeling of motion). Selectively displaying an indication of the motion along with portions of content allows the computer system to automatically display the indication based on motion satisfying a set of one or more criteria without user specifying the display of the indication, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0262] In some embodiments, the first set of one or more criteria includes a criterion that is satisfied when the first motion (e.g., a magnitude (e.g., average magnitude, maximum magnitude, minimum magnitude, and/or media magnitude) of the first motion) is greater than a threshold (e.g., represented by **714**, **716**, and/or **718** at FIGS. 7G-7H) (and/or a predefined threshold and/or value) (e.g., an instance of motion is over the threshold, continuous motion is over the threshold, and/or change in motion crosses the threshold and remains above and/or falls under the threshold), the motion that satisfies the second set of one or more criteria is second motion. In some embodiments, the second set of one or more criteria includes a criterion that is satisfied when the second motion (e.g., a magnitude of the second motion) is less than the threshold (e.g., represented by **714**, **716**, and/or **718** at FIGS. 7E and/or 7F). In some embodiments, the second set of one or more attributes of the first motion is the same or different than the first set of one or more attributes of the first motion. In some embodiments, the indication corresponding to the first motion is displayed with varying visual characteristics (e.g., size, position, clarity, colors, and/or emphasis) based on the threshold. Selectively displaying portions of content based on motion satisfying threshold value allows the computer system to automatically alter the content display upon meeting and/or exceeding the threshold without requiring user input and/or user defining the threshold, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0263] In some embodiments, in response to detecting the motion (e.g., represented by **714**, **716**, and/or **718**) that satisfied the second set of one or more criteria (e.g., as discussed at FIGS. 7A-7H),

the computer system continues display of the first portion (e.g., **710a**, **710b**, and/or **710c**). In some embodiments, in response to detecting the motion that satisfied the second set of one or more criteria, the computer system continues display of the second portion (e.g., **710a**, **710b**, and/or **710c**). In some embodiments, the computer system alters one or more visual characteristics (e.g., repositioning, blurring, magnifying, shrinking, and/or changing one or more colors of the first portion content and/or of the second portion of content) as a part of continuing display of the first portion of the content and/or the second portion. In some embodiments, the computer system alters the first portion of the content and/or the second portion of the content to compensate for and/or make room for the indication corresponding to the motion that satisfies the second set of one or more criteria as a part of continuing display of the first portion of the content and/or the second portion of the content. Maintaining display of all portions of the content based on motion satisfying a set of one or more criteria allows the computer system to selectively display the portions of the content based on motion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0264] In some embodiments, in response to detecting the motion that satisfies the first set of one or more criteria (e.g., represented by **714**, **716**, and/or **718**), the computer system displays, via the display generation component (e.g., **712**), an indication (e.g., **730** and/or **732**) (and/or one or more indications) corresponding to (e.g., based on, related to, proportional to, and/or inversely proportional to) the motion that satisfies the first set of one or more criteria (e.g., as discussed at FIGS. 7A-7H). In some embodiments, the computer system displays the indication corresponding to the motion that satisfies the first set of one or more criteria with varying visual characteristics (e.g., size, position, clarity, colors, and/or emphasis) based on the motion. In some embodiments, while the computer system displays the indication, the computer system displays the first portion of the content and/or the second portion of the content with one or more visual alterations (e.g., repositioning, blurring, magnifying, shrinking, and/or changing one or more colors). In some embodiments, while the computer system displays the indication, the computer system alters the first portion of the content and/or the second portion of the content to compensate for and/or make room for the indication corresponding to the motion that satisfies the fourth criteria. Selectively displaying an indication of the motion along with portions of content allows the computer system to automatically display the indication based on motion satisfying a set of one or more criteria without user specifying the display of the indication, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0265] Note that details of the processes described above with respect to method **800** (e.g., FIG. **8**) are also applicable in an analogous manner to other methods described herein. For example, method **1300** optionally includes one or more of the characteristics of the various methods described above with reference to method **800**. For example, the display of content can be shifted using one or more techniques described herein in relation to method **800**, where the content is shifted based on a state of a user described herein in relation to method **1300**. For brevity, these details are not repeated herein.

[0266] FIG. **9** is a flow diagram illustrating a method (e.g., method **900**) for shifting the output of a sound field in accordance with some embodiments. Some operations in method **900** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

[0267] As described below, method **900** provides an intuitive way for shifting the output of a sound field. Method **900** reduces the cognitive burden on a user, thereby creating a more efficient human-machine interface. For battery-operated computing devices, enabling a user to interact with such devices faster and more efficiently conserves power and increases the time between battery charges.

[0268] In some embodiments, method **900** is performed at a computer system (e.g., **700**) (e.g., a watch, a phone, a tablet, a fitness tracking device, a processor, a head-mounted display (HMD))

device, a communal device, a media device, a speaker, a television, and/or a personal computing device) that is in communication with (e.g., and/or includes) an input device (e.g., a motion detection device (e.g., gyroscope, force meter, accelerometer, and/or internal or external component able to detect and/or measure motion), a camera (e.g., one or more cameras with different fields of view in relation to the computer system (e.g., front, back, wide, and/or zoom)), a depth sensor, a microphone, a hardware input mechanism, a rotatable input mechanism, a heart monitor, a temperature sensor, and/or a touch-sensitive surface), a display generation component (e.g., **712**) (e.g., a display screen, a projector, and/or a touch-sensitive display), and an audio generation component (e.g., represented by **724**) (e.g., a speaker, smart speaker, home theater system, soundbar, headphone, earphone, earbud, speaker, television speaker, augmented reality headset speaker, audio jack, optical audio output, Bluetooth audio output, and/or HDMI audio output). [0269] While displaying, via the display generation component, content (e.g., **704**, **706**, **708**, **710a**, **710b**, and/or **710c**), the computer system detects (**902**), via the input device, motion (e.g., represented by **714**, **716**, and/or **718**) (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g., relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device)). In some embodiments, the content includes a user interface, one or more user interface objects, one or more images, text, and/or one or more characters. In some embodiments, detecting the motion includes detecting: force against and/or exerted on the input device, movement of the computer system relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system within the environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, detecting the motion includes detecting relative motion (e.g., difference in motion as compared to another object, plane, and/or point) (e.g., motion of the computer system relative to a position (e.g., object, position within 3D space, and/or plane within an environment), relative to a direction (e.g., in a direction, from a direction, and/or change of direction), and/or relative to previous motion), and/or absolute motion (e.g., motion of the computer system irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane).

[0270] In response to (**904**) detecting the motion, in accordance with a determination that a first set of one or more criteria is satisfied, wherein the first set of one or more criteria includes a criterion that is satisfied when the motion is a first amount of motion (e.g., **714**, **716**, and/or **718** at FIG. 7F), the computer system alters (**906**), via the audio generation component, an audio characteristic of a sound field corresponding to the content by a first amount (e.g., represented by **724** at FIG. 7F). In some embodiments, the first amount of motion is a threshold value including intensity of motion, direction of motion, length of motion, and/or change of motion (e.g., change of intensity and/or direction). In some embodiments, the first amount of motion corresponds to relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device). In some embodiments, the first amount of motion corresponds to a particular period of time (e.g., an amount of motion for a threshold amount of time, change of motion of a period of time, and/or one or more periods of time with varying amounts of motion) and/or a continuous reading by the computer system (e.g., instances of motion, instances of motion as compared to prior instances of motion, and/or a running comparison of motion over time (e.g., as related to an average, median, and/or max or minimum value)). In some embodiments, an audio characteristic includes an audio intensity level, an audio output direction, an audio wave pattern (e.g., amplitude, frequency, and/or wavelength of perceivable and/or non-perceivable sound waves), and/or a desired audio locationality (e.g., desired perceived location of audio object in reference to a user, an environment, and/or the device). In some embodiments, altering the audio characteristic of the sound field

corresponding to the content by the first amount includes altering an audio intensity value, changing an audio output direction, altering an amplitude, frequency, and/or wavelength of an audio wave, and/or altering an audio locationality. In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the first amount includes moving the sound field by the first amount. In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the first amount indicates a direction of travel (e.g., by altering the audio characteristic of the sound field by the first amount in the direction of travel or in an opposite direction to the direction of travel). In some embodiments, the audio characteristic of the sound field is altered in the direction of travel (e.g., by altering the audio characteristic of the sound field by the first amount in the direction of travel). In some embodiments, the audio characteristic of the sound field is altered in the direction of travel (e.g., by altering the audio characteristic of the sound field by the first amount in an opposite direction to the direction of travel).

[0271] In response to **(904)** detecting the motion, in accordance with a determination that a second set of one or more criteria, different from the first set of one or more criteria, is satisfied, wherein the second set of one or more criteria includes a criterion that is satisfied when the motion is a second amount of motion (e.g., **714**, **716**, and/or **718** at FIG. 7G) different from the first amount of motion, the computer system alters **(908)**, via the audio generation component, the audio characteristic of the sound field corresponding to the content by a second amount (e.g., represented by FIG. 7G) different from the first amount. In some embodiments, the second amount of motion is a threshold value including intensity of motion, direction of motion, length of motion, and/or change of motion (e.g., change of intensity and/or direction). In some embodiments, the first amount of motion corresponds to relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device). In some embodiments, the second amount of motion corresponds to a particular period of time (e.g., an amount of motion for a threshold amount of time, change of motion of a period of time, and/or one or more periods of time with varying amounts of motion) and/or a continuous reading by the computer system (e.g., instances of motion, instances of motion as compared to prior instances of motion, and/or a running comparison of motion over time (e.g., as related to an average, median, and/or max or minimum value)). In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the second amount includes altering an audio intensity value, changing an audio output direction, altering an amplitude, frequency, and/or wavelength of an audio wave, and/or altering an audio locationality. In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the second amount includes moving the sound field by the second amount. In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the second amount indicates a direction of travel (e.g., by altering the audio characteristic of the sound field by the second amount in the direction of travel or in an opposite direction to the direction of travel). In some embodiments, the audio characteristic of the sound field is altered in the direction of travel (e.g., by altering the audio characteristic of the sound field by the second amount in the direction of travel). In some embodiments, the audio characteristic of the sound field is altered in the direction of travel (e.g., by altering the audio characteristic of the sound field by the second amount in an opposite direction to the direction of travel). Altering the audio characteristic of the sound field by a particular amount when a set of prescribed conditions is met (e.g., the amount of motion is the first amount of motion or the second amount of motion) automatically allows the computer system to tailor the adjustment of the audio characteristic to the detected motion, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0272] In some embodiments, the audio generation component is a set of one or more external playback devices (e.g., as discussed at FIGS. 7A-7H) (e.g., headphones and/or speakers). In some

embodiments, the computer system causes (e.g., before and/or while detecting the motion), via the set of one or more external playback devices, the output (e.g., produce, create, and/or generate) of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H). In some embodiments, the computer system causes the set of one or more external playback devices to output the sound field in response to detecting an input. In some embodiments, the computer system causes the set of one or more external playback devices to output the sound field based on a determination that one or more conditions are satisfied. In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the first amount includes changing, via the set of one or more external playback devices, the audio characteristic of the sound field corresponding to the content by the first amount. In some embodiments, altering the audio characteristic of the sound field corresponding to the content by the second amount includes changing, via the set of one or more external playback devices, the audio characteristic of the sound field corresponding to the content by the second amount.

[0273] In some embodiments, the motion is of an external structure (e.g., as discussed at FIGS. 7A-7H) (e.g., automobile, train, boat, and/or airplane) (e.g., external to the computer system). In some embodiments, the external structure is moving in a translational manner and/or a rotational manner. Selectively altering the audio characteristic of the sound field when a set of prescribed conditions of an external structure is met (e.g., the motion of the external structure is the first amount of motion or the second amount of motion) automatically allows the computer system to provide an indication of an absolute motion and/or relative motion of the external structure, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0274] In some embodiments, the motion is of a body part (e.g., the head, torso, legs, hands, and/or arms) of a user (e.g., as discussed at FIGS. 7A-7H) (e.g., a user of the computer system, a non-user of the computer system, a primary user, and/or a non-primary user). In some embodiments, the user is registered with the computer system. In some embodiments, the user is not registered with the computer system. Selectively altering the audio characteristic of the sound field when a set of prescribed conditions of the user is met (e.g., the motion of the user is the first amount or the motion of the user is the second amount) automatically allows the computer system to provide an indication of an absolute motion and/or relative motion of the user, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0275] In some embodiments, the computer system outputs (e.g., before and/or while detecting the motion), via the audio generation component, the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H). In some embodiments, the computer system outputs the sound field in response to detecting an input. In some embodiments, the computer outputs the sound field in response to detecting that a one or more conditions are met (e.g., environmental conditions, a state of the computer system and/or a state of a user).

[0276] In some embodiments, altering the audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) includes directing (e.g., moving and/or redirecting), via the audio generation component, the sound field away from an initial position of the sound field (e.g., change of **724** from FIG. 7E to 7F) (e.g., a default position of the sound field, a position of the sound field before the motion is detected, and/or a position that is based on a user). In some embodiments, while directing the sound field away from the initial position of the sound field, the computer system ceases to detect, via the input device, the motion (e.g., and/or any motion). In some embodiments, in response to ceasing to detect the motion, the computer system directs, via the audio generation component, the sound field at the initial position of the sound field (e.g., **724** at FIG. 7E). In some embodiments, before (e.g., and/or while) detecting the motion, the computer system directs, via the audio generation component, the sound field towards the initial position. In some embodiments, the computer system ceases to direct, via the audio generation component, output of the sound field in a particular direction (e.g., towards the initial position of the sound field or away from the initial position of the sound field) in response to ceasing to detect the



motion. In some embodiments, the computer system outputs, via the audio generation component, the sound field in response to detecting initiation of the motion. Directing the sound field at the initial position of the sound field in response to ceasing to detect the motion allows the computer system to cease the performance of a motion mitigation techniques at a point in time when the motion mitigation technique is no longer necessary, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0277] In some embodiments, altering the audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) includes directing (e.g., moving and/or redirecting), via the audio generation component, the sound field away from an initial position (e.g., a default position of the sound field, a position of the sound field before the motion is detected, and/or a position that is based on a user) of the sound field (e.g., represented by **724** at FIG. 7F). In some embodiments, while directing the sound field away from the first position, the computer system detects that a magnitude (e.g., average magnitude, media magnitude, and/or absolute magnitude) of one or more attributes (e.g., characteristics, features, elements, and/or traits) (e.g. speed, acceleration, deceleration, turning force, and/or braking force) of the motion (e.g., and/or any motion) is less than a threshold (e.g., as discussed at FIG. 7E) (e.g., a user defined threshold, a computer defined threshold, a user specific threshold, and/or a motion specific threshold). In some embodiments, in response to detecting that the magnitude of the one or more attributes of the motion is less than the threshold, the computer system directs (e.g., moving and/or redirecting), via the audio generation component, the sound field towards the initial position of the sound field (e.g., represented by **724** at FIG. 7E). In some embodiments, before (e.g., and/or while) detecting the motion, the computer system detects, via the audio generation component, the sound field towards the initial position. In some embodiments, the magnitude is an absolute value of the motion. Directing the sound field at the initial position of the sound field in response to detecting that the magnitude of one or more attributes of the motion is less than the threshold allows the computer system to cease the performance of a motion mitigation techniques at a point in time when the motion mitigation technique is no longer necessary, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0278] In some embodiments, In response to detecting the motion and in accordance with a determination that a magnitude (e.g., average magnitude, media magnitude, and/or absolute magnitude) of one or more attributes (e.g., characteristics, features, elements, and/or traits) (e.g. speed, acceleration, deceleration, turning force, and/or braking force) of the motion is less than a threshold (e.g., as discussed at FIG. 7E) (e.g., a user defined threshold, a computer defined threshold, a user specific threshold, and/or a motion specific threshold), the computer system forgoes altering, via the audio generation component, the audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) corresponding to the content (e.g., represented by **724** at FIG. 7E). In some embodiments, after forgoing altering the audio characteristic of the sound field, the computer system alters the audio characteristic of the sound field in accordance with a determination that the magnitude of the one or more characteristics of the motion is above the threshold. In some embodiments, the computer system alters the audio characteristic of the sound field corresponding to the content in response to detecting the motion and in accordance with a determination that the magnitude of the one or more characteristics of the motion is less than the threshold. In some embodiments, the magnitude is an absolute value of the motion. Forgoing altering the audio characteristic of the sound when the magnitude of one or more attributes of the motion is less than the threshold allows the computer system to forgo disrupting a media experience of a user for insignificant amounts of motion, thereby providing improved feedback and/or forgo performing an operation when a set of conditions has been met without requiring further user input.

