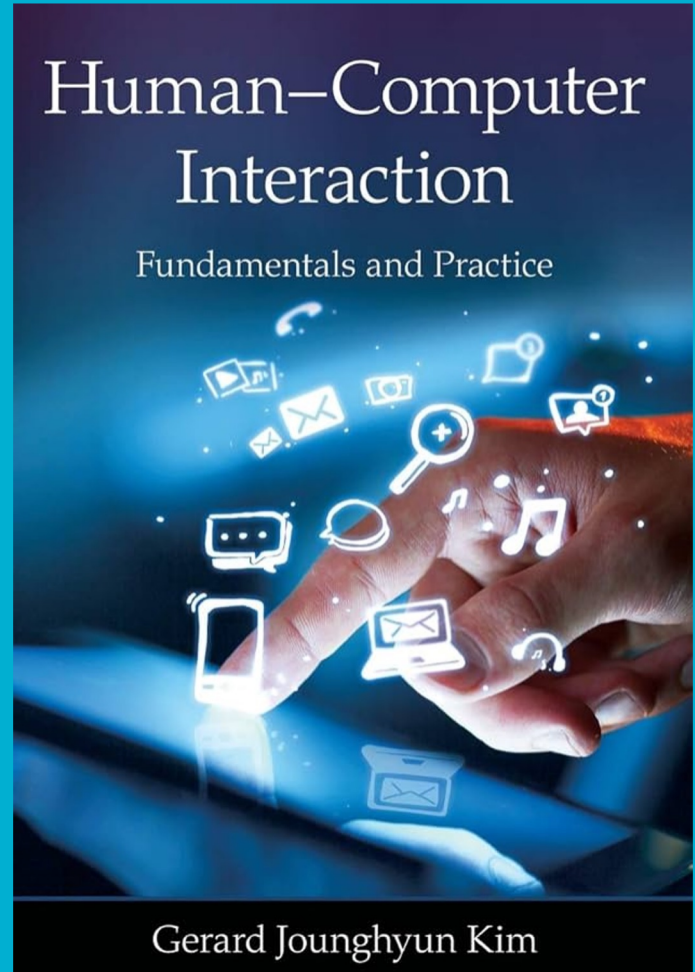


Future of HCI Research

By Cassidy and Kovit



The envisioned future of tech by mass media

Future envisioned by most



The problem

Isn't super revolutionary

- Just an extension of what already exists, which are screens. So basically no different.
- Biggest loss is no tactile feedback



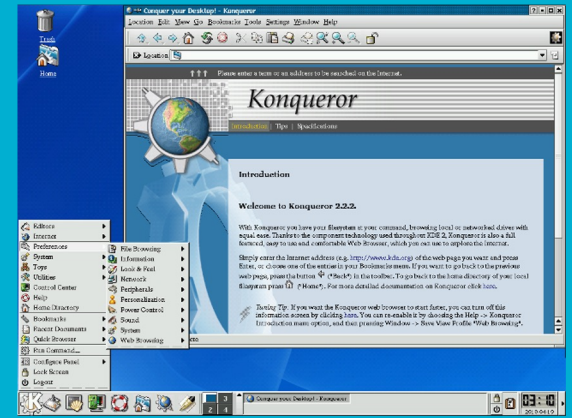
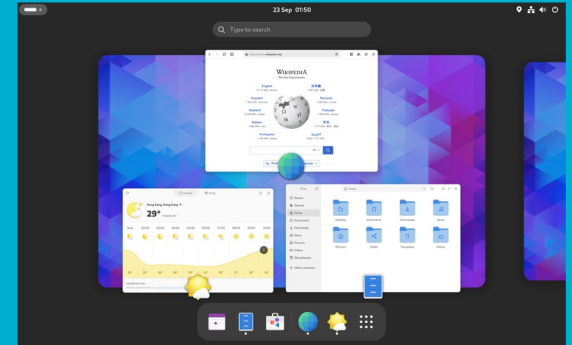
What about the physical side?

This is what the two readings address.

