

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)

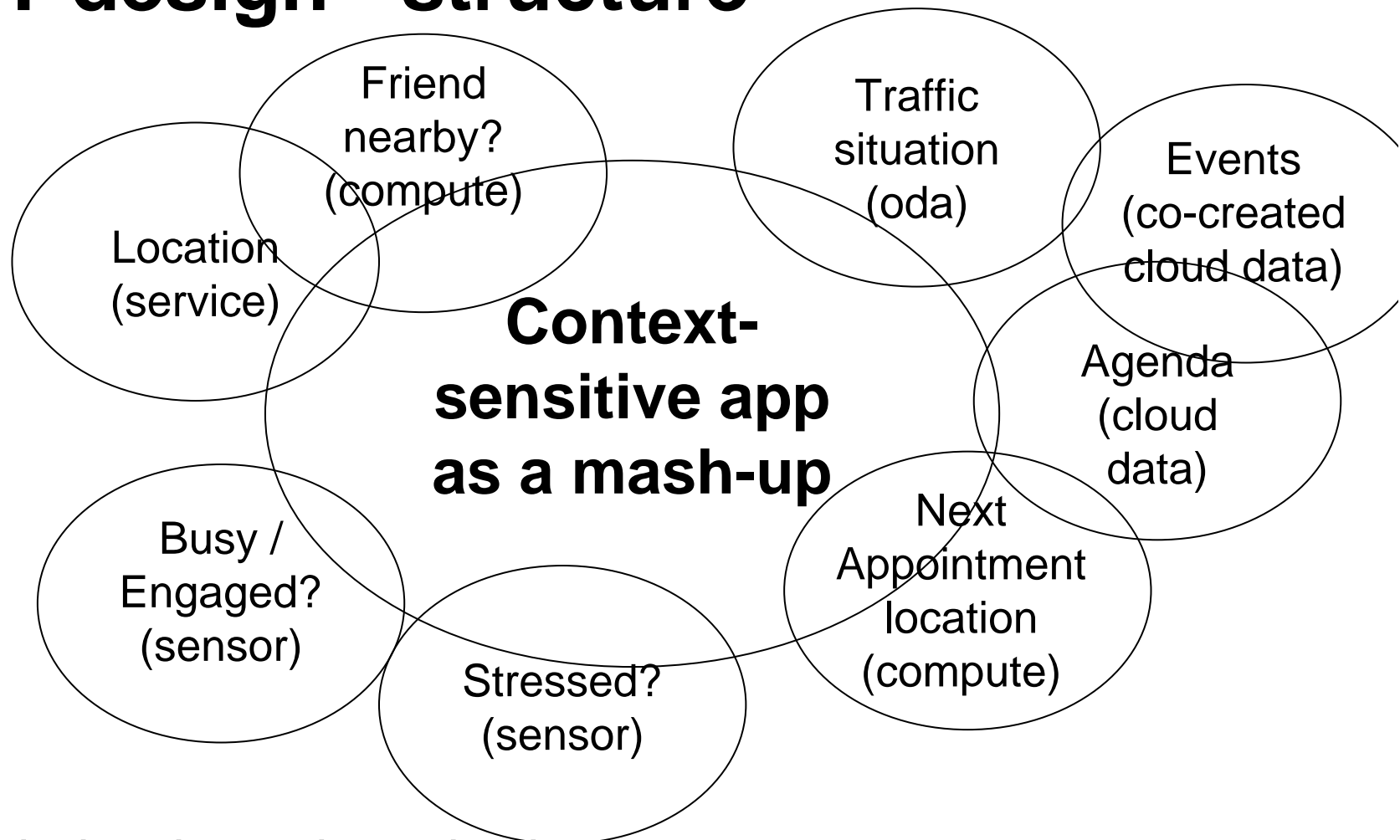
- frontend = presentation / user interface
- backend = database / functionality

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!

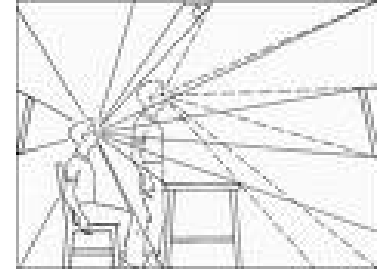


IOT design - structure



- 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

Where U@



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 & research plan
- 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



socialize this

whereu@



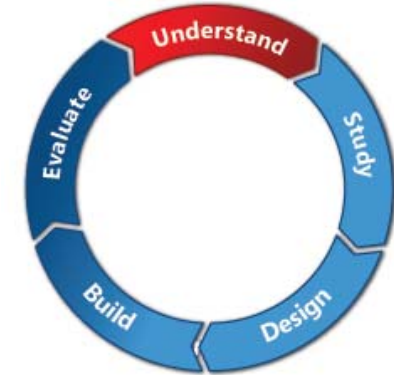
3 Modelling development: which topics to teach?



- 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



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

skating app



Trends in trend watching



- Diverse opinions: Greenfield (2006), Kuniavsky (2010), Harper et al. (2008), Sundmaeker et al. (2009), Alexandra Institute (2011), Van Kranenburg et al. (2009), Michahelles et al. (2007).
- 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

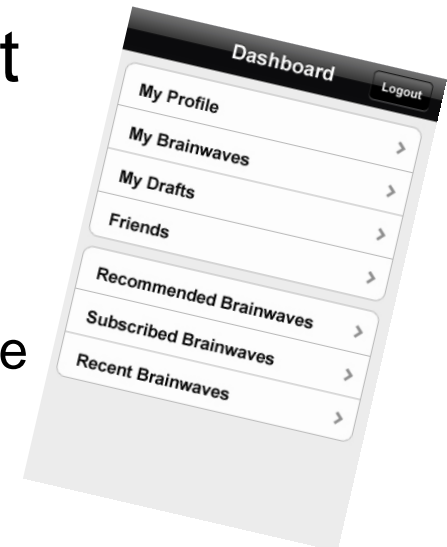
- **Tangible** interaction - touch, speech, gestures, sensing and recognizing
- **Mobile** networked applications
- **Smart** - intelligent/agency: personal, adaptive, smart, AI, persuasive, distributed intelligence, recommender systems
- **Sensitive** - intelligent/sensitivity: context sensitive, location-based,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



Design Developments

- **User centredness:** co-creation, co-design, scenario-based design, participatory design ...
- **Design exploration:** fab-, stads-, sensorlabs;
 - sensorlab: concept development
 - living labs: product development
- **Patterns & frameworks (!?)**
continuous higher-level specification
- myself: 'exploratory design'
Fallman, D. (2003) @ CHI
Network focussed Design (Booreiland)

brainwave



DevThis: have students investigate
& design future media concepts

Thats it!

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