[0279] In some embodiments, In accordance with a determination that that the motion is in a first

direction (e.g., represented by **718** at FIG. 7C) (e.g., forwards, backwards, to the left, and/or to the right), altering the audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) corresponding to the content includes moving the sound field in a second direction (e.g., **724** at FIG. 7C) (e.g., to the left to the right, backwards and/or forwards). In some embodiments, in accordance with a determination that the motion is in a third direction (e.g., **718** at FIG. 7E) (e.g., forwards, backwards, to the left, and/or to the right) different from the first direction, altering the audio characteristic of the sound field corresponding to the content includes moving the sound field in a fourth direction (e.g., **724** at FIG. 7E) (e.g., forwards, backwards, to the left, and/or to the right) different from the second direction. In some embodiments, the direction that the sound field is moved has a direct correlation or inverse correlation with the direction of the motion. In some embodiments, the magnitude of the of the movement of the sound field is directly correlated with the magnitude of the motion. Moving the sound field in a particular direction based on the direction of the motion automatically allows the computer system to perform an operation that provides an indication of the present direction of the motion and/or a future direction of the motion, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0280] In some embodiments, altering the audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) corresponding to the content includes moving, via the audio generation component, the sound field in a first direction (e.g., forwards, backwards, to the left, and/or to the right) to a first position (e.g., **724** at FIG. 7F) (e.g., a position relative to the user and/or a position relative to the user and the computer system). In some embodiments, while the sound field is positioned at the first position (e.g., and/or while continuing to detect the motion) and in accordance with a determination that a user satisfies a first set of one or more criteria (e.g., as discussed at FIGS. 7F-7G) (e.g., one or more vital signs (e.g., the heart rate, respiratory rate, stress levels, body temperature, and/or blood pressure) of the subject is above or a threshold, amount of movement of the subject is above a threshold, subject is not detectable by the computer system, subject has not interacted with the computer system for a predetermined period of time, computer system has not detected the gaze of the for a predetermined period of time (e.g., 10-360 seconds) the eyes of the subject are closed), the computer system moves, via the audio generation component, the sound field in the first direction towards a second position (e.g., **724** at FIG. 7G) (e.g., a position relative to the user and/or a position relative to the user and the computer system) (e.g., the second position is along the first direction away from the first position) (e.g., the second position is removed from the first position) different from the first position. In some embodiments, the first direction, first position and/or second position are user specific. Moving the sound field further in the first direction when a set of prescribed conditions is met automatically allows the computer system to perform additional motion mitigation techniques to further alleviate discomfort a user may experience as a result of the motion thereby performing an operation when a set of conditions has been met without requiring further user input.

[0281] In some embodiments, altering the audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) includes directing (e.g., moving and/or redirecting), via the audio generation component, the sound field away from an initial position (e.g., a default position and/or a predefined position) (e.g., a position of the sound field before the motion is detected and/or a position of the sound field while the motion is detected) of the sound field to a first position (e.g., **724** at FIG. 7G). In some embodiments, while directing the sound field to the first position, the computer system detects, via the input device, an input (e.g., **705g**) (e.g., a tap input, a voice command, a gaze, an air gesture, a depression of a physical input mechanism, and/or a rotation of a rotatable input mechanism). In some embodiments, in response to detecting the input, the computer system directs (e.g., moving and/or redirecting), via the audio generation component, the sound field at the initial position (e.g., **724** at FIG. 7H) without directing the sound field at the first position. In some embodiments, before detecting the motion, the computer system directs the

sound field at the first position. Directing the sound field at the initial position in response to detecting the input allows the computer system to reset the positioning of the sound field when a user has indicated that the shifting of the sound field is not desired and/or warranted, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0282] In some embodiments, the first amount (e.g., represented by **724** at FIG. 7F) of motion (e.g., **714**, **716**, and/or **718** at FIG. 7F) is less than the second amount of motion (e.g., **714**, **716**, and/or **718** at FIG. 7G). In some embodiments, audio characteristic of the sound field (e.g., represented by **726** and/or **728** at FIGS. 7A-7H) is altered by a smaller magnitude when the audio characteristic of the sound field is altered by the first amount than when the audio characteristic of the sound field is altered by the second amount (e.g., represented by FIG. 7G). In some embodiments, the first amount of motion is more than the second amount of motion. In some embodiments, the audio characteristic of the sound field is altered by a greater magnitude when the audio characteristic of the sound field is altered by the first amount than when the audio characteristic of the sound field is altered by the second amount. In some embodiments, the first amount of motion and the first amount of alteration of the audio characteristic of the sound field and/or the second amount of motion and the second amount of alteration are directly correlated or have an inverse correlation. Altering an audio characteristic of a sound field by varying magnitudes depending on varying amounts of motion allows the computer system to automatically alter the sound field to compensate for and/or in proportion to the amount of motion without requiring user input, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0283] Note that details of the processes described above with respect to method **900** (e.g., FIG. 9) are also applicable in an analogous manner to other methods described herein. For example, method **800** optionally includes one or more of the characteristics of the various methods described above with reference to method **900**. For example, a sound field can be shifted using one or more techniques described here in relation to method **900**, where the sound field is shifted based on the gaze of a user using one or more techniques described herein in relation to method **1100**. For brevity, these details are not repeated herein.

[0284] FIGS. **10A-10G** illustrate exemplary user interfaces for altering content based on a gaze of a user in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIG. **11**.

[0285] FIG. **10A** illustrates computer system **1000** as a tablet. While computer system **1000** is depicted as a tablet, it should be recognized that computer system **1000** can be other types of computer systems such as a smart phone, a smart watch, a laptop, a communal device, a smart speaker, an accessory, a personal gaming system, a desktop computer, a fitness tracking device, and/or a head-mounted display (HMD) device. In some embodiments, computer system **1000** includes and/or is in communication with one or more input devices and/or sensors (e.g., a camera, a LiDAR sensor, a motion sensor, an infrared sensor, a touch-sensitive surface, a physical input mechanism (such as a button or a slider), and/or a microphone). Such sensors can be used to detect presence of, attention of, statements from, inputs corresponding to, requests from, and/or instructions from a user in an environment. It should be recognized that, while some embodiments described herein refer to inputs being gaze inputs, other types of inputs can be used with techniques described herein, such as touch inputs that are detected via a touch-sensitive surface and/or air gestures detected via a camera (e.g., a camera that is in communication (e.g., wireless and/or wired communication) with computer system **1000**). In some embodiments, computer system **1000** includes and/or is in communication with one or more output devices (e.g., a display screen, a projector, a touch-sensitive display, speaker, and/or a movement component). Such output devices are used to present information and/or cause different visual changes of computer system **1000**. In some embodiments, computer system **1000** includes one or more components and/or features described above in relation to computer system **100**, electronic device **200**, and/or computer system

700.

[0286] As illustrated in FIG. 10A, computer system **1000** concurrently displays user interface **1008** and user interface **1014**. User interface **1008** is a web browser that corresponds to an internet application that is installed on computer system **1000**. User interface **1014** corresponds to a separate application that is installed on computer system **1000**. In some embodiments, user interface **1008** and user interface **1014** correspond to a common application that is installed on computer system **1000**. In some embodiments, computer system **1000** displays a single user interface with different sets of content. In some embodiments, computer system **1000** displays a single user interface with a single set of content.

[0287] FIGS. 10A-10G include gaze indication **1004**. The positioning of gaze indication **1004** is representative of the position of the gaze of a user (e.g., a user that is currently using computer system **1000**). At FIG. 10A, gaze indication **1004** is positioned between user interface **1008** and user interface **1014**. Accordingly, at FIG. 10A, the user is directing their gaze between user interface **1008** and user interface **1014**. Of note, gaze indication **1004** is a visual aid that is not displayed by computer system **1000**.

[0288] In FIGS. 10A-10G, computer system **1000** is positioned within an external structure. Because computer system **1000** is within the external structure, as the external structure moves, computer system **1000** also moves. At FIG. 10A, the external structure is not moving. In some embodiments, computer system **1000**'s housing and/or enclosure is the external structure. In some embodiments, the external structure is an automobile, boat, train, subway, and/or airplane. In some embodiments, computer system **1000** is coupled to the external structure.

[0289] FIGS. 10A-10G include motion indication **1006**. Motion indication **1006** provides an indication of the speed, direction and/or acceleration associated with computer system **1000**. In some embodiments, motion indication **1006** indicates the motion and/or speed of an external structure that computer system **1000** is positioned within. At FIG. 10A, as a result of the external structure not moving, computer system **1000** is not moving. Accordingly, motion indication **1006** indicates that the speed of computer system **1000** is zero miles-per-hour. Similar to gaze indication **1004**, motion indication **1006** is a visual aid and is not displayed by computer system **1000**. In some embodiments, motion indication **1006** indicates motion and/or speed of the user relative to computer system **1000** and/or absolute motion and/or speed of the user. In some embodiments, motion indication **1006** indicates the motion and/or speed of computer system **1000** relative to the user and/or absolute motion and/or speed of computer system **1000**.

[0290] At FIG. 10B, a determination is made that computer system **1000** begins to move in a rightward manner at fifteen miles-per-hour (e.g., the external structure causes computer system **1000** to move). Accordingly, at FIG. 10B motion indication **1006** includes an arrow that is directed to the right (e.g., that is indicative of the direction of motion of computer system **1000**) and includes an indication of the speed of computer system **1000**. At FIG. 10B, based on the positioning of gaze indication **1004**, the gaze of the user continues to be directed between user interface **1008** and user interface **1014**. At FIG. 10B, computer system **1000** does not modify the content that is included in user interface **1008** and user interface **1014**, based on the determination that computer system **1000** begins to move in a rightward manner at fifteen miles-per-hour while the gaze of the user is directed between user interface **1008** and user interface **1014**.

[0291] As explained in greater detail below, based on a determination being made that computer system **1000** is in motion (and/or the motion is above a motion threshold), computer system **1000** modifies the content within user interface **1008** and/or user interface **1014** based on the gaze of the user. Computer system **1000** modifies the appearance of content included within user interface **1008** and/or user interface **1014** to help alleviate discomfort the user is feeling as a result of the motion. However, computer system **1000** does not modify the content included within user interface **1008** and/or user interface **1014** when a determination is made that computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer

system **1000** is above an acceleration threshold) and the gaze of the user is not directed towards user interface **1008** or user interface **1014**. In some embodiments, computer system **1000** modifies the content included within user interface **1008** and user interface **1014** when a determination is made that computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold) and the gaze of the user is not directed towards user interface **1008** or user interface **1014**. In some embodiments, computer system **1000** does not modify the content included within user interface **1008** and/or user interface **1014** when a determination is made that the motion of computer system **1000** is less than the motion threshold and/or a determination is made that computer system **1000** is no longer in motion (e.g., not modifying user interface **1008** and/or user interface **1014** irrespective of the gaze of the user). In some embodiments, computer system **1000** modifies the content included within user interface **1008** and/or user interface **1014** based on a determination being made that the speed of computer system **1000** is greater than a speed threshold. In some embodiments, computer system **1000** modifies the content included within user interface **1008** and/or user interface **1014** based on a determination being made that an acceleration of computer system **1000** is greater than an acceleration threshold.

[0292] At FIG. **10C**, as indicated by motion indication **1006**, computer system **1000** continues to move in a rightward manner at 15 miles-per-hour. At FIG. **10C**, as indicated by the positioning of gaze indication **1004**, the user is directing their attention towards user interface **1008** (e.g., and not user interface **1014**). At FIG. **10C**, a determination is made that the gaze of the user is directed at user interface **1008** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold). At FIG. **10C**, because a determination is made that the gaze of the user is directed at user interface **1008** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold), computer system **1000** modifies the content within user interface **1008**. More specifically, at FIG. **10C**, computer system **1000** displays visual cues **1010** (e.g., as described above with respect to FIGS. **4A-4C**, **5A-5D**, **6**, **7A-7H**, **8**, and/or **9**) as overlaid on top of user interface **1008**. Visual cues **1010** include a pattern of user interface objects (e.g., user interface objects of a single shape or user interface objects of multiple shapes) that move based on the motion of computer system **1000**. The above description of dynamic element **406**, as described above in FIGS. **4A-4C** and **5A-5D**, and the above description of left visual elements **730** and/or right visual elements **732** as described above in FIGS. **7A-7H** are hereby incorporated into visual cues **1010**.

[0293] Computer system **1000** displays visual cues **1010** as a technique to mitigate discomfort that a user may experience as a result of the motion (e.g., the motion that corresponds to motion indication **1006**). In some embodiments, the display of visual cues **1010** is dependent on the motion of computer system **1000**. For example, computer system **1000** moves visual cues **1010** in a direction that is opposite the motion of computer system **1000** (e.g., the motion that corresponds to motion indication **1006**). More specifically, computer system **1000** displays visual cues **1010** in a manner such that there is not a disconnect between the motion the user feels and the content the user is viewing. While the motion of computer system **1000** is to the right, the user experiences movement to the left. Accordingly, computer system **1000** moves visual cues **1010** to the left to match the motion that the user feels. In some embodiments, the speed at which computer system **1000** moves visual cues **1010** has a direct correlation with the motion of computer system **1000**.

[0294] In addition to displaying visual cues **1010**, because a determination is made that the gaze of the user is directed at user interface **1008** (e.g., and not user interface **1014**), while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or another motion threshold different from the motion threshold), computer system **1000** shifts the content included within user interface **1008** in a direction that is opposite the direction of motion of computer system **1000**. Accordingly, at FIG. **10C**, because the motion of computer system **1000** is to the right, computer

system **1000** shifts the content within user interface **1008** to the left (e.g., in comparison to the positioning of the content of user interface **1008** at FIG. **10B**). The shifting of the content within user interface **1008** is an additional motion mitigation technique that computer system **100** performs to increase the comfortability of the user. In some embodiments, when the motion of computer system **1000** is below the other motion threshold and above the motion threshold, computer system **1000** displays visual cues **1010** without shifting the content of user interface **1008**. For example, based on a determination that computer system **1000** is moving at a speed of 10 miles-per-hour, computer system **1000** displays visual cues **1010** without shifting the display of content included within user interface **1008**. In some embodiments, when the motion of computer system **1000** is below the other motion threshold and above the motion threshold, computer system **1000** shifts the display of content included within user interface **1008** without displaying visual cues **1010**.

