Wearable Computing

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Human Computer Interaction

History
Structure of HCI
Principles and Practice
Design Principles
Input Devices

- Text Entry: Keyboards, Chording, Voice
- Pointing, Selection, Gesture
Human Computer Interaction

- Research Topic: Understand Human Computer Interaction
- Engineering Topic: Build interactive systems
- “Cognitive” Ergonomics: Physiology, Psychology (and Sociology)
- Business impact: HCI design important for product success
HCI History and People

Ivan Sutherland  “Sketchpad: A Man-Machine Graphical Communications System” First GUI, light pen device, 1963

Doug Englebart  Mouse

Ted Nelson  Hypertext, 1970

Alan Kay  Smalltalk: OO-Programming language + operating system + user interface


1985  Windows (birthday 20.11.1985, yesterday!)
MS Windows 1.0

Image from heise.de website
MS Windows 1.0 screenshot

Image from heise.de website
What HCI is about...

- People
- Activities
- Contexts
- Technologies
People

- Physical Differences
- Psychological Differences
- Usage Differences
Activities

- Temporal Aspects
- Cooperation
- Complexity
- Safety-Critical
- Content
Context

- Physical Environment
- Social Context
- Organizational Context
Technology

- Input
- Output
- Communication
- Content
PACT Framework

- PACT Analysis
- Development of personas
- Example: Sales Clerk
- Example: Technical Inspector
Principles and Practice

- Accessibility
- Usability
- Acceptability
- Engagement
Accessibility

- Don’t Exclude Users!
- Physically
- Conceptually
- Economically
- Cultural Exclusion
- Social Exclusion
Usability

- efficient
- effective
- easy to learn
- safe to operate
- high utility
Acceptability

- Legal
- Political
- Convenience
- Cultural and social habits
- Usefulness
- Economic
Engagement

- Is it a “Killer App”?
- Identity
- Adaptivity
- Narrative
- Immersion
- Flow
Design Principles I

- Visibility
- Consistency
- Familiarity
- Affordance
Design Principles II

- Navigation
- Control
- Feedback
- Recovery
- Constraints
Design Principles III

- Flexibility
- Style
- Convivality
Examples

- Design Windowed Applications
- Website Design
- Other things (like Wearables)
Summary

- PACT: People, Actions, Context, Technology
- Design Principles