



Stichting NIOC en de NIOC kennisbank

Stichting NIOC (www.nioc.nl) stelt zich conform zijn statuten tot doel: het realiseren van congressen over informatica onderwijs en voorts al hetgeen met een en ander rechtstreeks of zijdelings verband houdt of daartoe bevorderlijk kan zijn, alles in de ruimste zin des woords.

De stichting NIOC neemt de archivering van de resultaten van de congressen voor zijn rekening. De website www.nioc.nl ontsluit onder "Eerdere congressen" de gearchiveerde websites van eerdere congressen. De vele afzonderlijke congresbijdragen zijn opgenomen in een kennisbank die via dezelfde website onder "NIOC kennisbank" ontsloten wordt.

Op dit moment bevat de NIOC kennisbank alle bijdragen, incl. die van het laatste congres (NIOC2023, gehouden op donderdag 30 maart 2023 jl. en georganiseerd door NHL Stenden Hogeschool). Bij elkaar bijna 1500 bijdragen!

We roepen je op, na het lezen van het document dat door jou is gedownload, de auteur(s) feedback te geven. Dit kan door je te registreren als gebruiker van de NIOC kennisbank. Na registratie krijg je bericht hoe in te loggen op de NIOC kennisbank.

Het eerstvolgende NIOC vindt plaats op donderdag 27 maart 2025 in Zwolle en wordt dan georganiseerd door Hogeschool Windesheim. Houd onze website (www.nioc.nl) in de gaten.

Wil je op de hoogte blijven van de ontwikkeling rond Stichting NIOC en de NIOC kennisbank, schrijf je dan in op de nieuwsbrief via

www.nioc.nl/nioc-kennisbank/aanmelden-nieuwsbrief

Reacties over de NIOC kennisbank en de inhoud daarvan kun je richten aan de beheerder:

R. Smedinga kennisbank@nioc.nl.

Vermeld bij reacties jouw naam en telefoonnummer voor nader contact.

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 ICT
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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)

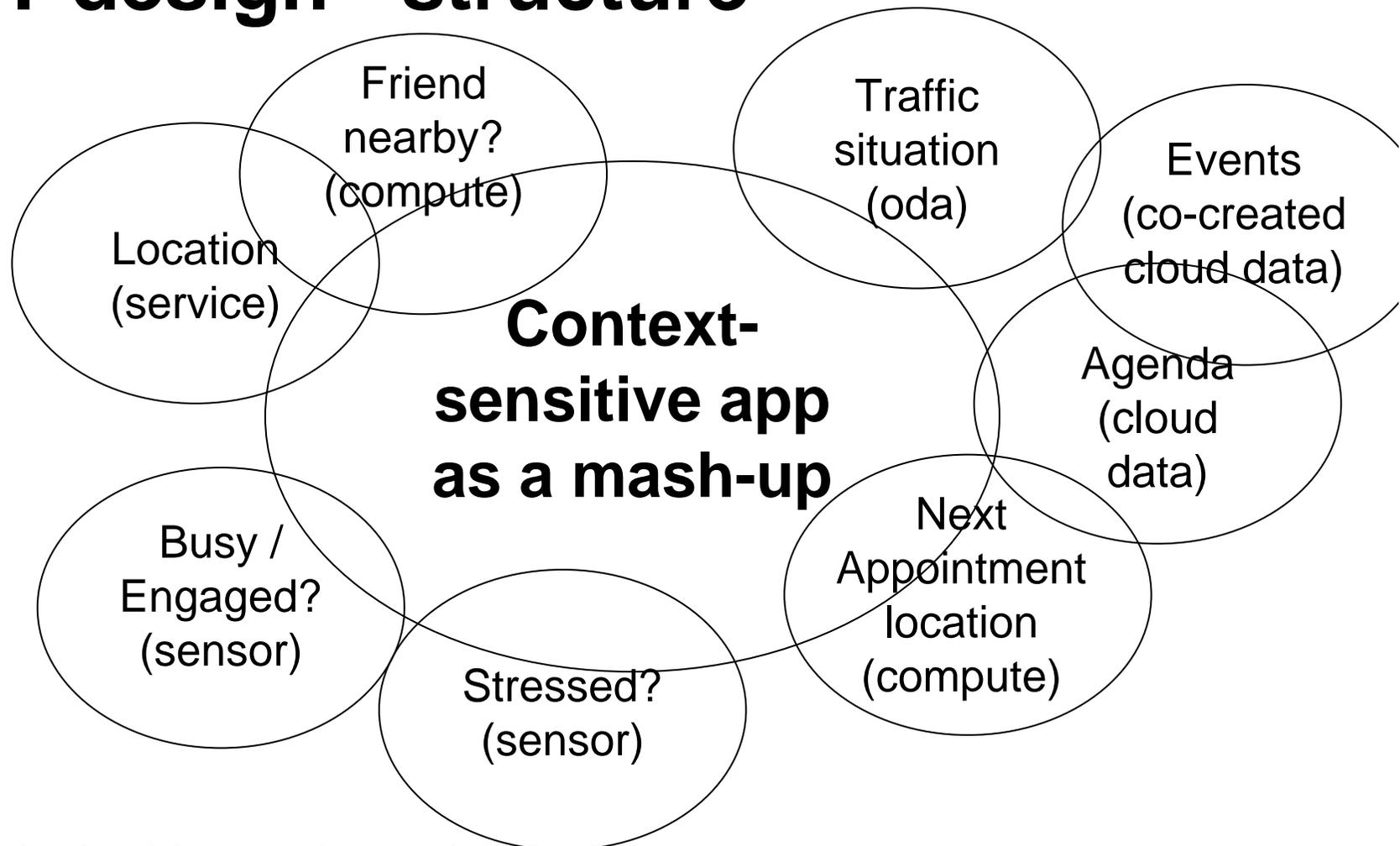
- frontend = presentation / user interface
- backend = database / functionality