[0295] At FIG. **10C**, because a determination is made that the gaze of the user is directed at user interface **1008** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold), computer system **1000** blurs and/or otherwise deemphasizes the content of user interface **1014**. In some embodiments, computer system **1000** blurs the content of user interface **1014** based on a determination that the gaze of the user is not directed at user interface **1014** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold). In some embodiments, computer system **100** ceases to display user interface **1014** based on a determination that the gaze of the user is directed at user interface **1008** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold). In some embodiments, computer system **1000** does not modify the appearance of user interface **1014** when a determination is made that the gaze of the user is directed at user interface **1008** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold).

[0296] At FIG. **10D**, as indicated by motion indication **1006**, computer system **1000** continues to move in a rightward manner at 15 miles-per-hour. At FIG. **10D**, as indicated by the positioning of gaze indication **1004**, the user is now directing their attention at user interface **1014** (e.g., and not user interface **1008**). At FIG. **10D**, a determination is made that the gaze of the user is directed at user interface **1014** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold). At FIG. **10D**, because a determination is made that the gaze of the user is directed at user interface **1014** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold), computer system **1000** modifies the content included within user interface **1014**. Computer system **1000** modifies the content within user interface **1014** in the same manner in which computer system **1000** modified the content included within user interface **1008** at FIG. **10C**. More specifically, as illustrated in FIG. **10D**, computer system **1000** displays visual cues **1010** and shifts the content included within user interface **1014** to the left. In some embodiments, the appearance (e.g., size, shape, and/or color) of visual cues **1010** is based on the motion of computer system **1000**. For example, the size of visual cues **1010** increases as the speed of computer system **1000** increases and/or the color of visual cues **1010** darkens as the speed of computer system **1000** increases. As illustrated in FIG. **10D**, because a determination is made that the gaze of the user is directed at user interface **1014** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold), computer system **1000** blurs and/or otherwise deemphasizes the content of user interface **1008**.

[0297] At FIG. **10E**, as indicated by the absence of gaze indication **1004**, the user is not directing their attention towards computer system **1000**. At FIG. **10E**, a determination is made that the user is not directing their attention towards computer system **1000**. At FIG. **10E**, because the determination is made that the user is not directing their attention towards computer system **1000**, computer system **1000** ceases modifying the content of user interface **1014** and ceases blurring and/or deemphasizing the content of user interface **1008**. That is, when it is determined that the attention of the user is not directed at computer system **1000**, computer system **1000** does not alter the appearance of the content included within user interface **1014** and/or the content included within user interface **1008**. In some embodiments, computer system **1000** ceases modifying the content of user interface **1008** and/or user interface **1014** based on a determination that the gaze of the user is not directed at user interface **1008** nor user interface **1014**. In some embodiments, computer system **1000** ceases displaying user interface **1008** and/or user interface **1014** based on a determination that the user is not directing their attention towards computer system **1000**. In some embodiments, computer system **1000** ceases modifying the appearance of content included within user interface **1008** and/or user interface **1014** based on a determination that the motion of computer system **1000** transitions from being above the motion threshold to being below the motion threshold (e.g., computer system **1000** and/or the external structure that computer system **1000** is within has come to a rest) is slowing down).

[0298] At FIG. **10F**, as indicated by motion indication **1006**, computer system **1000** continues to move in a rightward manner. However, at FIG. **10F**, the speed of computer system **1000** increases to twenty-five miles per hour (e.g., from fifteen miles per hour at FIG. **10E**). At FIG. **10F**, as indicated by the positioning of gaze indication **1004**, the user is directing their attention at user interface **1008**. At FIG. **10F**, a determination is made that the attention of the user is directed at user interface **1008** while computer system **1000** is in motion. Because a determination is made that that the attention of the user is directed at user interface **1008** while computer system **1000** is in motion (and/or the motion is above the motion threshold and/or the acceleration of computer system **1000** is above an acceleration threshold), computer system **1000** displays visual cues **1010** as moving from right to left, shifts the content included within user interface **1008** to the left, and blurs and/or otherwise deemphasizes the content within user interface **1014** (e.g., using the techniques described above).

[0299] At FIG. **10F**, because computer system **1000** is travelling at twenty-five miles per hour, as opposed to the fifteen miles per hour (e.g., the speed of computer system **1000** at FIGS. **10B-10E**), computer system **1000** was previously travelling at, computer system **1000** shifts the content included within user interface **1008** by a greater magnitude in contrast to when computer system **1000** is traveling at fifteen miles per hour. In some embodiments, the number of visual cues **1010** that computer system **1000** displays is dependent on a magnitude of the motion of computer system **1000**. For example, computer system **1000** displays more visual cues **1010** the faster computer system **1000** travels and/or accelerates or computer system **1000** displays fewer visual cues **1010** the faster computer system **1000** travels and/or accelerates. In some embodiments, the speed at which computer system **1000** displays visual cues **1010** moving is dependent on a magnitude of the motion of computer system **1000** (e.g., computer system **1000** displays visual cues **1010** as moving faster the faster computer system **1000** moves and/or accelerates or computer system **1000** displays visual cues **1010** as moving slower the faster computer system **1000** moves and/or accelerates). In some embodiments, the number of visual cues **1010** that computer system **1000** displays is dependent on the motion of computer system **1000** (e.g., computer system **1000** displays more visual cues **1010** the greater the speed of computer system **1000** travels and/or accelerates or computer system **1000** displays fewer visual cues **1010** the greater the motion of computer system **1000**).

[0300] At FIG. **10G**, as indicated by motion indication **1006**, computer system **1000** is no longer moving (e.g., computer system **1000** and/or the external structure that computer system **1000** is

within has come to a rest). At FIG. 10G, as indicated by the positioning of gaze indication **1004**, the attention of the user remains directed at user interface **1008**. At FIG. 10G, a determination is made that computer system **1000** is not in motion. Because a determination is made computer system **1000** is not in motion, computer system **1000** ceases to modify the appearance of the content included within user interface **1008** and user interface **1014**. That is, though the attention of the user is directed at user interface **1014**, because computer system **1000** is not in motion, computer system **1000** does not modify the appearance of user interface **1008** and **1014** (e.g., computer system **1000** displays user interface **1008** and user interface **1014** with their initial appearance). In some embodiments, based on a determination that computer system **1000** is not in motion, computer system **1000** ceases to display user interface **1008** and/or user interface **1014**. In some embodiments, based on a determination that computer system **1000** is not in motion, computer system applies a visual effect (e.g., a blur, decrease in opacity, and/or fade out). In some embodiments, computer system **1000** ceases to detect the attention of the user based on a determination that computer system **1000** is not in motion. In some embodiments, computer system **1000** continues to detect the attention of the user based on a determination that computer system **1000** is not in motion.

[0301] FIG. 11 is a flow diagram illustrating a method (e.g., method **1100**) for altering content based on a gaze of a user in accordance with some embodiments. Some operations in method **1100** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

[0302] As described below, method **1100** provides an intuitive way for altering content based on a gaze of a user. Method **1100** reduces the cognitive burden on a user, thereby creating a more efficient human-machine interface. For battery-operated computing devices, enabling a user to interact with such devices faster and more efficiently conserves power and increases the time between battery charges.

[0303] In some embodiments, method **1100** is performed at a computer system (e.g., **1000**) (e.g., a watch, a phone, a tablet, a fitness tracking device, a processor, a head-mounted display (HMD) device, a communal device, a media device, a speaker, a television, and/or a personal computing device) that is in communication with (e.g., and/or includes) an input device (e.g., a motion detection device (e.g., gyroscope, force meter, accelerometer, and/or internal or external component able to detect and/or measure motion), a camera (e.g., one or more cameras with different fields of view in relation to the computer system (e.g., front, back, wide, and/or zoom)), a depth sensor, a microphone, a hardware input mechanism, a rotatable input mechanism, a heart monitor, a temperature sensor, and/or a touch-sensitive surface) and a display generation component (e.g., as discussed at FIG. 10A) (e.g., a display screen, a projector, and/or a touch-sensitive display).

[0304] While displaying, via the display generation component, content (e.g., **1008** and/or **1014**) in a first manner (e.g., **1008** and/or **1014** at FIGS. 10A and/or 10B) (e.g., with a first set of one or more visual characteristics and/or a first visual appearance), the computer system detects (**1102**), via the input device, motion (e.g., represented as **1006** at FIGS. 10A-10G) (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g., relative or absolute motion (e.g., motion of the input device relative to the computer system, motion of the input device relative to a physical environment, or absolute motion detected by the input device)). In some embodiments, the content includes a user interface, one or more user interface objects, one or more images, text, and/or one or more characters. In some embodiments, displaying the content in the first manner includes displaying, via the display generation component, maximized content, unmodified content, a first type of content, a first amount of content, and/or content with a first visual clarity. In some embodiments, detecting the motion includes detecting: force against and/or exerted on the input device, movement of the computer system relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system within the environment (e.g., absolute measurement of displacement of the computer system),



direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, detecting motion includes detecting relative motion (e.g., difference in motion as compared to another object, plane, and/or point) (e.g., motion of the computer system relative to a position (e.g., object, position within 3D space, and/or plane within an environment), relative to a direction (e.g., in a direction, from a direction, and/or change of direction), and/or relative to previous motion), and/or absolute motion (e.g., motion of the computer system irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane).

[0305] In response to (**1104**) detecting the motion, in accordance with a determination that a user is directing attention to a first portion of the content (e.g., position of **1004** on **1008** at FIG. **10C**) (e.g., a subsection of the content, a majority of the content, a minority of the content, less than the entirety of the content, and/or a key portion of the content), the computer system displays (**1106**), via the display generation component, the first portion of the content in a second manner (e.g., inclusion of **1010** on **1008** at FIG. **10C**), different from the first manner, based on the motion. In some embodiments, determining that the user is directing attention to the first portion of the content includes determining that the attention of the user is directed to, within, and/or on a user interface, user interface element, content, and/or output device. In some embodiments, determining that the user is directing attention to the first portion of the content includes detecting an input (e.g., gaze input, non-touch input, input corresponding to the computer system determining the position of a user's eyes in relation to the computer system) directed to the position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, determining that the user is directing attention to the first portion of the content includes determining proximity of the user to a position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, displaying the first portion of the content in the second manner includes changing an amount of the content in the first portion (e.g., adding and/or removing from the content), a visual characteristic (e.g., emphasis, clarity, size, boldness, and/or brightness) of the content, position (e.g., relative to the user interface, the computer system and/or relative to the motion), and/or type of content (e.g., altering the representation of the content (e.g., text to an image and/or video to an image) and/or summarizing). In some embodiments, displaying the first portion of the content in the second manner is based on the motion includes altering the first portion of the content to compensate for the motion (e.g., repositioning, resizing, emphasizing, and/or changing the content within the first portion of the content based on the motion). In some embodiments, displaying the first portion of the content in the second manner includes displaying a second portion, different from the first portion, of the content in the first manner, the second manner, and/or a third manner different from the first manner and/or the second manner.

[0306] In response to (**1104**) detecting the motion, in accordance with a determination that the user is directing attention to a second portion of the content (e.g., position of **1004** on **1014** at FIG. **10D**) (e.g., a subsection of the content, a majority of the content, a minority of the content, less than the entirety of the content, and/or a key portion of the content) different from the first portion of the content (e.g., and not the first portion of the content), the computer system continues (**1108**) display of, via the display generation component, the first portion of the content in the first manner (e.g., **1008** at FIG. **10B**). In some embodiments, continuing display of the first portion of the content in the first manner includes displaying, via the display generation component, the second portion of the content in the first manner, the second manner, the third manner, and/or a fourth manner different from the first manner, the second manner, and/or the third manner. In some embodiments, the first portion of the content and/or the second portion of the content are a subsection of the content based on relevance (e.g., relevance of the subsection of the content as compared to other portions of the content and/or relevance to current context of the environment (e.g., location, weather, time of day, and/or situation (e.g., the situation that caused the movement))), position (e.g., relative position as compared to the user interface and/or the other portions of the content),

size, prominence, and/or type (e.g., text, image, and/or user interface element). Selectively altering a portion of content based on a user directing attention to the portion of content upon detecting motion allows the computer system to automatically alter a relevant portion of content without requiring user selection of the portion of the content, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0307] In some embodiments, in response to detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**) and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10C**), the computer system displays (e.g., adding and/or including), via the display generation component, one or more user interface elements (e.g., icons, widgets, controls, and/or windows) within (and/or on top of and/or a location corresponding to) the second portion of the content (e.g., **1014** at FIG. **10D**) (e.g., without displaying one or more user interface elements within the first portion of the content). In some embodiments, the one or more user interface elements correspond to the motion, are reactive to the motion, and/or counteract and/or contradict the motion (e.g., the computer system displays the content and/or alters the one or more user interface elements to lessen a user's sensation of motion and/or feeling of motion). In some embodiments, displaying the one or more user interface elements includes displaying the first portion of the content and/or the second portion of the content with one or more visual alterations (e.g., repositioning, blurring, magnifying, shrinking, and/or changing one or more colors) to the first portion of the content and/or the second portion of the content. In some embodiments, displaying the one or more user interface elements includes altering the first portion of the content and/or the second portion of the content to compensate for and/or make room for the one or more user interface elements. In some embodiments, the computer system displays the one or more user interface elements as overlaid on (and/or positioned over) the second portion of the content. In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the first portion of the content, the computer system displays, via the display generation component, the second portion of the content with one or more user interface elements. Displaying additional user interface elements in a portion of content upon modifying another portion of the content allows the computer system to selectively add the user interface elements where a user is not directing attention without requiring a user selection, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0308] In some embodiments, displaying the first portion of the content (e.g., **1008**) in the second manner (e.g., **1008** at FIG. **10C**) includes displaying, via the display generation component, the first portion of the content with one or more user interface elements (e.g., **1010** at FIG. **10C**) (e.g., icons, widgets, controls, and/or windows). In some embodiments, the one or more user interface elements correspond to the motion, are reactive to the motion, and/or counteract and/or contradict the motion (e.g., the computer system displays the content and/or alters the one or more user interface elements to lessen a user's sensation of motion and/or feeling of motion). In some embodiments, displaying the one or more user interface elements includes displaying the first portion of the content and/or the second portion of the content with one or more visual alterations (e.g., repositioning, blurring, magnifying, shrinking, and/or changing one or more colors) to the first portion of the content and/or the second portion of the content. In some embodiments, displaying the one or more user interface elements includes altering the first portion of the content and/or the second portion of the content to compensate for and/or make room for the one or more user interface elements. In some embodiments, the computer system displays the one or more user interface elements as overlaid on (and/or positioned over) the first portion of the content. Displaying additional user interface elements in a portion of content upon modifying another portion of the content allows the computer system to selectively add the user interface elements where a user is directing attention without requiring a user selection, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0309] In some embodiments, displaying the first portion of the content in the second manner (e.g., **1008** at FIG. **10F**) includes moving (e.g., repositioning and/or displaying) the first portion of the content by a first amount (e.g., as discussed at FIG. **10E-10F**) (and/or from a first location). In some embodiments, in response to detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**) and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10F**), the computer system moves (e.g., repositioning and/or displaying) the second portion of the content by a second amount (e.g., difference between **1008** in FIGS. **10E** and **10F**) (and/or from the first location and/or a second location), wherein the second amount is less than the first amount. In some embodiments, moving the first portion of the content and/or the second portion of the content includes displaying, at a first time, the first portion of the content and/or the second portion of the content at a first location and second location respectively and, at a second time, different from the first time, respectively displaying the first portion of the content and the second portion of the content at a third location different from the first location and fourth location different from the second location (e.g., difference between the first location and third location and the second location and the fourth location corresponds to the first amount and/or the second amount). In some embodiments, the first amount and/or the second amount are based on the motion (e.g., depict the motion, are reactive to the motion, and/or counteract and/or contradict the motion (e.g., moving the first portion of the content and/or the second portion of the content to lesson a user's sensation of motion and/or feeling of motion)). In some embodiments, the second amount is greater than the first amount. Moving content at varying levels depending on where a user is directing attention allows the computer system to selectively move portions of content based on where the user is directing attention without requiring a user select the portion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0310] In some embodiments, displaying the first portion of the content in the second manner (e.g., **1008** at FIG. **10F**) includes moving (e.g., repositioning and/or displaying) the first portion of the content by a first amount (and/or from a first location). In some embodiments, In response to detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**) and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10F**), the computer system moves (e.g., repositioning and/or displaying), the second portion of the content by a second amount (e.g., difference between **1008** in FIGS. **10E** and **10F**) (and/or from the first location and/or a second location), wherein the second amount is greater than the first amount. In some embodiments, moving the first portion of the content and/or the second portion of the content includes displaying, at a first time, the first portion of the content and/or the second portion of the content at a first location and second location respectively and, at a second time, different from the first time, respectively displaying the first portion of the content and the second portion of the content at a third location different from the first location and fourth location different from the second location (e.g., difference between the first location and third location and the second location and the fourth location corresponds to the first amount and/or the second amount). In some embodiments, the first amount and/or the second amount are based on the motion (e.g., depict the motion, are reactive to the motion, and/or counteract and/or contradict the motion (e.g., moving the first portion of the content and/or the second portion of the content to lesson a user's sensation of motion and/or feeling of motion)). In some embodiments, the second amount is less than the first amount. Moving content at varying levels depending on where a user is directing attention allows the computer system to differently move portions of content based on where a user is directing attention without requiring a user select the portion, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0311] In some embodiments, before detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**), the second portion of the content is displayed with a first amount of visual obfuscation (e.g., **1014** at FIG. **10E**) (and/or first level of blur). In some embodiments, in response to detecting the

