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

Recap
Human Computer Interaction
Summary

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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

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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

1982- GUI Systems: Xerox Star, Apple Lisa, Apple
Macintosh

1985 Windows (birthday 20.11.1985, yesterday!)

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MS Windows 1.0

Image from heise.de website

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MS Windows 1.0 screenshot

Image from heise.de website

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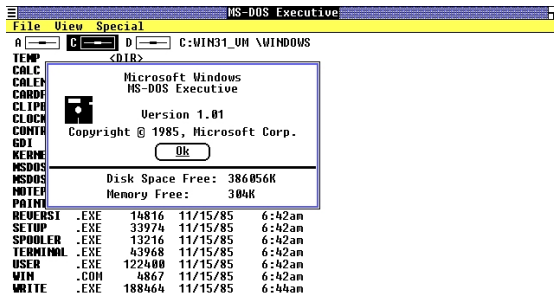
What HCI is about...

- ▶ People
- ▶ Activities
- ▶ Contexts
- ▶ Technologies

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People

- Physical Differences
- Psychological Differences
- Usage Differences

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Activities

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

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Context

- ▶ Physical Environment
- ▶ Social Context
- ▶ Organizational Context

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Technology

- ▶ Input
- ▶ Output
- ▶ Communication
- ▶ Content

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PACT Framework

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

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Principles and Practice

- ► Accessibility
- ► Usability
- ► Acceptability
- ► Engagement

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Accessibility

- ▶ Don't Exclude Users!
- ▶ Physically
- ▶ Conceptually
- ▶ Economically
- ▶ Cultural Exclusion
- ▶ Social Exclusion

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Usability

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

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Acceptability

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

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Engagement

- ▶ Is it a "Killer App"?
- ▶ Identity
- ▶ Adaptivity
- ▶ Narrative
- ▶ Immersion
- ▶ Flow

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Design Principles I

- ▶ Visibility
- ▶ Consistency
- ▶ Familiarity
- ▶ Affordance

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Design Principles II

- ► Navigation
- ► Control
- ► Feedback
- ► Recovery
- ► Constraints

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Design Principles III

- ▶ Flexibility
- ▶ Style
- ▶ Convivality

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Examples

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

Summary

- ► PACT: People, Actions, Context, Techonology
- ► Design Principles