Tangible Bits

Quick Summary

- Paper argues for a paradigm shift
 - Get away from traditional GUI (confined to a desktop and windows)
 - Move towards being able to interact with physical objects and environments to manipulate digital information
- Many physical artifacts and tools created require physical interaction and provide haptic feedback
- New flood of technology takes away haptic interaction with real physical objects



Quick Summary: Current HCI Practices

- What practices do we use to process information?
 - Haptic interaction
 - Using peripheral senses
- These practices are neglected in HCI design
- Current HCI practices
 - GUI at the foreground of user information (neglects background)
 - GUI is bound to flat screen and controlled by mouse and keyboard
 - Reliance on visuals instead of other human senses

New form of HCI: Tangible User Interfaces

- Key concepts: Making digital bits accessible through physical environment
- Interactive Surfaces
 - Surfaces in an architectural space become an active (interactable) interface
- Coupling Bits and Atoms
 - Couple graspable objects with digital information
- Ambient Media
 - Use ambient media (sound, light, etc.) to provide background information

Example Prototypes of Tangible Bits

- metaDESK
 - Tangible Geospace
- ambientROOM
 - Uses ambient media to communicate background information
- transBOARD
 - Physical whiteboard where strokes are digitized and stored in hyperCARD containers

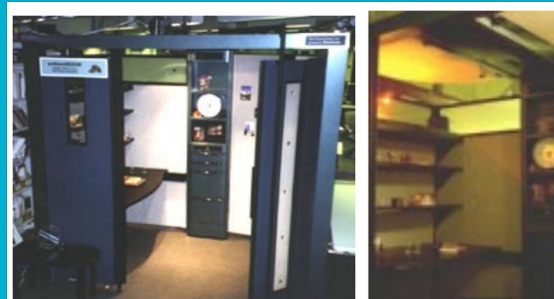
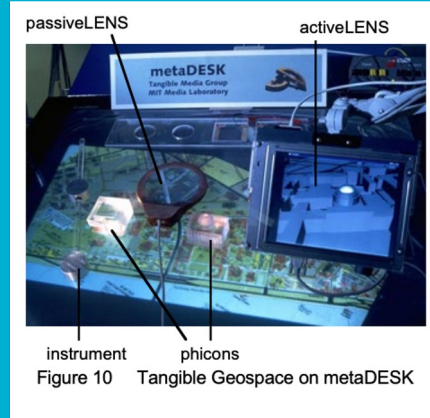


Figure 13 ambientROOM based on Personal Harbor™

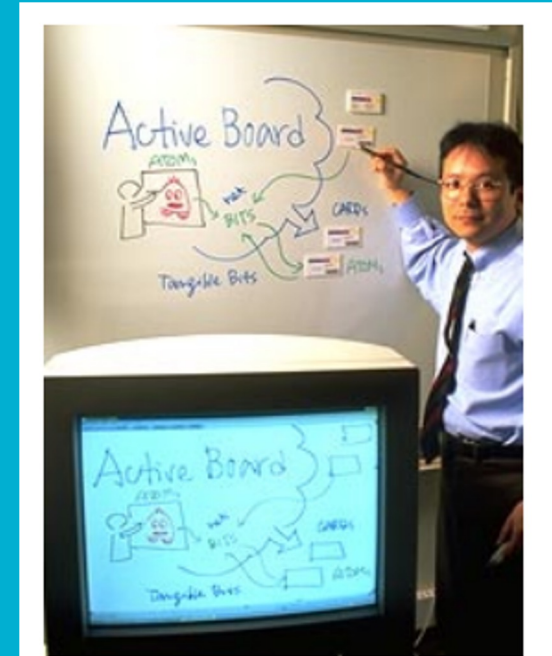


Figure 16 transBOARD: a networked digital whiteboard with hyperCARDS

A brief rant on the future of interaction design

Present UI/UX interaction

- “Pictures under glass”
 - Basically the paradigm where users interact with digital devices through visual interfaces made of glass
- Examples: Tablets, phone, PC



The problem with Pictures under glass

- As simple as a whiteboard
 - Like sliding finger over flat surface
 - neglects a lot of human capabilities
 - No Tactile feedback
 - No way to manipulate things outside of sliding things around
- Over reliance on basically “old tech”



What is the purpose of this reading?

- Purpose is not to give some solution, but to bring light so more research can be conducted
 - More incremental research = will potentially lead to a revolutionary product.



Activity!

Activity!

1. Split up in groups of ~4
2. Find an existing thing either in the real world or from the tech world.
3. See how you add additional things to the tool/thing you chose to bridge the gap between the physical world and the computer world (doesn't have to be super realistic)!
4. Design!

Example

1. Real world → tech world:
 - a. Start out with whiteboard
 - b. Becomes smartboard
2. Tech World → Real World:
 - a. LLMs responding via chat
 - b. Creating robot



Questions to answer after designing

1. Does your addition add some type of tactility or versatility? How if so?
2. Does your prototype provide information through the foreground or background? Both?
3. What multi-sensory skills or bodily interactions does your prototype require from users compared to traditional GUIs?
4. What are some potential issues you may encounter with using your prototype?