motion and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10F**) (e.g., at a second time, different from the first time), the computer system displays, via the display generation component, the second portion of the content with a second amount of visual obfuscation (e.g., **1014** at FIG. **10F**) (and/or second level of blur) (and/or reduced visual clarity) that is greater than the first amount of visual obfuscation (e.g., difference of **1014** in FIGS. **10E-10F**). In some embodiments, the computer system displays the first portion of the content with the first amount of visual obfuscation while the computer system displays the second portion of the content with the second amount of visual obfuscation. In some embodiments, the computer system displays the first portion of the content with a third amount of visual obfuscation while the computer system displays the second portion of the content with the second amount of visual obfuscation. In some embodiments, the second amount of visual obfuscation is less than the first amount of visual obfuscation. In some embodiments, the difference between the first amount of visual obfuscation and the second amount of visual obfuscation is based on the motion (e.g., increasing and/or decreasing the change in visual obfuscation depending on the intensity, duration, change, and/or direction of the motion). Selectively obfuscating a portion of content based on a user directing attention to another portion of content allows the computer system to automatically emphasize the other portion of content without a user selecting the other portion of content, thereby performing an operation when a set of criteria has been met without requiring additional input. In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the first portion of the content, the computer system increases the size of text included in the first portion of the content. In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the first portion of the content, the computer system decreases the amount of visual noise in the first portion of the content. In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the first portion of the content, the computer system decreases the amount of motion and/or animation of user interface objects included in the first portion of the content.

[0312] In some embodiments, before detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**), the second portion of the content is displayed with a first amount of colors (e.g., **1014** at FIG. **10E**) (e.g., a first range of colors, a first pallet of colors, and/or a first spectrum of colors) (and/or set of one or more colors). In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10F**), the computer system displays, via the display generation component, the second portion of the content with a second amount of colors (e.g., **1014** at FIG. **10F**) (e.g., a second range of colors, a second pallet of colors, and/or a second spectrum of colors) (and/or set of one or more colors) that is less than the first amount of one or more colors (e.g., difference of **1014** in FIGS. **10E-10F**). In some embodiments, displaying the second portion of the content with the second amount of colors includes displaying the first portion of the content with the first amount of colors. In some embodiments, displaying the second portion of the content with the second amount of colors includes displaying the first set of one or more colors with a third amount of colors, different from the first amount of colors and/or the second amount of colors. In some embodiments, the second amount of colors is smaller than the first amount of colors (e.g., a smaller pallet of colors, a smaller spectrum of colors, a more neutral pallet of colors, and/or a less contrasting pallet of colors). In some embodiments, the difference between the first amount of colors and the second amount of colors is based on the motion (e.g., increasing and/or decreasing the change in visual clarity depending on the intensity, duration, change, and/or direction of the motion). Selectively reducing an amount of colors of a portion of content based on a user directing attention to another portion of content allows the computer system to automatically emphasize the other portion of content without a user selecting the other portion of content, thereby performing an

operation when a set of criteria has been met without requiring additional input.

[0313] In some embodiments, while the first portion of the content is displayed in the second manner (e.g., **1008** at FIG. **10C**) (e.g., and/or while the second portion of the content is displayed in the first manner), the computer system detects, via the input device, that the attention of the user moves from the first portion of the content to a third portion of the content (e.g., movement of **1004** in FIG. **10C** to **10D**) (e.g., a subsection of the content, a majority of the content, a minority of the content, less than the entirety of the content, and/or a key portion of the content). In some embodiments, detecting that the attention of the user moves from the first portion of the content to the third portion of the content includes detecting that the user is directing attention to a portion of the content at a first time and detecting that the user is directing attention to a different portion of the content at a second time, different than the first time. In some embodiments, detecting that the attention of the user moves from the first portion of the content to the third portion of the content includes detecting a change of attention of the user as compared to a user interface, user interface element, content, and/or output device. In some embodiments, detecting that the attention of the user moves from the first portion of the content to the third portion of the content includes detecting a first input and a second input, different from the first input (e.g., gaze input, non-touch input, input corresponding to the computer system determining the position of a user's eyes in relation to the computer system) directed to a position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, detecting that the attention of the user moves from the first portion of the content to the third portion of the content includes determining proximity of the user to a position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, in response to detecting that the attention of the user moves from the first portion of the content to the respective portion of the content, the computer system displays the first portion of the content in the first manner (e.g., **1008** at FIG. **12B**). In some embodiments, displaying the first portion of the content in the first manner, after displaying the first portion of content in the second manner, includes the computer system reverting changes and/or alterations to the first portion of the content corresponding to the second manner. In some embodiments, in response to detecting that the attention of the user moves from the first portion of the content to the respective portion of the content, the computer system displays, via the display generation component, the third portion of the content in a third manner (**1014** at FIG. **10D**), different from the first manner (e.g., difference in amount of content, visual changes, position, and/or content). In some embodiments, the third portion of the content is a subsection of the first portion of the content and/or the second portion of the content. In some embodiments, the third portion of the content is different from the first portion of the content and/or the second portion of the content. In some embodiments, displaying the third portion of the content in the third manner includes changing an amount of the content in the first portion (e.g., adding and/or removing from the content), a visual characteristic (e.g., emphasis, clarity, size, boldness, and/or brightness) of the content, position (e.g., relative to the user interface, the computer system and/or relative to the motion), and/or type of content (e.g., altering the representation of the content (e.g., text to an image and/or video to an image) and/or summarizing). In some embodiments, displaying the third portion of the content in the third manner based on the motion includes altering the first portion of the content to compensate for the motion (e.g., repositioning, resizing, emphasizing, and/or changing the content within the first portion of the content based on the motion). In some embodiments, the third manner is different from the first manner and/or the second manner. In some embodiments, the third manner is the first manner. In some embodiments, the third manner is the second manner. In some embodiments, the third manner is additive to the second manner. Selectively modifying portions of content based on a user changing where the user is directing attention allows the computer system to automatically alter the portions of content as the user changes attention without requiring the user to select the portion of the content as the user's

attention changes, thereby performing an operation when a set of criteria has been met without requiring additional input.

[0314] In some embodiments, in response to detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**) and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10F**), in accordance with a determination that the motion is a first amount of motion (e.g., **1006** at **10E**) (e.g., a first direction, intensity, and/or duration), displaying the first portion of the content in the second manner includes modifying a set of one or more visual characteristics (e.g., size, position, clarity, amount of content, and/or type of content) of the first portion of the content by a first amount (e.g., as discussed at FIG. **10C**). In some embodiments, determining that the motion is the first amount of motion includes determining the force against and/or exerted on the input device, movement of the computer system relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system within the environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, determining that the motion is the first amount of motion includes determining the relative motion of the computer system (e.g., difference in motion as compared to another object, plane, and/or point) (e.g., motion of the computer system relative to a position (e.g., object, position within 3D space, and/or plane within an environment), relative to a direction (e.g., in a direction, from a direction, and/or change of direction), and/or relative to previous motion), and/or absolute motion of the computer system (e.g., motion of the computer system irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane). In some embodiments, the computer system modifies the set of one or more visual characteristics of the first portion of the content by the first amount by changing an amount of the content in the first portion (e.g., adding and/or removing from the content), a visual characteristic (e.g., emphasis, clarity, size, boldness, and/or brightness) of the content, position (e.g., relative to the user interface, the computer system and/or relative to the motion), and/or type of content (e.g., altering the representation of the content (e.g., text to an image and/or video to an image) and/or summarizing). In some embodiments, in response to detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**) and in accordance with the determination that the user is directing attention to the first portion of the content (e.g., position of **1004** on **1008** at FIG. **10F**), In accordance with a determination that the motion is a second amount of motion (e.g., **1006** at FIG. **10F**) (e.g., a second direction, intensity, and/or duration), different than the first amount of motion (e.g., different in intensity, direction, and/or duration), displaying the first portion of the content in the second manner includes modifying the set of one or more visual characteristics of the first portion of the content by a second amount different from the first amount (e.g., as discussed at FIGS. **10E-10F**). (and/or the second manner). In some embodiments, determining that the motion is the second amount of motion includes determining the force against and/or exerted on the input device, movement of the computer system relative to an object and/or surface (e.g., change as measured from a particular point) or absolute movement of the computer system within the environment (e.g., absolute measurement of displacement of the computer system), direction (e.g., movement in a direction, and/or change in direction), and/or acceleration detected by the input device. In some embodiments, determining that the motion is the second amount of motion includes determining the relative motion of the computer system (e.g., difference in motion as compared to another object, plane, and/or point) (e.g., motion of the computer system relative to a position (e.g., object, position within 3D space, and/or plane within an environment), relative to a direction (e.g., in a direction, from a direction, and/or change of direction), and/or relative to previous motion), and/or absolute motion of the computer system (e.g., motion of the computer system irrespective of external factors and/or motion of the computer system without comparison to an object, position, and/or plane). In some embodiments, the computer system modifies the set of one or more visual

characteristics of the first portion of the content by the second amount by changing an amount of the content in the first portion (e.g., adding and/or removing from the content), a visual characteristic (e.g., emphasis, clarity, size, boldness, and/or brightness) of the content, position (e.g., relative to the user interface, the computer system and/or relative to the motion), and/or type of content (e.g., altering the representation of the content (e.g., text to an image and/or video to an image) and/or summarizing). Modifying a portion of content differently based on the intensity of motion allows the computer system to automatically change the manner of the modification without a user selection, thereby performing an operation when a set of criteria has been met without requiring additional input.

[0315] In some embodiments, while (e.g., after and/or in conjunction with) displaying the first portion of the content in the second manner, the computer system ceases to detect, via the input device, the attention of the user (e.g., lack of **1004** at FIG. **10E**) (and/or detecting that the user is no longer directing attention to the content (and/or the first portion of the content and/or the second portion of the content)) (and/or for a predefined period of time). In some embodiments, ceasing to detect the attention of the user includes ceasing to detect the attention of the user directed at the first portion of the content. In some embodiments, ceasing to detect the attention of the user includes ceasing to detect the attention directed at any respective portion of the content. In some embodiments, in response to ceasing to detect the attention of the user (and/or detecting that the user is no longer directing attention to the content (and/or the first portion of the content and/or the second portion of the content)), the computer system displays, via the display generation component, the first portion of the content in the first manner (e.g., **1008** at FIG. **10E**) (e.g., and ceasing display of, via the display generation component, the first portion of the content in the second manner). In some embodiments, displaying the first portion of the content in the first manner includes reverting the changes to the first portion of the content included in the second manner. In some embodiments, displaying the first portion of the content in the first manner includes transitioning the first portion of the content from the second manner to the first manner (e.g., changing the first portion of the content back to the first manner for a predefined amount of time and/or gradually reverting the changes made in the second manner to match the first manner). Reverting a portion of content to its original manner of display based on a user no longer directing attention to the portion of content allows the computer system to selectively modify portions of content without requiring the user revert the portion of the content, thereby performing an operation when a set of criteria has been met without requiring additional input.

[0316] In some embodiments, while displaying the first portion of the content in the second manner (e.g., **1008** at FIG. **10C**), the computer system ceases to detect, via the input device, the motion (e.g., represented as **1006** at FIGS. **10A-10G**) (and/or detecting the absence of the motion) (and/or for a predefined period of time). In some embodiments, in response to ceasing to detect the motion (and/or detecting the absence of the motion), the computer system displays, via the display generation component, the first portion of the content in the first manner (e.g., **1008** at FIG. **10E**). In some embodiments, displaying the first portion of the content in the first manner includes reverting the changes to the first portion of the content included in the second manner. In some embodiments, displaying the first portion of the content in the first manner includes transitioning the first portion of the content from the second manner to the first manner (e.g., changing the first portion of the content back to the first manner of a predefined amount of time and/or gradually reverting the changes made in the second manner to match the first manner). Reverting a portion of content to its original manner of display based on no longer detecting motion allows the computer system to selectively modify portions of content without requiring the user revert the portion of the content, thereby performing an operation when a set of criteria has been met without requiring additional input.

