

# CHAPTER 12:

# Advancing the User Experience



*Designing the User Interface:  
Strategies for Effective Human-Computer Interaction*

*Sixth Edition*

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# Advancing the User Experience

## Topics

1. Introduction
2. Display Design
3. View (Window) Management
4. Animation
5. Web Page Design
6. Color
7. Non-anthropomorphic Design
8. Error Messages

# Housekeeping

- Friday November 17, 2023
  - GTA will proctor in-class 50-minute video assignment
  - Online students will do a 50-minute video assignment over a 24-hour period.
- Wednesday November 29, 2023
  - GTA will proctor in-class 15-minute presentations

# MS Visual Studio C# Tutorials

1. [https://www.youtube.com/watch?v=x\\_9lfHjYtVg&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH](https://www.youtube.com/watch?v=x_9lfHjYtVg&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH)
2. [https://www.youtube.com/watch?v=zUbVMdF\\_kU4&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=2](https://www.youtube.com/watch?v=zUbVMdF_kU4&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=2)
3. [https://www.youtube.com/watch?v=glzUzy1C7IM&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=3](https://www.youtube.com/watch?v=glzUzy1C7IM&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=3)
4. [https://www.youtube.com/watch?v=Em9VcqdGatg&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=4](https://www.youtube.com/watch?v=Em9VcqdGatg&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=4)
5. [https://www.youtube.com/watch?v=x-OynOfFoA8&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=5](https://www.youtube.com/watch?v=x-OynOfFoA8&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=5)
6. [https://www.youtube.com/watch?v=QX-x-48xP5U&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=6](https://www.youtube.com/watch?v=QX-x-48xP5U&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=6)
7. [https://www.youtube.com/watch?v=PAwO1ZbvMI4&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=7](https://www.youtube.com/watch?v=PAwO1ZbvMI4&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=7)
8. [https://www.youtube.com/watch?v=i4nys8oPT\\_U&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=8](https://www.youtube.com/watch?v=i4nys8oPT_U&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=8)
9. [https://www.youtube.com/watch?v=uEnWW8ba-wI&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=9](https://www.youtube.com/watch?v=uEnWW8ba-wI&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=9)
10. [https://www.youtube.com/watch?v=2KG\\_ADNE4fg&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=10](https://www.youtube.com/watch?v=2KG_ADNE4fg&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=10)
11. [https://www.youtube.com/watch?v=RdrbVnMhDTQ&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=11](https://www.youtube.com/watch?v=RdrbVnMhDTQ&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=11)
12. [https://www.youtube.com/watch?v=nP\\_kYxxhaX4&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=12](https://www.youtube.com/watch?v=nP_kYxxhaX4&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=12)
13. [https://www.youtube.com/watch?v=rdLa8BtneF0&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=13](https://www.youtube.com/watch?v=rdLa8BtneF0&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=13)
14. [https://www.youtube.com/watch?v=9n36Yru7UpM&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=14](https://www.youtube.com/watch?v=9n36Yru7UpM&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=14)
15. [https://www.youtube.com/watch?v=0FQM0RUEgYg&list=PLfqPUB\\_iyqqQ81zKz7duiQmMOEzrXojFH&index=15](https://www.youtube.com/watch?v=0FQM0RUEgYg&list=PLfqPUB_iyqqQ81zKz7duiQmMOEzrXojFH&index=15)