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!

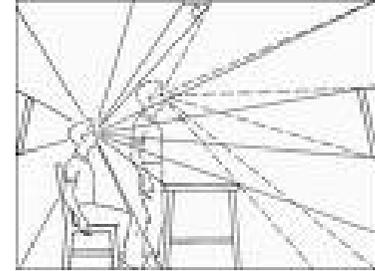


IOT design - structure



- 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@



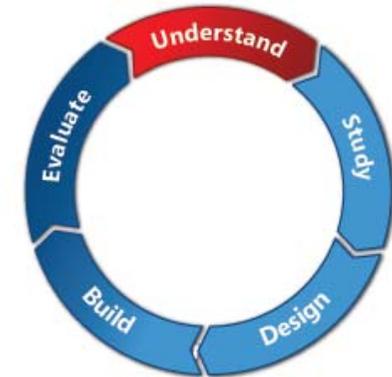
3 Modelling development: which topics to teach?



- 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

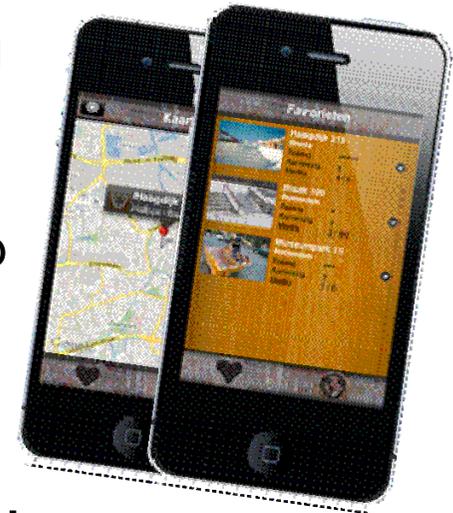
- GUIs to Gestures
- VDUs to Smart Fabrics
- Handsets to the World in our Hands
- Simple Robots to Autonomous Machines That Learn
- Hard Disks to Digital Footprints
- Shrink-Wrapped to Mash-Ups
- Answer-Phones to Always-On



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

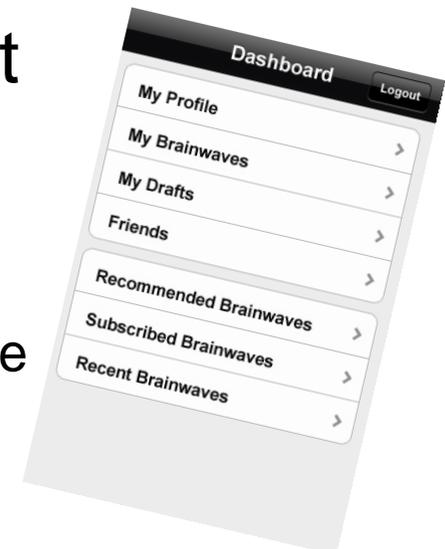
- **Tangible** interaction - touch, speech, gestures, sensing and recognizing
- **Mobile** networked applications
- **Smart** - intelligent/agency: personal, adaptive, smart, AI, persuasive, distributed intelligence, recommender systems
- **Sensitive** - intelligent/sensitivity: context sensitive, location-based, 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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