[0317] In some embodiments, the computer system is in communication with a set of one or more cameras (e.g., as discussed at FIG. **10A**). In some embodiments, while detecting the motion (e.g.,

represented as **1006** at FIGS. **10A-10G**) (e.g., or before detecting the motion or after detecting the motion), the computer system detects, via the set of one or more cameras, the attention of the user (e.g., as represented by **1004** in FIGS. **10A-10G**), wherein the determination that the user is directing attention to the first portion of the content is based on (and/or uses) the attention of the user detected via the set of one or more cameras (e.g., position of **1004** on **1008** at FIG. **10F**), and wherein the determination that the user is directing attention to the second portion of the content is based on (and/or uses) the attention of the user detected via the set of one or more cameras (e.g., position of **1004** on **1014** at FIG. **10D**). In some embodiments, the input device is the set of one or more cameras. In some embodiments, the computer system uses the set of one or more cameras along with one or more other input devices to detect the attention of the user to be used with respect to the determination that the user is directing attention to the first portion of the content and/or the determination that the user is directing attention to the second portion of the content. In some embodiments, detecting the attention of the user via the one or more cameras includes detecting gaze input, non-touch input, input corresponding to the computer system, and/or determining the position of a user's eyes in relation to the computer system. In some embodiments, detecting the attention of the user via the one or more cameras includes detecting that the attention of the user is directed to a position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, detecting the attention of the user via the one or more cameras includes determining a proximity of the user to a position within and/or on a user interface, user interface element, content, and/or output device. Detecting attention of a user through a set of one or more cameras allows the computer system to react to the attention of the user being directed to various portions of content based on the field of view of one or more of the cameras without requiring a user to select the portions of content, thereby performing an operation when a set of conditions has been met without requiring additional input.

[0318] In some embodiments, in response to detecting the motion (e.g., represented as **1006** at FIGS. **10A-10G**) and in accordance with the determination that the user is directing attention to the second portion of the content (e.g., position of **1004** on **1014** at FIG. **10D**) (e.g., and not the first portion of the content), the computer system displays, via the display generation component, the second portion of the content in the second manner (e.g., difference of **1014** from FIG. **10B** to **10F**) different from the first manner. In some embodiments, the determination that the user is directing attention to the second portion of the content includes a determination that the attention of the user is directed to, within, and/or on a user interface, user interface element, content, and/or output device. In some embodiments, the determination that the user is directing attention to the second portion of the content includes a determination that an input (e.g., gaze input, non-touch input, input corresponding to the computer system determining the position of a user's eyes in relation to the computer system) is directed to the position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, the determination that the user is directing attention to the second portion of the content includes a determination of proximity of the user to a position within and/or on a user interface, user interface element, content, and/or output device. In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the second portion of the content, the computer system changes an amount of the content in the first portion (e.g., adding and/or removing from the content), a visual characteristic (e.g., emphasis, clarity, size, boldness, and/or brightness) of the content, position (e.g., relative to the user interface, the computer system and/or relative to the motion), and/or type of content (e.g., altering the representation of the content (e.g., text to an image and/or video to an image) and/or summarizing). In some embodiments, in response to detecting the motion and in accordance with the determination that the user is directing attention to the second portion of the content the computer system alters the first portion of the content to compensate for the motion (e.g., repositioning, resizing, emphasizing, and/or changing the content within the first portion of the content based on the motion). In some embodiments, in response to



detecting the motion and in accordance with the determination that the user is directing attention to the second portion of the content (e.g., and not the first portion of the content), the computer system displays the second portion of content in a third manner different from the second manner and/or the first manner. In some embodiments, the third manner includes the second manner and/or the first manner. In some embodiments, the third manner is additive to the second manner and/or first manner. Selectively modifying portions of content based on a user directing attention to another portion of the content allows the computer system to automatically alter the portions of content that correspond to the user's attention without requiring the user to select the portion of the content, thereby performing an operation when a set of criteria has been met without requiring additional input.

[0319] Note that details of the processes described above with respect to method **1100** (e.g., FIG. **11**) are also applicable in an analogous manner to other methods described herein. For example, method **800** optionally includes one or more of the characteristics of the various methods described above with reference to method **1100**. For example, the display of content can be shifted using one or more techniques described herein in relation to method **800**, where the content is shifted based on the detected gaze of a user described herein relation to method **1100**. For brevity, these details are not repeated herein.

[0320] FIGS. **12A-12L** illustrate exemplary user interfaces for altering content based on a state of a user in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIG. **13**.

[0321] The left sides of FIGS. **12A-12L** illustrate computer system **1200** as a smart phone displaying different user interface objects. It should be recognized that computer system **1200** can be other types of computer systems with display components such as a tablet, a smart watch, a laptop, a personal gaming system, a desktop computer, a fitness tracking device, and/or a head-mounted display (HMD) device. In some embodiments, computer system **1200** includes and/or is in communication with one or more input devices and/or sensors (e.g., a camera, a LiDAR sensor, a motion sensor, an infrared sensor, a touch-sensitive surface, a physical input mechanism (such as a button or a slider), and/or a microphone). Such sensors can be used to detect presence of, attention of, statements from, inputs corresponding to, requests from, and/or instructions from a user in an environment. In some embodiments, computer system **1200** includes and/or is in communication with one or more audio output devices (e.g., speakers, headphones, earbuds, and/or hearing aids). In some embodiments, computer system **1200** includes one or more components and/or features described above in relation to computer system **100**, electronic device **200**, computer system **400**, and/or computer system **700**.

[0322] FIGS. **12A-12L** illustrate computer system **1200** performing various display operations based on detected motions and the vitals of users. Computer system **1200** performs the various display operations to alleviate user discomfort that stems from the detected motion. In some embodiments described below, based on a determination that motion is detected (e.g., motion of computer system **1200**, motion of a user, and/or motion of an external structure) computer system **1200** moves displayed content in a direction that is counter to the direction of the detected motion. In some embodiments described below, based on a determination that the vitals of a user are elevated, computer system **1200** further moves display content by an amount that correlates with the increases in the vitals of the user. In some embodiments, computer system **1200** performs the various display operations based on a determination that a speed of computer system **1200** is greater than a speed threshold. In some embodiments, computer system **1200** performs the various display operations based on a determination that an acceleration rate of computer system **1200** is greater than an acceleration threshold.

[0323] The right sides of FIGS. **12A-12L** include motion diagram **1214** and vitals diagram **1220**. As illustrated in FIGS. **12A-12L**, motion diagram **1214** indicates the speed and/or direction of the detected motion. In some embodiments, the detected motion is the motion of an external structure

that computer system **1200** is positioned within. For example, when the external structure is moving to the left at five miles per hour (“miles-per-hour”), the detected motion is to the left at five miles-per-hour. In some embodiments, the detected motion of computer system **1200** is detected via one or more inertial measurement unit sensors (IMU) of computer system **1200**. In some embodiments, the detected motion of computer system **1200** is detected via one or more camera sensors connected to and/or in communication with computer system **700**. In some embodiment, the detected motion of computer system **1200** is detected via a combination of methods mentioned above (e.g., IMU and/or camera sensor). In some embodiments, the detected motion is the motion of the head of the user. In some embodiments, the motion of the head of the user is detected via one or more camera sensors connected to and/or in communication with computer system **1200**. In some embodiments, the motion of the head of the user is detected via one or more sensors embedded in one or more audio output devices that move with the head of the user such as earbuds and/or headphones. In some embodiments described in FIGS. **12A-12L**, the detected motion is an absolute motion. In other embodiments, the detected motion is a relative motion, such as motion of computer system **1200** relative to a vehicle that computer system **1200** is within.

[0324] At FIGS. **12A-12L**, computer system **1200** is in communication with one or more wearable devices capable of detecting the heart rate and/or respiratory rate of the user, such as a health tracking device and/or smart watch. In FIGS. **12A-12L**, vitals diagram **1220** is a visual aid that indicates the detected vitals of the user (e.g., the first user or the second user). As illustrated in FIGS. **12A-12L**, vitals diagram **1220** includes heart rate indication **1222** that indicates detected heart rate of the user and respiratory rate indication **1224** that indicates the detected respiratory rate of the user.

[0325] The discussion of FIGS. **12A-12I** describes that computer system **1200** performs various display operations based on a determination that detected motion is greater than a motion threshold. However, it should be noted that in some embodiments, computer system **1200** performs the various display operations based on a determination that the acceleration rate, rotational rates (rad/s) and/or rotational positions (rad) of the detected motion is greater than a threshold.

[0326] FIGS. **12A-12I** illustrate computer system **1200** performing various display operations when a first user is using computer system **1200**. Vitals diagram **1220** in FIGS. **12A-12I** indicate the vitals of the first user. FIGS. **12J-12L** illustrate computer system **1200** performing various display operations when a second user (e.g., different from the first user) is using computer system **1200**. Vitals diagram **1220** in FIGS. **12J-12L** indicate the vitals of the second user. This is to illustrate that computer system **1200** reacts differently to different users. In some embodiments, computer system **1200** determines a level of discomfort of the user based on data (e.g., the appearance of the user and/or how much the user is moving) received via one or more cameras connected to and/or in communication with computer system **1200**. Computer system **1200** uses the data in lieu of detected vitals of the user.

[0327] In FIGS. **12A-12I**, the first user is engaged (e.g., using) computer system **1200**. As illustrated in FIG. **12A**, computer system **1200** displays the content of user interface **1202**, navigation controls section **1204**, and status indicator section **1206** via display **1212**. As illustrated in FIG. **12A**, user interface **1202** includes address bar **1208** and main body **1210**. As illustrated in FIG. **12A**, computer system **1200** displays main body **1210** with first object **1210a**, second object **1210b**, and third object **1210c** below address bar **1208**. As illustrated in FIG. **12A**, computer system **1200** displays the objects (e.g., first object **1210a**, second object **1210b**, and third object **1210c**) from left to right across user interface **1202** with first object **1210a** displayed at a leftmost position and third object **1210c** displayed at a rightmost position. In some embodiments, computer system **1200** displays more or less than three objects within main body **1210**.

[0328] At FIG. **12A**, as indicated by speed representation **1216** indicating zero miles-per-hour, no motion is detected. At FIG. **12A**, as indicated by vitals diagram **1220**, the vitals of the first user are a heart rate of eighty-two beats per minute, as indicated by heart rate indication **1222** and a

respiratory rate of sixteen breaths per minute, as indicated by respiratory rate indication **1224**. After FIG. **12A**, motion in the rightward direction is detected (e.g., via one or more techniques discussed above).

[0329] At FIG. **12B**, as indicated by motion diagram **1214**, the detected motion is a right-hand turn at ten miles-per-hour. At FIG. **12B**, speed representation **1216** indicates that the speed of the motion is ten miles-per-hour and direction representation **1218** indicates the direction of the motion is to the right. At FIG. **12B**, a determination is made that a magnitude of the detected motion is not greater than a motion threshold (e.g., fifteen miles-per-hour). At FIG. **12B**, based on the determination that the magnitude of the detected motion is not greater than the motion threshold, computer system **1200** does not change the display (e.g., does not alter) the display of user interface **1202**. That is, computer system **1200** does not alter the appearance of user interface **1202** based on the detection of insignificant amounts of motion. After FIG. **12B**, an increase in the speed of the detected motion is detected via one of the techniques discussed above.

[0330] FIGS. **12C-12D** illustrate a process of shifting content off of display **1212** based on a determination that the magnitude of detected motion is greater than the motion threshold and the direction of the detected motion is in a particular direction. At FIG. **12C**, computer system **1200** blurs and/or otherwise deemphasizes the content that will be shifted off of display **1212** and at FIG. **12D** computer system **1200** shifts the display of content off of display **1212**.

[0331] At FIG. **12C**, as indicated by motion diagram **1214**, the speed of the detected motion is twenty miles-per-hour and the direction of the detected motion is to the right. At FIG. **12C**, a determination is made that a magnitude of the detected motion is greater than the motion threshold and a determination is made that the detected motion is in a rightward direction. At FIG. **12C**, because the determination is made that the magnitude of the detected motion is greater than the motion threshold and the direction of the detected motion is to the right, computer system **1200** blurs and/or otherwise deemphasizes the left side of first object **1210a**. Computer system **1200** blurs and/or otherwise deemphasizes displayed content as a preliminary measure to indicate what content will be shifted off of display **1212** as a result of the determination that the magnitude of the detected motion is greater than the motion threshold and the determination that the detected motion is to the right. At FIG. **12C**, a change in the vitals of the first user is not detected.

[0332] At FIG. **12D**, after computer system **122** has blurred the left side of first object **1210a**, computer system **1200** shifts main portion **1210** (e.g., first object **1210a**, second object **1210b**, and third object **1210c**) to the left by an amount that correlates to the magnitude of the detected motion. More specifically, at FIG. **12D**, based on the determination that the magnitude of the detected motion is greater than the motion threshold and the direction of the detected motion is to the right, computer system **1200** shifts main body **1210** to the left within user interface **1202** by an amount that correlates to the magnitude of the detected motion. Computer system **1200** shifts main body **1210** to the left to help alleviate discomfort the first user is experiencing as a result of the motion. More specifically, computer system **1200** shifts the display of content included in main body **1210** in a direction that is opposite the direction of the detected motion such that the forces that the first user is experiences as a result of the detected motion align with what the first user views.

[0333] As illustrated in FIG. **12D**, as a result of computer system **1200** shifting main body **1210** to the left within user interface **1202** by the amount that correlates to the magnitude of the detected motion, computer system **1200** continues to display a right portion of first object **1210a** while ceasing to display a left portion of first object **1210a**. As illustrated in FIG. **12D**, as a result of computer system **1200** shifting main body **1210** to the left within user interface **1202** by the amount that correlates to the magnitude of the detected motion, computer system **1200** displays a left portion of fourth object **1210d**. In some embodiments, computer system **1200** shifting main body **1210** to the left by the amount that corresponds to the magnitude of the detected motion does not result in computer system **1200** displaying any part of fourth object **1210d**. As illustrated in FIG. **12D**, computer system **1200** continues to display address bar **1208** in the same location within user

interface **1202** as computer system **1200** displays address bar **1208** in FIG. **12C**. That is, based on a determination that the magnitude of the motion is greater than the motion threshold and the direction of the detected motion is to the right, computer system **1200** shifts the display of certain content without shifting the display of other content. After FIG. **12D**, an increase in the magnitude of the motion is detected via one of the techniques discussed above.

[0334] FIGS. **12E1** and **12F1** include a second representation of computer system **1200** to illustrate how computer system **1200** displays the content of user interface **1202** if computer system **1200** does not detect a rise in the vitals of the first user.

[0335] At FIG. **12E1**, as indicated by motion diagram **1214** the detected motion has a speed of twenty-five miles-per-hour and is in the rightward direction. At FIG. **12E1**, a determination is made that a magnitude of the detected motion is above the motion threshold and a determination is made that the direction of motion is to the right. At FIG. **12E1**, a determination is made that the vitals of the first user (e.g., the heart rate and/or the respiratory rate) of the first user increases above a vitals threshold. At FIG. **12E1**, based on the determinations that the magnitude of the detected motion is above the motion threshold and the motion is in a rightward direction, computer system **1200** continues to shift main body **1210** to the left. The amount that computer system **1200** shifts main body **1210** corresponds to the magnitude of the detected motion. Accordingly, at FIG. **12E1**, because the speed of the detected motion is twenty-five miles per hour (e.g., greater than the speed of the detected motion at FIG. **12D**), computer system **1200** shifts main body **1210** by a larger magnitude than the shift of main body at FIG. **12D**.