# Introduction

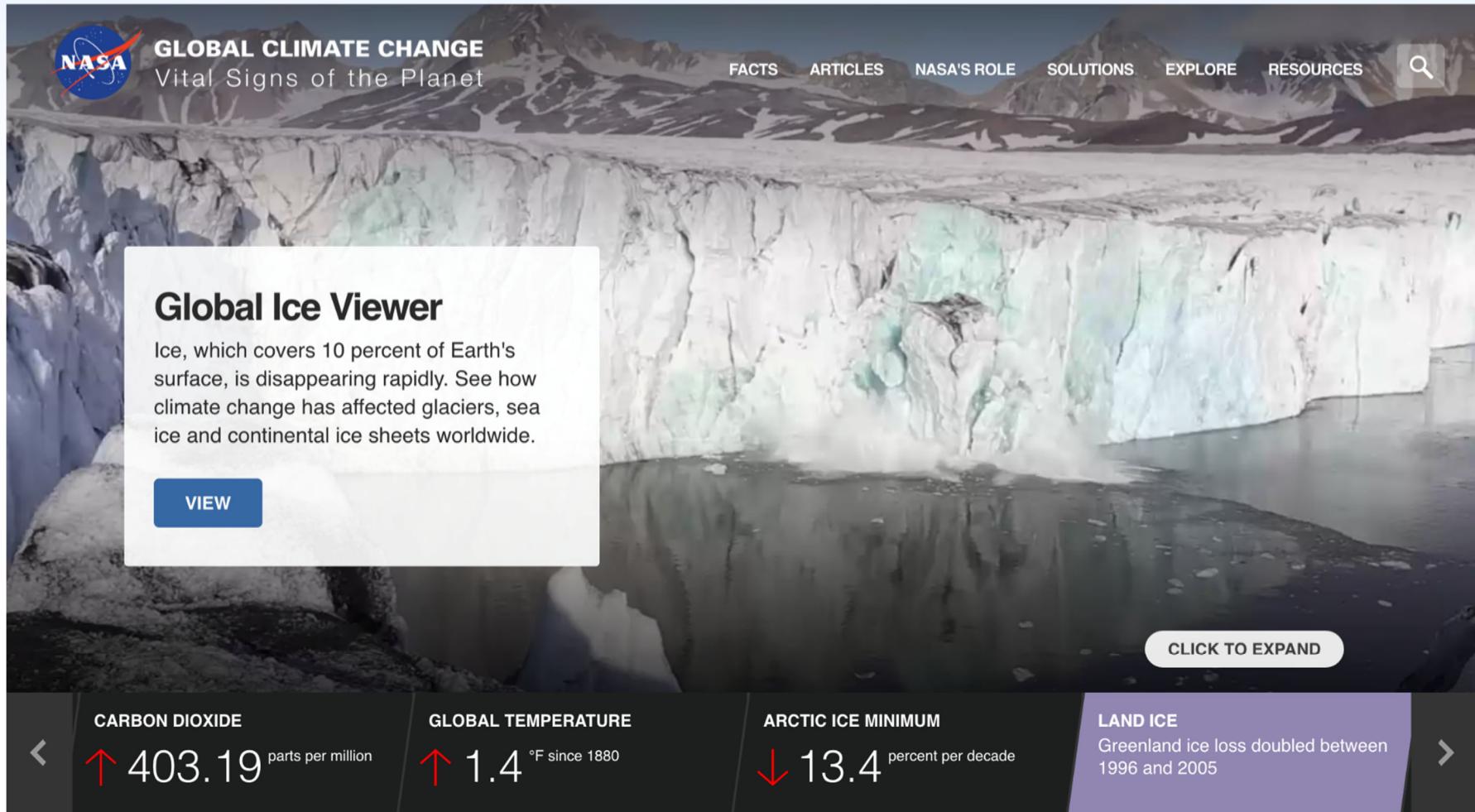
- Interface design is edging closer to match the art, trendiness, and techniques taught in design schools
  - In an era of smartphones, tablets, the thinnest of laptops, and wearables, competition over design has intensified
  - This chapter deals with design matters that are functional issues within User Experience evaluation criteria

<https://www.youtube.com/watch?v=zUDql9PJpc8>

# Display design

- Effective display designs must provide all the necessary data in the proper sequence to carry out the task
- Mullet and Sano's categories of design principles:
  - **Elegance and simplicity:** unity, refinement and fitness
  - **Scale, contrast, and proportion:** clarity, harmony, activity, and restraint
  - **Organization and visual structure:** grouping, hierarchy, relationship, and balance
  - **Module and program:** focus, flexibility, and consistent application
  - **Image and representation:** immediacy, generality, cohesiveness, and characterization
  - **Style:** distinctiveness, integrity, comprehensiveness, and appropriateness

# Display design (continued)



Webby Award winner NASA climate web site illustrating an elegant visual design  
<http://climate.nasa.gov/>

