A Vision of the Future of Media Technology
Design Education - design and education from HCI to UbiComp

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Media Technology

Human-Centred Creative Technology
apply technology in a creative manner to suit human beings

No more explicit external formal goals in HCI

web
apps
mashups
services
internet of things

information ecologies

Seely Brown
Nijholt
de Haan
Boumans

Research or positioning?

A trilogy of teaching MT students: research methods, new developments & design methods

→ research process, how to find papers ...
→ new tech: empathy, sensing, adaptivity ...
→ how to select and apply design methods

→ design methods
→ teaching methods
→ current focus: content topics

1 Evolution of design methods

frontend – backend (client/server)

frontend = presentation / user interface
backend = database / functionality

result: the mashup

development continues well into production - notably in web-applications

'natural' to do UCD, UX, prototyping, design exploration, co-design: fablabs & living labs

lightweight tools - no formal specs!

IOT design - structure

Friend nearby? (compute)
Location (service)
Busy / Engaged? (sensor)
Stressed? (sensor)
Traffic situation (oda)
Agile (cloud data)

Events (co-created cloud data)
Neighborhood (computed)

Context-sensitive app as a mash-up

Technical know-how declines
Creativity increases
Cooperative problem-solving

2 DevThis - teaching methods

Teams of 1 ... 3 students: build a novel type of application: ubicomp, IoT, empathic bots

Acquire your own approach, platforms, toolkits, SDK's ...

Theoretical basis in the lessons via lectures, scientific papers ...

Mini-lectures to share one's knowledge and abilities with co-students
DevThis assignments: DIY teaching

- Develop a mobile social context-sensitive application on iPhone, Android to enhance social cohesion in the local community (2010)
- Build an IoT demonstrator to connect the Virtual and the Real (2013)

>> Concept poster, presentations, demonstrator
>> Project report, a scientific paper
>> Review of the design method

DevThis assignment: social teaching

- Your project
  - a drag & drop CMS prototype
  - Mini-lecture
  - object recognition on a mobile phone
- Workshop
  - a scrum, arduino ... session

>> Skills & knowledge are shared in the classroom
>> Insights are accumulated / shared in a Wiki

DevThis theory: 'classical' teaching

- ubicomp, pervasive, ambient, IoT
- interfaces: AR / VR, tangible, natural, gestural, sensory, adaptive ...
- human perception, vision, speech ...
- design methodology
  - agile, participatory, co-design ...
  - usability lab, home lab & living lab ...
- nfc/rfid, sensor networks, semantic web, open data

>> turn your report into a scientific paper
>> write a short essay on HCI / ICT in 2050?

Project deliverables

- project & researchplan
- vision & concept: poster
- design & technical specs
- code / prototype / demonstrator
- presentations
- demo + scientific paper

>> Students learn how to do scientific research
>> Research contributes to staff research

Example projects @ SensorLab 2012

- Wifi broadcasting @ site
- Building access control
- Mobile money
- Indoor climate control
- Bluetooth remote for old TV's
- Ubiquitous gaming in & with Sensorlab
- 3D aerial photography
- Herba sense
- Facial recognition & authentication

3 Modelling development: which topics to teach?

- Mainframe - mini - pc - internet - web - mobile - iot
  - functional usable personal ux ecology
- Printing - web - cms - mobile web - apps - services
  - information interactive code mashups
- los of external, explicit, formal/well-defined goals
- how to model trends for education?
eg. Harper: Being Human - HCI in 2020
- GUIs to Gestures
- VDUs to Smart Fabrics
- Handsets to the World in our Hands
- Simple Robots to Autonomous Machines That Learn
- Hard Disks to Digital Footprints
- Shrink-Wrapped to Mash-Ups
- Answer-Phones to Always-On

Trends in trend watching
- Trends are messy as technology is (Dourish)
- Trends are intertwined and not isolated

>> Analyse the factors as independent as possible
>> Identify a set of developments for teaching

Content Developments
- **Tangible** interaction - touch, speech, gestures, sensing and recognizing
- **Mobile** networked applications
- **Smart** - intelligent/agency: personal, adaptive, smart, AI, persuasive, distributed intelligence, recommender systems
- **Sensitive** - intelligent/sensitivity: context sensitive, location-based, ambient/pervasive/ubicomp
- **Social** - collaborative - social media, h2h, crowd, social & affective bots
- **Connected** - oda, cloud, smart cities, services, mash-ups, rfid/nfc

DevThis: have students investigate & design future media concepts
Thats it!

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eg. de Haan: DevThis topics
- HCI
- ubiquitous/ambient/pervasive computing
- location and context sensors
- visual systems and object recognition
- augmented reality
- internet of things
- semantic web and metadata
- open data/city cloud
- exploratory, agile & co-design methods

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