[0336] At FIG. **12E1**, by heart rate indication **1222**, the heart rate of the first user is one-hundred and fifteen beats per minute (e.g., above the heart rate of the first user of eighty-two beats per minute at FIG. **12D**) and, as indicated by respiratory rate indication **1224**, the respiratory rate of the first user is twenty-three breaths per minute (e.g., above the respiratory rate of sixteen indicated in FIG. **12D**). At FIG. **12E**, a determination is made that the vitals of the first user are greater than a vitals threshold. Based on the determination that the vitals of the first user are greater than the vitals threshold computer system **1200** uniformly ceases the display of a portion of the content along the perimeter of main body **1210**. Computer system **1200** uniformly ceases the display of the portion of the content along the perimeter of main body **1210** to help alleviate discomfort the first user is feeling as a result of the detected motion. That is, computer system **1200** performs additional motion mitigation techniques when the current motion mitigation techniques being performed by the computer system **1200** are inadequate.

[0337] FIG. **12E2** depicts the display of main body **1210** when the vitals of the user do not increase above the threshold. At FIG. **12E2**, computer system **1200** shifts the content included in main body **1210** based on the speed and/or direction of the detected motion. Accordingly, because at FIG. **12E2** the detected motion has a speed of twenty-five miles-per-hour to the right, as opposed to the speed of twenty miles-per-hour the detected motion had at FIG. **12D**, computer system **1200** shifts the content included in main body **1210** to the left by a larger magnitude than the amount computer system **1200** shifts the content included in main body **1210** at FIG. **12D**. Either of FIGS. **12E1** or FIG. **12E2** can follow FIG. **12D**.

[0338] Between FIGS. **12E1** and FIGS. **12F1**, the vitals of the first user further increase. At FIG. **12F1**, as indicated by heart rate indication **1222**, the heart rate of the user is one-hundred and twenty-nine beats per minute and, as indicated by respiratory rate indication **1224**, the respiratory rate of the first user is twenty-seven breaths per minute. At FIG. **12F1**, a determination is made that the difference between the vitals of the first user and the vitals threshold increases. Based on the determination that the difference between the vitals of the first user and the vitals threshold increases, computer system **1200** uniformly ceases to display an additional portion of the content along the perimeter of main body **1210**. Accordingly, at FIG. **12F1**, computer system **1200** displays less of second object **1210b** and third object **1210c** than what computer system **1200** displayed at FIG. **12E1**. Computer system **1200** ceases more of the display of content included within main

body to increase the magnitude of the motion mitigation technique that computer system **1200** performs. In some embodiments, computer system **1200** ceases to display of the additional portion of the content along the perimeter of main body **1210** when the increase of the vitals of the user is greater than a threshold.

[0339] FIG. **12F2** depicts the display of main body **1210** when the difference between the vitals threshold and the vitals of the first user does not increase. At FIG. **12F2**, computer system **1200** shifts the content included in main body **1210** based on the speed and/or direction of the detected motion. Accordingly, at FIG. **12F2**, because the detected motion has a speed of twenty-five miles-per-hour to the right (e.g., the same speed of direction as the detected motion at FIG. **12E2**, computer system **1200** shifts the content included in main body **1210** to the left by the same magnitude that computer system **1200** shifts the content included in main body **1210** at FIG. **12E2**.

[0340] Between FIGS. **12F1** and FIG. **12G**, the vitals of the first user decrease. At FIG. **12G**, as indicated by heart rate indication **1222**, the heart rate of the first user is eighty-two (e.g., below the heart rate of one-hundred-twenty-nine indicated in FIG. **12F1**) beats per minute and as indicated by the respiratory rate indication **1224** the respiratory rate of the first user is sixteen breaths per minute (e.g., below the respiratory rate of twenty-seven indicated in FIG. **12F**). At FIG. **12G**, a determination is made that the vitals of the first user are not above the threshold.

[0341] At FIG. **12G**, based on the determination that the detected vitals of the first user are not above the vitals threshold, computer system **1200** does not uniformly cease to display content included around the perimeter of main body **1210**. As illustrated in FIG. **12G**, based on the determination that the detected vitals of the first user are not above the vitals threshold, computer system **1200** displays the user interface **1202** to the edges of display **1212**. In some embodiments, computer system **1200** detects a decrease in the vitals of the first user equal to a heart rate of one-hundred-fifteen and a respiratory rate of twenty-three (e.g., the same level vitals as indicated in FIG. **12E**). In such embodiments, a determination is made that the detected vitals of the first user are above the vitals threshold, which results in computer system **1200** displaying the same amount of user interface **1202** as computer system **1200** displaying in FIG. **12E**.

[0342] At FIG. **12G**, as indicated by motion diagram **1214**, the speed of the detected motion is twenty-five miles-per-hour and the direction of the detected motion is to the right. At FIG. **12G**, a determination is made that the magnitude of the detected motion is greater than the motion threshold and a determination is made that the detected motion is in a rightward direction. At FIG. **12C**, because a determination is made that the magnitude of the detected motion is greater than the motion threshold and the direction of the detected motion is to the right, computer system **1200** continues to shift the content included main body **1210** to the left by an amount that correlates to the magnitude of the detected motion. Accordingly, the content included within main body **1210** at FIG. **12G** is shifted further to the left than the shift of the content included within main body **1210** at FIG. **12D** when the detected motion had a speed of twenty miles per hour. Between FIGS. **12G** and **12H**, the motion ceases to be detected.

[0343] At FIG. **12H**, as indicated by motion diagram **1214**, there is no detected motion. At FIG. **12H**, a determination is made that there is no detected motion. At FIG. **12H**, based on the determination that there is no detected motion, computer system **1200** ceases to shift the content included within main body **1210**. At FIG. **12D**, because computer system **1200** ceases to shift the content included within main body **1210**, computer system **1200** does not display any portion of fourth object **1210d** and computer system **1200** displays the entirety of first object **1210a**, second object **1210b**, and third object **1210c**. In some embodiments, computer system **1200** continues to shift the content included within main body **1210** when a determination is made that there is no detected motion. In some embodiments, computer system **1200** ceases to shift the content included within main body **1210** based on a determination that the magnitude of the detected motion is below the motion threshold. Between FIGS. **12H** and **12I**, the detected motion is reinitiated at a speed of twenty-five miles-per-hour in the leftward direction.

[0344] At FIG. 12I, as indicated by motion diagram 1214, the speed of the detected motion is twenty-five MPH and the direction of the detected motion is to the left. At FIG. 12I, a determination is made that a magnitude of the detected motion is greater than the motion threshold and a determination is made that the detected motion is in a leftward direction. At FIG. 12I, because the determination is made that the magnitude of the detected motion is greater than the motion threshold and the direction of the detected motion is in the leftward direction, computer system 1200 shifts content included within main body 1210 to the right by an amount that correlates to the magnitude of the detected motion. As explained earlier, in order to help alleviate discomfort the first user may feel as a result of the detected motion, computer system 1200 shifts the display of content in an opposite direction than the direction of the detected motion. Accordingly, at FIG. 12I, because the detected motion is to the left (e.g., as opposed to the detected motion being to the right in FIGS. 12A-12I) computer system 1200 shifts the content included within main body 1210 to the right (e.g., as opposed to the leftward shift the content as discussed above).

[0345] In FIGS. 12J-12L, the second user is engaged with computer system 1200. Accordingly, vitals diagram 1220 at FIGS. 12J-12L correspond to the vitals of the second user. At FIG. 12J, as indicated by motion diagram 1214, the speed of the detected motion is twenty miles-per-hour and the direction of the detected motion is to the right. At FIG. 12J, a determination is made that a magnitude of the detected motion is above the motion threshold and a determination is made that the direction of the detected motion is to the right. At FIG. 12J, based on the determination that the magnitude of the detected motion is above the motion threshold and based on the determination that the direction of the detected motion is to the right, computer system 1200 shifts main body 1210 (e.g., including first object 1210a, second object 1210b, and third object 1210c) to the left within user interface 1202 by an amount that correlates to the magnitude of the detected motion.

[0346] However, at FIG. 12J, computer system 1200 shifts the content included within main body 1210 by a greater amount than when computer system 1200 shifted the content included within main body 1210 at FIG. 12C when the speed of the detected motion was twenty miles-per-hour and the first user was engaged with computer system 1000. That is, the amount that computer system 1200 shifts the content included within main body 1210 can be user specific. Because certain users require a larger magnitude of motion mitigation in order to alleviate discomfort felt as a result of the detected motion, computer system 1200 takes into account which user is using computer system 1200 when computer system 1200 determines how much to shift the content included within main body 1210. Between FIGS. 12J and 12K1 the vitals of the second user increase.

[0347] At FIG. 12K1, a determination is made that the detected motion has a speed of twenty miles-per-hour and a rightward direction. At FIG. 12K1, computer system 1200 continues to shift the content included in main body 1210 based on the speed and/or direction of the detected motion. Accordingly, because at FIG. 12K1 the detected motion has a speed of twenty miles-per-hour to the right, computer system 1200 shifts the content included in main body 1210 to the left by the same amount as the amount computer system 1200 shifts the content included in main body 1210 at FIG. 12J.

[0348] At FIG. 12K, as indicated by heart rate indication 1222, the heart rate of the user is one-hundred and nineteen beats per minute (e.g., above the heart rate of seventy-one indicated in FIG. 12J) and, as indicated by respiratory rate indication 1224, the second user has a respiratory rate of twenty-four breaths per minute (e.g., above the respiratory rate of fourteen indicated in FIG. 12J). At FIG. 12K1, a determination is made that the heart rate and respiratory rate of the second user increases above the vitals threshold.

[0349] At FIG. 12K1, based on the determination that the heart rate and respiratory rate of the second user increases above the vitals threshold, computer system 1200 ceases to display content around the perimeter of main body 1210. Computer system 1200 ceases to display the portion of the content around the perimeter of main body 1210 to help alleviate discomfort the second user is

feeling as a result of the detected motion. That is, computer system **1200** performs additional motion mitigation techniques when the current motion mitigation techniques being performed by the computer system **1200** are not adequate. In some embodiments, the amount of the content that computer system **1200** ceases to display is dependent on the amount of the increase of the vitals of the second user. In some embodiments, the amount of the content that computer system **1200** ceases to display is dependent on which user is engaged with computer system **1200**. For example, based on a determination that the vitals of the user increases above the vitals threshold, computer system **1200** ceases to display a larger amount of content around the periphery of main body **1210** when the first user is using computer system **1200** than when the second user is using computer system **1200**.

[0350] FIG. **12K2** depicts the display of main body **1210** when the vitals of the second user do not increase above the vitals threshold. At FIG. **12K2**, computer system **1200** continues shifting the content included in main body **1210** based on the speed, direction and/or acceleration of the detected motion. Accordingly, because at FIG. **12K2** the detected motion has a speed of twenty miles-per-hour to the right, computer system **1200** shifts the content included in main body **1210** to the left by the same amount as the amount computer system **1200** shifts the content included in main body **1210** at FIG. **12J**. At FIG. **12K2**, computer system **1200** does not cease to display content around the perimeter of main body **1210** because the vitals of the second user do not increase above the vitals threshold.

[0351] At FIG. **12L**, as indicated by heart rate indication **1222**, the heart rate of the second user is seventy-one beats per minute and, as indicated by respiratory rate indication **1224**, the second user has a respiratory rate of fourteen breaths per minute. At FIG. **12L**, a determination is made that the vitals of the user are not greater than the vitals threshold. At FIG. **12L**, because the determination is made that the vitals of the user are not greater than the vitals threshold, computer system **1200** forgoes ceasing display of content around the perimeter of main body **1210**.

[0352] At FIG. **12L**, a determination is made that the speed of the detected motion is greater than the motion threshold and a determination is made that the detected motion is in the rightward direction. Because the determinations are made that the magnitude of the detected motion is greater than the motion threshold and the detected motion is in the rightward direction, computer system **1200** continues to shift the content included within main body **1210** to the left by an amount that corresponds to the magnitude of the detected motion.

[0353] In some embodiments, based on a determination that the magnitude of detected motion is above the motion threshold, computer system **1200** changes how computer system **1200** displays content of different applications differently. For example, based on the determination that the magnitude of detected motion is greater than the motion threshold, computer system **1200** shifts content of a weather application installed on computer system **1200** by a first amount and computer system **1200** shifts content of an e-mail application installed on computer system **1200** by a second amount different from the first amount. In some embodiments, computer system **1200** does not alter the display of a user interface for a respective application when a determination is made that the magnitude of the detected motion is above the motion threshold.

[0354] In some embodiments, computer system **1200** does not change the display of content based on a determination that the magnitude of detected motion is above the motion threshold that if computer system **1200** has not detected the attention of the user (e.g., the first user and/or the second user) for a predetermined period. In some embodiments, computer system **1200** does not change how computer system **1200** displays the content based on a determination that the magnitude of the detected motion is above the motion threshold if a determination is made that the attention of the user (the first user and/or the second user) is not directed at computer system **1200**. In some embodiments, computer system **1200** reverts a change to the displayed content made as a result of a determination that the magnitude of the detected motion is greater than the motion threshold in response to detecting a user input.

[0355] FIG. 13 is a flow diagram illustrating a method (e.g., method **1300**) for altering content based on a state of a user in accordance with some embodiments. Some operations in method **1300** are, optionally, combined, the orders of some operations are, optionally, changed, and some operations are, optionally, omitted.

[0356] As described below, method **1300** provides an intuitive way for altering content based on a state of a user. Method **1300** reduces the cognitive burden on a user, thereby creating a more efficient human-machine interface. For battery-operated computing devices, enabling a user to interact with such devices faster and more efficiently conserves power and increases the time between battery charges.

[0357] In some embodiments, method **1300** is performed at a computer system (e.g., **1200**) (e.g., a watch, a phone, a tablet, a fitness tracking device, a processor, a head-mounted display (HMD) device, a communal device, a media device, a speaker, a television, and/or a personal computing device) that is in communication with (e.g., and/or includes) an input device (e.g., a motion detection device (e.g., gyroscope, force meter, accelerometer, and/or internal or external component able to detect and/or measure motion), a camera (e.g., one or more cameras with different fields of view in relation to the computer system (e.g., front, back, wide, zoom, and/or combinations thereof)), a depth sensor, a microphone, a hardware input mechanism, a rotatable input mechanism, a heart monitor, a temperature sensor, and/or a touch-sensitive surface) and a display generation component (e.g., **1212**) (e.g., a display screen, a projector, and/or a touch-sensitive display). In some embodiments, the computer system is in communication with (e.g., and/or includes) an output device (e.g., an audio component (e.g., smart speaker, home theater system, soundbar, headphone, earphone, earbud, speaker, television speaker, augmented reality headset speaker, audio jack, optical audio output, Bluetooth audio output, and/or HDMI audio output), a speaker, a haptic output device, a display screen, a projector, and/or a touch-sensitive display).

[0358] While displaying, via the display generation component, content (e.g., **1204**, **1206**, **1208**, **1210a**, **1210b**, **1210c**) (e.g., one or more user interfaces, one or more user interface objects, one or more images, text, and/or one or more characters), the computer system detects (**1302**), via the input device, motion (e.g., represented by **1212**, **1216**, and/or **1218**) (e.g., motion of the computer system, motion of a user, and/or motion of an external structure) (e.g. translational motion and/or rotational motion) (e.g., relative motion and/or absolute motion). In some embodiments, the motion is detected via one or more cameras that captures movement of a user. In some embodiments, the motion is detected via a wearable device of the user.