- Ensure that any data that a user needs, at any step in a transaction sequence, are available for display.
- Display data to users in directly usable forms; do not require that users convert displayed data.
- Maintain a consistent format for any particular type of data display from one display to another.
- Use short, simple sentences.
- Use affirmative statements, rather than negative statements.
- Adopt a logical principle by which to order lists; where no other principle applies, order lists alphabetically.
- Ensure that labels are sufficiently close to their data fields to indicate association yet are separated from their data fields by at least one space.
- Left-justify columns of alphabetic data to permit rapid scanning.
- Label each page in multipaged displays to show its relation to the others.
- Begin every display with a title or header, describing briefly the contents or purpose of the display; leave at least one blank line between the title and the body of the display.
- For size coding, make larger symbols be at least 1.5 times the height of the next-smaller symbol.
- Consider color coding for applications in which users must distinguish rapidly among several categories of data, particularly when the data items are dispersed on the display.
- When you use blink coding, make the blink rate 2 to 5 Hz, with a minimum duty cycle (ON interval) of 50%.
- For a large table that exceeds the capacity of one display frame, ensure that users can see column headings and row labels in all displayed sections of the table.
- Provide a means for users (or a system administrator) to make necessary changes to display functions, as data-display requirements may change (as is often the case).

Samples of the 162 data-display guidelines from Smith and Mosier

# Display design (continued)

- **Field layout**
  - Blank spaces and separate lines can distinguish fields.
  - Names in chronological order, alignment of dates, familiar date separators.
  - Labels are helpful for all but frequent users.
  - Distinguish labels from data with case, boldfacing, etc.
  - If boxes are available they can be used to make a more appealing display, but they consume screen space.
  - Specify the date format for international audiences
  - Other coding categories – background shading, color, and graphic icons

# Display design (continued)

- **Empirical results**
  - Structured form superior to narrative form
  - Improving data labels, clustering related information, using appropriate indentation and underlining, aligning numeric values, and eliminating extraneous characters improves performance
  - Performance times improve with fewer, denser displays for expert users
  - Screen contents should contain only task-relevant information
  - Consistent location, structure, and terminology across displays important

# Display design (continued)

- **Sequence of displays**
  - Should be similar throughout the system for similar tasks, but exceptions will certainly occur
  - Within a sequence, users should be offered some sense of how far they have come and how far they have to go to reach the end
  - It should be possible to go backwards in a sequence to correct errors, to review decisions, or to try alternatives

# Display design (continued)



- U.S. Navy air traffic control work environment, with multiple specialized data-intensive displays  
<https://www.transportation.gov/fastlane/helping-americas-veterans-secure-promising-future>

# Display design (continued)



# Display design (continued)

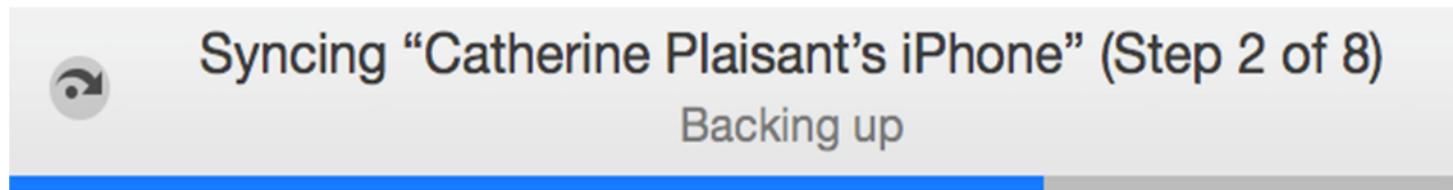
**CHI 2016 Attendee Registration** [\(View Details\)](#)

The progress indicator consists of four horizontal bars. The first three bars are orange and have solid dots at their left ends, indicating completed steps. The fourth bar is grey and has an open circle at its left end, indicating an incomplete step. Below each bar is a label: 'Personal Information', 'Agenda & Fees', 'Checkout', and 'Confirmation'.

Details			
Registrant	Email	Type	Actions
<a href="#">+ Steven Jacobs</a>	steven.jacobs@nau.edu	ACM or SIGCHI Professional Member (please have your ACM or SIGCHI number available)	<a href="#">Make Changes</a>

- This page from ACM SIGCHI CHI 2016 web site allows users to register for the conference. The progress indicator in the middle indicates the user is working in the 3rd step of a 4-step sequence of displays, giving users a sense of how far they have gone.

# Display design (concluded)



- An example of progress indicator with the status of a backup process in iTunes