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Human Computer Interaction

CSE 4015

classmate
Date ___ ___ ___
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Digital Assignment - 3

Topic - Future of HCI and Perceptual User Interfaces

① Haptic Gloves (company : DEXTA)

To feel virtual reality Dexta robotics has come up with a set of exoskeleton-style gloves that lets VR push back.

Here's how they work. Upon entering virtual reality, Dexta's Dexmo Gloves simulate feedback by locking and unlocking finger joints. When you try to touch digital objects with varing degrees of force. Using this relatively simple technique, the gloves can simulate haptic sensations such as hardness, springness, softness and more.

② MATERIABLE (MIT Tingible Media Group)

Materiable is the largest incarnation of Inform, a physical interface of moving "pixels" developed in 2013. Materiable gives this existing Inform display the ability to mimic the tactile qualities of real world materials like rubber, water, sand and more. Depending on the settings, flicking the surface of an Inform might make all of its pixel ripple, or quiver like jelly, or even bounce like a rubber ball. It's all accomplished by giving ~~ech~~ each indival Inform pixel its own ability to detect pressure and then respond with simulated physics. It's like a big block of shape-shifting digital clay which can be

used in a variety of mind-blowing ways by designers, medical students and seizmologits.

③ Decentralized

One of the major changes is that user interfaces will shift away from a centralized device like smartphone again. This might seem counterintutive at first but is not uncommon and makes sense. Energy for example also shifted from dumb energy (like shipping coal to oven) to centralized energy generation and is now shifting towards decentralized energy again due to new technologies like solar panels. User Interfaces like light switch shifted onto the smartphone and will now shift away again into smart light switches, speech or compleatly new forms like eye tracking. You wont need to carry your interface around anymore (except a watch if you like) Interfaces will be where you need them to be.

④ Specific

Interfaces will shift away from a generic screen towards more specific interfaces that only do a small number of things and that are m specifically designed for that use case. A good analogy are shoes. You don't use dress shoes for playing soccer or climbing. There will be more and more interfaces that are manufactured in smaller batches but that better fit the specific situation. In HCI this means specific interfaces for designers that have

a focus on haptics, interfaces for elderly people that have a focus on simplicity and unambiguity or interfaces for kids which will have a focus on playfulness.

⑤ Human Centered.

Graphical User Interfaces have many limitations. They are not accessible to visually impaired or handicapped people. They only use visual sense and a reduced version of haptics. They can have straining effects on our hand, neck or eyes. Future interfaces will be designed with human biology and psychology in mind. They will integrate more of our human senses. Once the iWatch becomes a mass phenomenon, people will get used to consuming information through different senses. Other interfaces will use our brain waves or body movements for example.

⑥ Instant.

Putting multiple applications on one device means that you will ote need to deal with menus. With decentralized, specific interfaces, this will be obsolete. Things will be instant again, like grabbing the newspaper next to your cup of coffee. rather than browsing through menues. The question is not weather actions take 1,3 or 5 steps. The question will be if an action can be done instantly or not. This also reduces our cognitive load which

allows us to focus our attention on the task at hand or the person in front of us.

7. simple

Trying to do the wrong thing right doesn't make them better. The light switch is still the best example. No matter how intutive you try to make an app that controls your smart lights, the experience will be worse than getting up and hitting a light switch. The large number of people that stop using their smart devices after a few days is proof for that. Future Interfaces will ignore the assummed intergration with graphical user interfaces w and will focus on making things simpler than existing solutions.

8. Invisible

We quote one of our friends a lot who described that to her "technology is a necessary evil. Technology can be stressfull with the anxiety of pop up notification or the inability to differentiate between work and private life. Technolgy will not be ø in the foreground anymore. It will assist people in their lifes and blend in to the background. It will disapear into walls, tables micro projectors or glass.

9. Augmented and virtual.

The digital and phsyical will blend together. Be it through augmented reality, glass or not, you will be able to read

context information about a broken motor not through a phone but directly in the surrounding "space" of the object.

(11) Passive

This is alredy a major trend in HCI. You wont need to trigger every action manually anymore but sensors will do that job for you. Examples include the garage door that can track when you're getting close to your house or lights that turn on automatically when you're walking into a room,