[0359] In response to (**1304**) detecting the motion, the computer system continues (**1306**) display of, via the display generation component, a first portion of the content (e.g., remaining portions of **1210a**, **1210b**, **1210c**, and/or **1210d** at FIG. 7D) (e.g., less than the entirety of the content, a minority of the content, and/or a majority of the content).

[0360] In response to (**1304**) detecting the motion, the computer system ceases (**1308**) display of, via the display generation component, a second portion of the content (e.g., represented by partially blurred portion of **1210a** at FIG. 12C) (e.g., less than the entirety of the content, a minority of the content, and/or a majority of the content) different from the first portion of the content. In some embodiments, the computer system ceases to display the second portion of the content based on the motion (e.g., if the motion is a leftward turn, the second portion of the content is a right portion of the content or if the motion is a rightward turn, the second portion of the content is a left portion of the content).

[0361] While (e.g., after and/or in conjunction) forgoing (e.g., ceasing) display of the second portion of the content (and/or displaying the first portion of the content), the computer system continues (**1310**) to detect, via the input device, the motion. In some embodiments, continuing to detect the motion includes detecting an acceleration and/or a deceleration of the computer system.

[0362] In response to (**1312**) continuing to detect the motion (e.g., and while continuing display of



the first portion of the content), in accordance with a determination that a user (e.g., represented by **1222**, **1224**, and/or **1228** in **1220** at FIGS. **12A-12L**) (e.g., a user of the computer system, a non-user of the computer system, and/or a passenger (e.g., a primary passenger or a non-primary passenger) in a vehicle (e.g., an automobile, airplane, boat, and/or train)) satisfies a first set of one or more criteria (e.g., increased **1222** and/or **1224** at FIG. **12E**) (e.g., one or more vital signs (e.g., the heart rate, respiratory rate, stress levels, body temperature, and/or blood pressure) of the subject is above or a threshold, amount of movement of the subject is above a threshold, subject is not detectable by the computer system, subject has not interacted with the computer system for a predetermined period of time, computer system has not detected the gaze of the for a predetermined period of time (e.g., 10-360 seconds) the eyes of the subject are closed), the computer system ceases (**1314**) display of, via the display generation component, a third portion of the content (e.g., difference between top and bottom portion of FIG. **12E**) (e.g., **1210b**, **1210c**, **1210d** at FIG. **12E**) (e.g., and continuing to display the first portion of the content and/or a fourth portion (e.g., included in the first portion) of the content different from the first portion of the content) different from the first portion of the content and the second portion of the content, wherein the third portion of the content includes the second portion of the content.

[0363] In response to (**1312**) continuing to detect the motion, in accordance with a determination that the user does not satisfy the first set of one or more criteria (e.g., baseline **1222** and/or **1224** at FIG. **12A-12D**) (e.g., one or more vital signs (e.g., the heart rate, respiratory rate, stress levels, body temperature, and/or blood pressure) of the subject is above or a threshold, amount of movement of the subject is below a threshold, subject is detectable by the computer system, subject has interacted with the computer system within a predetermined period of time, computer system has detected the gaze of the for a predetermined period of time (e.g., 10-360 seconds)), the computer system continues (**1316**) display of, via the display component, the first portion of the content without ceasing display of the third portion of the content. In some embodiments, the computer system displays all of the content in response to ceasing to detect the motion. In some embodiments, computer system displays all of the content in response to detecting that a characteristic (e.g., speed, acceleration, and/or deceleration) of the motion is beneath a threshold. In some embodiments, the first set of one or more criteria is user specific. In some embodiments, while the computer system continues to detect the motion, in response to continuing to detect the motion and in accordance with a determination that the user does not satisfy the first set of one or more criteria, the computer system ceases displaying a third portion of the content (e.g., the third amount of the content is less than the second amount and/or the third amount of content is equal to, greater than, or less than the first amount). Ceasing to display the third portion of the content when a set of prescribed conditions is met (e.g., the user satisfies the first set of one or more criteria) automatically allows the computer system to perform additional motion mitigation measures when the current motion mitigation measures are not sufficient, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0364] In some embodiments, the first set of one or more criteria includes a criterion that is satisfied when a determination is made that a set of one or more vitals (e.g., represented by **1222**, **1224**, and/or **1228** in **1220** at FIGS. **12A-12L**) (e.g., heartrate, respiratory rate, blood pressure, body temperature, blood glucose level, and/or blood oxygen level) of the user is greater than a threshold (e.g., increased **1222** and/or **1224** at FIG. **12E**). In some embodiments, the criterion is not satisfied when a determination is made that the set of one or more vitals of the user is less than the threshold. In some embodiments, the threshold is selected by the user or by the computer system. In some embodiments, the threshold is user specific. In some embodiments, the threshold is motion specific. In some embodiments, the computer system changes the threshold in response to detecting an input from the user. In some embodiments, the threshold is context specific (e.g., context of the user, context of the computer system and/or context of an external structure that the user and/or the computer system are positioned within). Ceasing display of the third portion of the content when a

determination is made that one or more vitals of the user is greater than the threshold automatically allows the computer system to perform additional motion mitigation measures when the current motional mitigation measures are not adequate for the user, thereby performing an operation when a set of conditions has been met without requiring further user input and/or providing additional control options without cluttering the user interface with additional displayed controls

[0365] In some embodiments, the set of one or more vitals (e.g., represented by **1222**, **1224**, and/or **1228** in **1220** at FIGS. **12A-12L**) is detected via a wearable device (e.g., a smartwatch, fitness tracker, and/or a head-mounted device) of the user (e.g., as discussed at FIGS. **12A-12L**). In some embodiments, the set of one or more vitals are not detected via a wearable device. In some embodiments, the computer system is in communication (e.g., wireless and/or wired communication) with the wearable device. In some embodiments, the set of one or more vitals is detected via a set of one or more cameras (e.g., cameras of the computer system and/or cameras external to the computer system). In some embodiments, the vitals are detected via the wearable device and the set of one or more cameras.

[0366] In some embodiments, the first set of one or more criteria includes a criterion that is satisfied when a determination is made that the user has a first appearance (e.g., as discussed above at FIGS. **12A-12L**) (e.g., the eyes of the user are closed, the user is sweating, the attention of the user is not directed at the computer system, the eyes of the user are dilated, and/or the user appears drowsy). In some embodiments, the criterion is not satisfied when a determination is made that the user does not have the first appearance. In some embodiments, the appearance of the user is detected via one or more cameras that the computer system is in communication with. In some embodiments, the first set of one or more criteria includes a criterion that is satisfied when a determination is made that the user had the first appearance withing a predetermined period of time (e.g., 1-15 seconds). Ceasing display of the third portion of the content based on the appearance of the user automatically allows the computer system to perform additional motion mitigation measures when the current motional mitigation measures are not adequate for the user, thereby performing an operation when a set of conditions has been met without requiring further user input and/or providing additional control options without cluttering the user interface with additional displayed controls.

[0367] In some embodiments, while forgoing display of the third portion of the content (e.g., **1210b**, **1210c**, and/or **1210d** at FIG. **12D**) (e.g., while one or more vitals of the user are elevated over a threshold and/or while detecting the motion), the computer system detects, via the input device, (e.g., and/or via a wearable device of the user (e.g., a smartwatch and/or a fitness tracker), via one or more sensors of the computer system, and/or one or more cameras of the computer system) that a set of one or more vitals (e.g., represented by **1222**, **1224**, and/or **1228** in **1220** at FIGS. **12A-12L**) (e.g., heartrate, respiratory rate, blood pressure, body temperature, blood glucose level, and/or blood oxygen level) of the user increases (e.g., increased **1222** and/or **1224** at FIG. **12E**) (e.g., increases by a predetermined magnitude, increases over a threshold, and/or increases by a predetermined percentage) (and/or worsens). In some embodiments, in response to detecting that the set of one or more vitals of the user increases, the computer system ceases display of, via the display generation component (e.g., **1212**), a fourth portion of the content (e.g., **1210b**, **1210c**, **1210d** at FIG. **12E**) (e.g., a minority of the displayed content or a majority of the displayed content) different from the first portion of content, the second portion of content and the third portion of content, wherein the fourth portion of content includes the third portion of the content (e.g., the fourth portion is larger than the third portion). In some embodiments, the fourth portion does not include the third portion. In some embodiments, the fourth portion does not include the first portion. In some embodiments, the computer redisplay the fourth portion while forgoing display of the third portion in accordance with a determination that the vitals of the user decreases. Ceasing display of the fourth portion of the content in response to detecting that the set of one or more vitals of the user increases allows the computer system to perform additional motion mitigation

techniques to provide additional help in alleviating discomfort a user is experiencing as a result of the motion, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0368] In some embodiments, detecting that the set of one or more vitals (e.g., represented by **1222**, **1224**, and/or **1228** in **1220** at FIGS. **12A-12L**) of the user increases includes detecting that a magnitude (e.g., average magnitude, absolute magnitude, and/or median magnitude) of the set of one or more vitals of the user increases over a threshold (e.g., as discussed at FIGS. **12D-12E**) (e.g., a default threshold and/or a user specific threshold). In some embodiments, detecting that the set of one or more vitals of the user increases does not include detecting that the magnitude of the set of one or more vitals of the user increases over the threshold. In some embodiments, detecting that the set of one or more vitals of the user increases includes detecting that the magnitude increases by a particular percentage. In some embodiments, detecting that the set of one or more vitals of the user increases includes detecting that the magnitude increases by a particular amount. In some embodiments, the magnitude is an absolute value of the motion. Ceasing display of the fourth portion of the content in response to detecting that the set of one or more vitals of the user increases over a threshold allows the computer system to not cease the display of content based on insignificant increases in the vitals of the user, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0369] In some embodiments, in accordance with a determination that the set of one or more vitals (e.g., represented by **1222**, **1224**, and/or **1228** in **1220** at FIGS. **12A-12L**) of the user increases by a first magnitude (e.g., difference between **1220** and/or **1224** at FIGS. **12D** and **12E**) (e.g., 5%, 10%, 15% or 20%), the fourth portion of the content (e.g., **1210b**, **1210c**, **1210d** at FIG. **12E**) includes a first amount of the content (e.g., as discussed at FIG. **12E**) (e.g., a majority of the content or a minority of the content, a percentage of the content). In some embodiments, in accordance with a determination that the set of one or more vitals of the user increases by a second magnitude (e.g., difference between **1220** and/or **1224** at FIGS. **12E** and **12F**) (e.g., 5%, 10%, 15% or 20%) different from the first magnitude, the fourth portion of the content includes a second amount of the content (e.g., as discussed at FIG. **12F**) (e.g., a majority of the content or a minority of the content) different from the first amount of the content. In some embodiments, the first magnitude is greater than the second magnitude and the first amount of content is greater than the second amount of content or vice versa. In some embodiments, the first magnitude is greater than the second magnitude and the second amount of content is greater than the first amount of content or vice versa. In some embodiments, the fourth portion of the content includes an amount of the content irrespective of the vitals of the user. In some embodiments, the amount of the content included in the fourth portion varies as the set of one or more vitals of the user varies. In some embodiments, the magnitude is an absolute value of the motion. In some embodiments, ceasing to display a particular amount of the content when a set of prescribed conditions is met (e.g., the user's vitals increase by a particular amount) automatically allows the computer system to provide an indication of the state of the vitals of the user, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0370] In some embodiments, while forgoing display of the third portion of the content (e.g., difference between top and bottom portion of FIG. **12E**) (e.g., **1210b**, **1210c**, **1210d** at FIG. **12E**) (e.g., and/or while the user satisfies the first set of one or more criteria), the computer system continues to detect, via the input device, the motion (e.g., represented by **1212**, **1216**, and/or **1218**) (e.g., and/or separate motion). In some embodiments, continuing to detect the motion includes detecting a change in one or more characteristics of the motion. In some embodiments, in response to continuing to detect the motion and in accordance with a determination that the user does not satisfy the first set of one or more criteria, the computer system displays, via the display generation component (e.g., **1212**), the third portion of the content (e.g., and the first portion of the content) without displaying a fourth portion of the content (e.g., **1210b**, **1210c**, **1210d** at FIG. **12H**) different

from the third portion of the content. In some embodiments, the fourth portion of the content is the same as the second portion. In some embodiments, in response to continuing to detect the motion and in accordance with the determination that the user does not satisfy the first set of one or more criteria, the computer system displays the third portion of the content and the second portion of the content. In some embodiments, in response to continuing to detect the motion and in accordance with the determination that the user satisfies the first set of one or more criteria, the computer system continues to forgo display of the third portion of the content. Displaying the third portion of the content without displaying the fourth portion of the content when a set of prescribed conditions is met automatically allows the computer system to cease performing motion mitigation techniques when the motion mitigation techniques are no longer necessary, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0371] In some embodiments, detecting the motion (e.g., represented by **1212**, **1216**, and/or **1218**) includes detecting that a magnitude (e.g., an average media or a media magnitude) of the motion is greater than a threshold (e.g., as discussed at **12E-12F**) (e.g., a threshold that is selected by the user and/or a threshold that is selected by the computer system). In some embodiments, the threshold is a user specific threshold. In some embodiments, the threshold is a context specific threshold. In some embodiments, the magnitude is an absolute value of the motion. In some embodiments, the magnitude of the motion is not greater than the threshold. Ceasing display of the second portion of the content in response to detecting that the magnitude of the motion is greater than a threshold allows the computer system to not cease the display of content based on the detection of insignificant amount of motion, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0372] In some embodiments, while forgoing display of a fourth portion of the content (e.g., **1210a**, **1210b**, **1210c**, and/or **1210d** at FIG. **12G**) (e.g., the second portion, the third portion of the content and/or a portion of content different from the second portion and/or the third portion), the computer system ceases to detect, via the input device, the motion (e.g., and/or any motion). In some embodiments, in response to ceasing to detect the motion, the computer system displays, via the display generation component (e.g., **1212**), the content (e.g., **1210a**, **1210b**, and/or **1210c** at FIG. **12H**) without forgoing display of the fourth portion (e.g., any portion) of the content (e.g., the computer system displays the entirety of the content) (e.g., the computer system redisplay the fourth portion of the content and/or any of portion of the content that the computer system did not display prior to ceasing to detect the motion). In some embodiments, in response to ceasing to detect the motion, the computer system continues to forgo display of the fourth portion of the content. In some embodiments, the computer system displays the content without forgoing display of a portion of the content in response to detecting an input. Displaying the content without forgoing display of the fourth portion of the content in response to ceasing to detect the motion allows the computer system to provide a state of the computer system and/or a state of the user (e.g., the computer system and/or the user are not in motion), thereby performing an operation when a set of conditions has been met (e.g., no motion is detected) without requiring further user input, providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0373] In some embodiments, while forgoing display of a fourth portion of the content (e.g., **1210a**, **1210b**, **1210c**, and/or **1210d** at FIG. **12D**) (e.g., the second portion and/or the third portion of the content), the computer system continues to detect, via the input device, the motion (e.g., represented by **1212**, **1216**, and/or **1218**). In some embodiments, continuing to detect the motion includes detecting a change in one or more characteristics (e.g., acceleration, deceleration, turning force, direction, and/or direction) In some embodiments, in response to continuing to detect the motion and in accordance with a determination that the motion is less than a threshold (e.g., as discussed at FIG. **12B**) (e.g., a user defined threshold, a computer system defined threshold, or a default threshold) (e.g., while continuing to detect the motion), the computer system displays, via

the display generation component (e.g., **1212**), the content without forgoing display of the fourth portion (e.g., any portion) of the content (e.g., **1210a**, **1210b**, and/or **1210c** at FIG. **12B**) (e.g., the computer system displays the entirety of the content) (e.g., the computer system redisplay the fourth portion of the content and/or any of portion of the content that the computer system did not display prior to ceasing to detect the motion). In some embodiments, in response to continuing to detect the motion and in accordance with a determination that the motion is greater than the threshold, the computer system continues to forgo display of the respective portion of the content. Displaying the content without forgoing display of the fourth portion of the content when a set of conditions is met (e.g., the motion is less than a threshold) automatically allows the computer system to provide a state of the computer system and/or a state of the user (e.g., the computer system and/or the user are coming to a rest), thereby performing an operation when a set of conditions has been met without requiring further user input, providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0374] In some embodiments, continuing to detect the motion includes detecting, via the input device, a change in one or more characteristics (e.g., speed, acceleration, deceleration, direction and/or turning force) of the motion (e.g., as discussed at FIGS. **12A-12L**). In some embodiments, the change in the one or more characteristics of the motion is greater than a threshold. In some embodiments, the change in the one or more characteristics of the motion happens without user intervention. In some embodiments, continuing to detect the motion does not include detecting a change in one or more characteristics of the motion.

