

## Me, Myself, and UI

### Present

User Interface (UI) refers to the visual virtual design of a computer that allows a user to communicate and interact with it. The goal of a UI designer is to give users the easiest, most efficient, and most enjoyable ways to use a computer, and there are many components to doing so. For example, two types of UIs are direct manipulation interfaces, which are made to continuously display an image as it is being manipulated, and motion tracking interfaces, which interpret the user's body motions and translate them into commands or images on the computer.

One important similarity between direct manipulation interfaces and motion tracking interfaces is that they often involve graphics, as one can use them to animate, edit, recolor, draw, and much more. For example, someone may use Photoshop to make a person's nose look smaller in a photo, and they will be able to watch the nose changing from large to small as they resize the selected portion of the image. In motion capture interfaces, such as those in *Avatar*, motion sensors are placed all over the actors so human movement can be tracked in real life and then rendered as realistic movement for a different kind of creature in the film.

Another similarity is that these interfaces make it easier to create the emotional stories that programmers and artists want to communicate through graphics. Direct manipulation interfaces use "widgets," or built-in tools (functions, in CS terms) that allow users to shortcut specific actions. In Photoshop, some examples are rotate, liquify, and free transform, which allow the users to easily transform images to create the story that they want to show. With motion capture interfaces, physical, fluid movement no longer has to be manually observed and guessed (an animation process that used to be incredibly difficult to perfect); before motion capture, VFX were not very realistic, but now they can be perfectly tracked, translating the exact, real movements into exact, digital movements.

On the other hand, there are a few differences between the two interfaces. One is that the images or movements in direct manipulation are totally digital, whereas the images/movements in motion capture come from real objects. This presents a few more differences: direct manipulation can be totally controlled, whereas the live motion in motion capture is limited to the physics of our real world. It also takes much longer to produce an image of the same complexity with direct manipulation technology than with motion capture technology; therefore, motion capture interfaces are more efficient than direct manipulation interfaces in terms of productivity.

## **Future**

I think user interfaces are headed into an augmented reality with completely motion-based technology; we will be able to control our virtual interfaces with our limbs, our eyes, and even our thoughts, and only the person with the interface will be able to see what is going on. What I mean is that there will be gadgets like computerized contact lenses, which will project the interfaces in our vision and allow us to do the actions we now do on phones and laptops in the air before us. It will be something like the view from a first person video game, where in the peripheral area you have access to data like the time, to-do lists, hydration/nutrition/sleep levels, where you last left your keys, etc, and you can type an essay just by thinking it. I believe this is the direction toward which humanity is headed because it is clear that electronic gadgets are becoming increasingly smaller and more minimalistic, and there's nothing more minimalistic than nothing at all.

[https://en.wikipedia.org/wiki/Motion\\_capture](https://en.wikipedia.org/wiki/Motion_capture)

[https://en.wikipedia.org/wiki/Direct\\_manipulation\\_interface](https://en.wikipedia.org/wiki/Direct_manipulation_interface)