[0375] In some embodiments, in response to continuing to detect the motion (e.g., represented by **1212**, **1216**, and/or **1218**) and in accordance with the determination that the user satisfies the first set of one or more criteria, the computer system displays, via the display generation component (e.g., **1212**), a fourth portion of the content (e.g., **1210a**, **1210b**, **1210c**) (e.g., a majority of the content or a minority of the content) different from the first portion of the content. In some embodiments, the fourth portion of the content includes more content or less content than the third portion of the content. In some embodiments, the first portion of the content includes more content or less content than the fourth portion of the content. In some embodiments, the fourth content separates the second and the third content. Displaying the fourth of the content when a set of prescribed settings is met automatically allows the computer system to maintain the display of a portion of the content such that the user is able to view and/or interact with content while the computer system performs techniques to alleviate discomfort a user may experience as a result of the motion, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0376] In some embodiments, while forgoing display of the third portion of the content (e.g., **1210a**, **1210b**, **1210c**, and/or **1201d** at FIG. **12G**) (e.g., and/or while forgoing display of the second portion of the content), the computer system ceases to detect, via the input device, the motion (e.g., represented by **1212**, **1216**, and/or **1218** at **12H**) (e.g., or any motion). In some embodiments, in response to ceasing to detect the motion, the computer system displays, via the display generation component (e.g., **1212**), the third portion of the content (e.g., **1210a**, **1210b**, and/or **1210c**) (e.g., and continuing to forgo the display of the second portion of the content) (e.g., the computer system concurrently displays the third portion of the content and the first portion of the content). In some embodiments, in response to ceasing to detection the motion, the computer system displays the second portion of the content. In some embodiments, the computer system applies a visual effect to the third portion of the content as part of displaying the third portion of the content. Displaying the third portion of the content in response to ceasing to detect the motion allows the computer system to cease performing motion mitigation techniques at a point in time when the motion mitigation techniques are no longer necessary, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0377] In some embodiments, while forgoing display of the third portion (e.g., **1210a**, **1210b**, **1210c**, and/or **1201d** at FIG. **12D**), the computer system continues to detect the motion (e.g., represented by **1212**, **1216**, and/or **1218** at **12B**) (e.g., or any motion). In some embodiments, continuing to detect the motion includes detecting a change in one or more characteristics of the motion. In some embodiments, in response to continuing to detect the motion and in accordance with a determination that a magnitude (e.g., average magnitude and/or media magnitude) of one or more characteristics of the motion (e.g., speed, acceleration rate, deceleration rate, turning force, braking force, and/or direction) is less than a threshold (e.g., as discussed at FIG. **12B**) (e.g., a user specific threshold, a context specific threshold, and/or default threshold), the computer system displays, via the display generation component (e.g., **1212**), the third portion of the content (e.g., **1210a**, **1210b**, and/or **1210c**) (e.g., while forgoing display of the second portion). In some embodiments, in accordance with a determination that the one or more characteristics of the motion is above the threshold, the computer system continues to forgo display of the third portion. In some embodiments, in response to continuing to detect the motion and in accordance with a determination that the one or more characteristics of the motion is below a threshold, the computer system displays the second portion. In some embodiments, the computer system applies a visual effect to the third portion of the content as part of displaying the third portion of the content. Displaying the third portion of the content when a set of conditions is met automatically allows the computer system to cease performing motion mitigation techniques at a point in time when the motion mitigation techniques are no longer necessary, thereby providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0378] In some embodiments, in accordance with a determination that the user is a first user (e.g., **1220** at FIGS. **12A-12H**) (e.g., a primary user, a user registered with the computer system, a tracked user (e.g., a user that is tracked by the computer system and/or a user that is tracked by a set of one or more external cameras), a non-tracked user (e.g., a user that is not tracked by the computer system), first individual, and/or a user not registered with the computer system), the second portion of the content corresponds to (and/or is) a first section (e.g. segment, fraction, fragment, and/or piece) of the content (e.g., as discussed at FIG. **12H**). In some embodiments, in accordance with a determination that the user is a second user (e.g., **1220** at FIGS. **12I-12L**) (e.g., a primary user, a user registered with the computer system, a tracked user (e.g., a user that is tracked by the computer system), a non-tracked user (e.g., a user that is not tracked by the computer system), second individual, and/or a user not registered with the computer system) different from the first user, the second portion of the content corresponds to (and/or is) a second section (e.g., segment, fraction, fragment, and/or piece) of the content (e.g., as discussed at FIG. **12I**) different from the first section of the content (e.g., the second section is larger than the first section, the second section is smaller than the first section, the second section includes different content than the first section). In some embodiments, the second portion of the content is not user dependent. In some embodiments, the second section includes the first section. In some embodiments, content included in the first section corresponds to the first user and content included in the second section corresponds to the second user. Ceasing to display a section of the content when a set of prescribed conditions is met (e.g., whether the user is a first user or a second user) automatically allows the computer system to tailor the performance of motion mitigation techniques on a user-by-user basis, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0379] In some embodiments, in accordance with a determination that the motion (e.g., represented by **1212**, **1216**, and/or **1218** at **12H**) has a first set of one or more characteristics (e.g., as discussed at FIGS. **12A-12L**) (e.g., speed, acceleration rate, direction, turning force, and/or deceleration rate), the second portion of the content corresponds to (and/or is) first section of the content (e.g., as discussed at FIGS. **12A-12L**) (e.g., segment, fraction, fragment, and/or piece). In some

embodiments, in accordance with a determination that the motion has a second set of one or more characteristics (e.g., as discussed at FIGS. **12A-12L**) (e.g., speed, acceleration rate, direction, turning force, and/or deacceleration rate) different from the first set of one or more characteristics the second portion of the content corresponds to (and/or is) a second section of the content (e.g., as discussed at FIGS. **12A-12L**) (e.g., segment, fraction, fragment, and/or piece) different from the first section of the content (e.g., the second section is larger than the first section, the second section is smaller than the first section, the second section includes different content than the first section). In some embodiments, the second portion of the content is not motion dependent. In some embodiments, the first section of the content corresponds to the first set of one or more characteristics of the motion and the second section of the content corresponds to the second set of one or more characteristics of the motion. Ceasing to display a section of the content when a set of prescribed conditions is met (e.g., whether the motion has a first set of one or more characteristics or a second set of one or more characteristics) automatically allows the computer system to tailor the performance of motion mitigation techniques based on the detected motion, thereby performing an operation when a set of conditions has been met without requiring further user input.

[0380] In some embodiments, the first portion is larger (e.g., includes more content and/or covers more of the display generation component) than the second portion (e.g., as discussed at FIGS. **12A-12L**). In some embodiments, the second portion is larger than the first portion.

[0381] In some embodiments, ceasing display of the second portion of the content includes applying a visual treatment to the second portion of the content (e.g., change of **1210a** from FIG. **12B** to **12C** to **12D**) (e.g., and not the first portion of the content) (e.g., fading out the second portion of the content, increasing the opacity of the second portion of the content, dissolving the second portion of the content, and/or animating the second portion of the content). In some embodiments, the computer system does not apply a visual treatment to the second portion of the content as a part of ceasing display of the second portion of the content. In some embodiments, the computer system applies a visual treatment to the first portion of the content as a part of ceasing display of the second portion of the content. In some embodiments, when the computer system applies the same visual treatment or different visual treatments to the first portion of the content and the second portion of the content, Applying a visual treatment to the second portion of the content as a part of ceasing to display the second portion of the content allows the computer system to cease the display of the second portion of the content in a manner that is not visually unpleasant to the user, thereby providing improved feedback and/or providing additional control options without cluttering the user interface with additional displayed controls and/or providing improved feedback.

[0382] Note that details of the processes described above with respect to method **1300** (e.g., FIG. **13**) are also applicable in an analogous manner to the methods described herein. For example, method **800** optionally includes one or more of the characteristics of the various methods described herein with reference to method **1300**. For example, the display of content can be shifted using one or more techniques described herein in relation to method **800**, where the content is shifted based on a state of a user described herein relation to method **1300**. For brevity, these details are not repeated herein.

[0383] The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the techniques and their practical applications. Others skilled in the art are thereby enabled to best utilize the techniques and various embodiments with various modifications as are suited to the particular use contemplated.

[0384] Although the disclosure and examples have been fully described with reference to the accompanying drawings, it is to be noted that various changes and modifications will become

apparent to those skilled in the art. Such changes and modifications are to be understood as being included within the scope of the disclosure and examples as defined by the claims.

## Claims

- 1.** A method, comprising: at a computer system that is in communication with a display and one or more input devices: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.
- 2.** The method of claim 1, wherein the acceleration in the first direction is a first acceleration, the method further comprising: before detecting the first acceleration, detecting, via the one or more input devices, a second acceleration; and in response to detecting the second acceleration, displaying, via the display, the user interface object.
- 3.** The method of claim 1, wherein displaying the user interface object in the subsequent manner includes displaying the user interface object with a particular size, opacity, shape, color, or any combination thereof.
- 4.** The method of claim 1, wherein displaying the user interface object in the subsequent manner includes changing a first visual characteristic of the user interface object at a first point in time, and wherein displaying the user interface object in the subsequent manner includes changing a second visual characteristic of the user interface object, different from the first visual characteristic of the user interface object, at the first point in time.
- 5.** The method of claim 1, further comprising: while displaying the user interface object, ceasing to detect the acceleration in the first direction; and in response to ceasing to detect the acceleration in the first direction, ceasing to display the user interface object.
- 6.** The method of claim 1, further comprising: in response to detecting the acceleration in the first direction: in accordance with a determination that the first direction is in a first orientation, moving, via the display, the user interface object in a first manner; and in accordance with a determination that the first direction is in a second orientation different from the first orientation, moving, via the display, the user interface object in a second manner different from the first manner.
- 7.** The method of claim 1, further comprising: displaying, via the display, content, wherein displaying the user interface object includes overlaying the user interface object on the content.
- 8.** The method of claim 1, wherein the acceleration in the first direction is a first acceleration, the method further comprising: after detecting the first acceleration, detecting, via one or more input devices, a second acceleration in the first direction; in response to detecting the second acceleration, ceasing to display, via the display, the user interface object.
- 9.** The method of claim 8, further comprising: after ceasing display of the user interface object, detecting, via the one or more input devices, a third acceleration in the first direction; and in response to detecting the third acceleration, displaying, via the display, the user interface object in the initial manner.
- 10.** The method of claim 1, wherein displaying the user interface object includes moving the user interface object, and wherein: in accordance with a determination that the acceleration has a first magnitude, the user interface object is moved at a first rate; and in accordance with a determination that the acceleration has a second magnitude, different from the first magnitude, the user interface object is moved at a second rate different from the first rate.
- 11.** The method of claim 1, further comprising: while displaying the user interface object, detecting,



via the input device, that a magnitude of the acceleration is less than an acceleration threshold; and in response to detecting that the magnitude of the acceleration is less than the acceleration threshold, ceasing to display, via the display, the user interface object.

**12.** The method of claim 1, wherein continuing to detect the acceleration includes detecting, via the input device, a change in one or more attributes of the acceleration.

**13.** The method of claim 1, further comprising: while displaying the user interface object, ceasing to detect, via the input device, the acceleration in the first direction; and in response to ceasing to detect the acceleration in the first direction, ceasing to display, via the display, the user interface object.

**14.** The method of claim 1, wherein a magnitude of the acceleration in the first direction is greater than an acceleration threshold.

**15.** The method of claim 1, wherein the acceleration in the first direction corresponds to an external structure.

**16.** The method of claim 1, wherein the user interface object is a first user interface object, wherein the first user interface object is displayed at a first location while detecting the acceleration in the first direction, wherein the first user interface object is displayed at a second location, different from the first location, in response to detecting the acceleration in the first direction, the method further comprising: while displaying the first user interface object in the initial manner, displaying, via the display, a second user interface object, different from the first user interface object, at a third location different from the first location, wherein the first location is in a first direction from the second location; and in response to detecting the acceleration in the first direction, displaying, via the display, the second user interface object at a fourth location different from the second location and the third location, wherein the fourth location is in the first direction from the third location, wherein a distance between the second location and the first location is a first distance, wherein a distance between the fourth location and the third location is a second distance, and wherein the second distance is the same as the first distance.

**17.** The method of claim 16, further comprising: while displaying the first user interface object at the first location and the second user interface object at the third location, displaying, via the display, a third user interface object, different from the first user interface object and the second user interface object, at a fifth location different from the first location and the third location, wherein the first location is in a second direction, different from the first direction, from the fourth location; and in response to detecting the acceleration in the first direction, displaying, via the display, the third user interface object at a sixth location different from the second location and the fourth location, wherein the fourth location is in the second direction from the third location, wherein a distance between the sixth location and the fifth location is a third distance, and wherein the third distance is the same as the first distance and the second distance.

**18.** The method of claim 17, wherein the first user interface object is displayed in the initial manner at the same location as the second user interface object, wherein the third user interface object is displayed in the initial manner at a different horizontal location than the first user interface object, and wherein the third user interface object is not displayed in the initial manner at the same location as the first user interface object and the second user interface object.

**19.** A non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a computer system that is in communication with a display and one or more input devices, the one or more programs including instructions for: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the

acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.

**20.** A computer system comprising: a display; one or more input devices; one or more processors; and memory storing one or more programs configured to be executed by the one or more processors, the one or more programs including instructions for: while displaying, via the display, a user interface object in an initial manner, detecting, via the one or more input devices, acceleration in a first direction; in response to detecting the acceleration in the first direction, displaying, via the display, the user interface object in a subsequent manner different than the initial manner based on the acceleration; after displaying the user interface object in the subsequent manner based on the acceleration, continuing to detect, via the one or more input devices, the acceleration in the first direction; and in response to continuing to detect the acceleration in the first direction, displaying, via the display, the user interface object in the initial manner.

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