

Introduktion til interaktionsdesign 2009

Lektion 2



<http://www.moma.org/interactives/exhibitions/2008/elasticmind/#/244/>

Læringsmål

Indsigt i hvad (interaktions)design er

Löwgren, Buxton

At forstå den historiske baggrund for aktuelle digitale interaktionsparadigmer

Dourish (kap 1), Buxton s. 207-19

At kunne begrunde hvordan vi kontekstualiserer teknologi i et interaktionsdesignparadigme (embodiment)

Dourish (forord+kap 1)

Indhold

Hvad er interaktionsdesign?

10:50 Pause

Historisk udvikling bag interaktionsdesign

Embodiment-begrebet

11:40 Exemplarium 1

11:47 Exemplarium 2

11:54 Introduktion til Rapid Design Øvelse

Hvad er interaktionsdesign?

The design of spaces for human communication and interaction

Winograd (1997)

Creating user experiences that enhance and augment the way people work, communicate, and interact

Sharp, Rogers and Preece (2007:9)

Shaping the use qualities of digital material

Löwgren (2002:186)

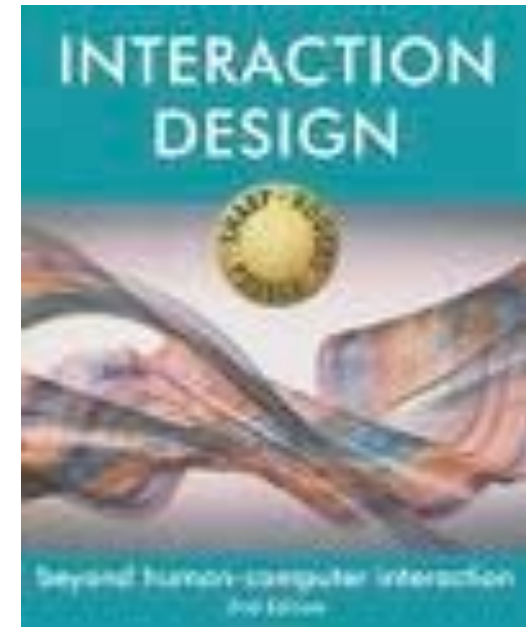


Hvad er interaktionsdesign? Löwgren

Kritik af Sharp, Rogers og Preece:

Interaction design: Beyond Human-Computer Interaction. Wiley, 2007.

Fra HCI (Human Computer Interaction) til Interaction Design ... hvad indebærer det?



Usability

How long should it take and how long does it actually take to

Use a DVD to play a movie?

Use a DVD to pre-record two programs?

Goals achieved and tasks completed correctly and within time



The User Experience

How a product behaves and is used by people
in the real world

"the way people feel about it and their
pleasure and satisfaction when using
it, looking at it, holding it, and opening
or closing it"

"every product that is used by someone
has a user experience: newspapers,
ketchup bottles, reclining armchairs,
cardigan sweaters." (Garrett, 2003)

Cannot design a user experience, only design
for a user experience

Hvad er interaktionsdesign? Löwgren I

'Interaktion'

- tidsbaseret og non-lineært

'Design'

- parallel udvikling af spørgsmål og svar
- aktivitet som indebærer udforskning af mulige fremtider
- syntese af følelse og fornuft
- handling på mange forskellige samtidige niveauer i designsituationen

HCI: mål, opgaver, usability, 'support'

-> effektivitet

Assertion 1.

Interaction design is a design discipline, which means something other than the science-and-engineering perspectives of HCI.

Hvad er interaktionsdesign? Löwgren II

Kvalitet i interaktionsdesign?

HCI: kvantitative mål for brugbarhed
(usability)

Design kritik gør det muligt at tale om
kvalitet

Godt og dårligt interaktionsdesign
(exemplarium)

Assertion 2.

The notion of quality in interaction design is not well developed. Neither are the social structures needed to develop and sustain the notion. An HCI perspective is not the most appropriate starting point.

Hvad er interaktionsdesign? Löwgren III

Æstetiske kvaliteter i interaktionsdesign?

AI interaktion indebærer såvel affekt (følelser) som tænkning (bevidst ræssoneren).

‘Obviously there’s the aesthetic of what something looks like or feels like but there’s also the aesthetic of how it works as well. You can talk about an elegant way of doing something as well as an elegant look.’

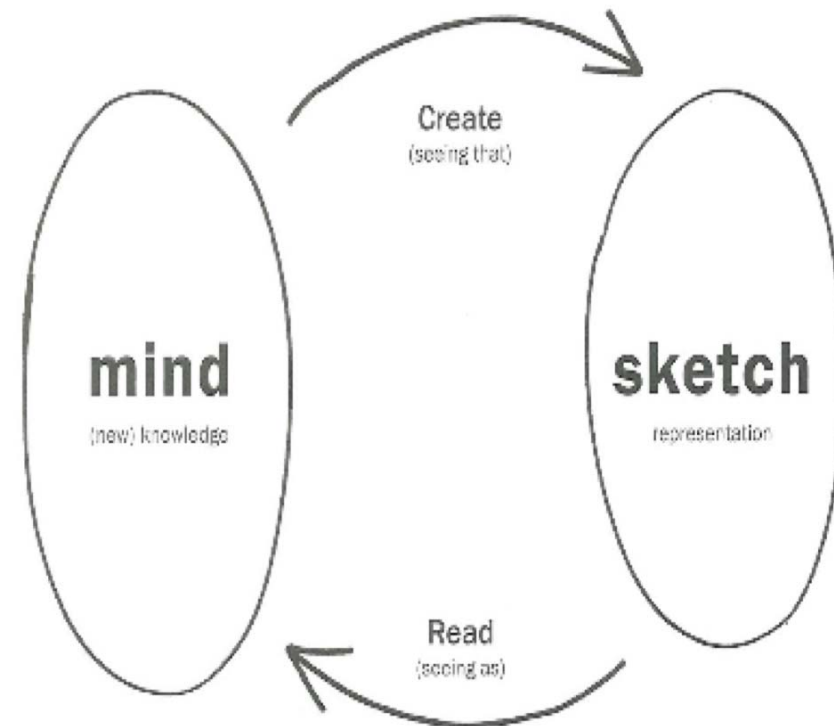
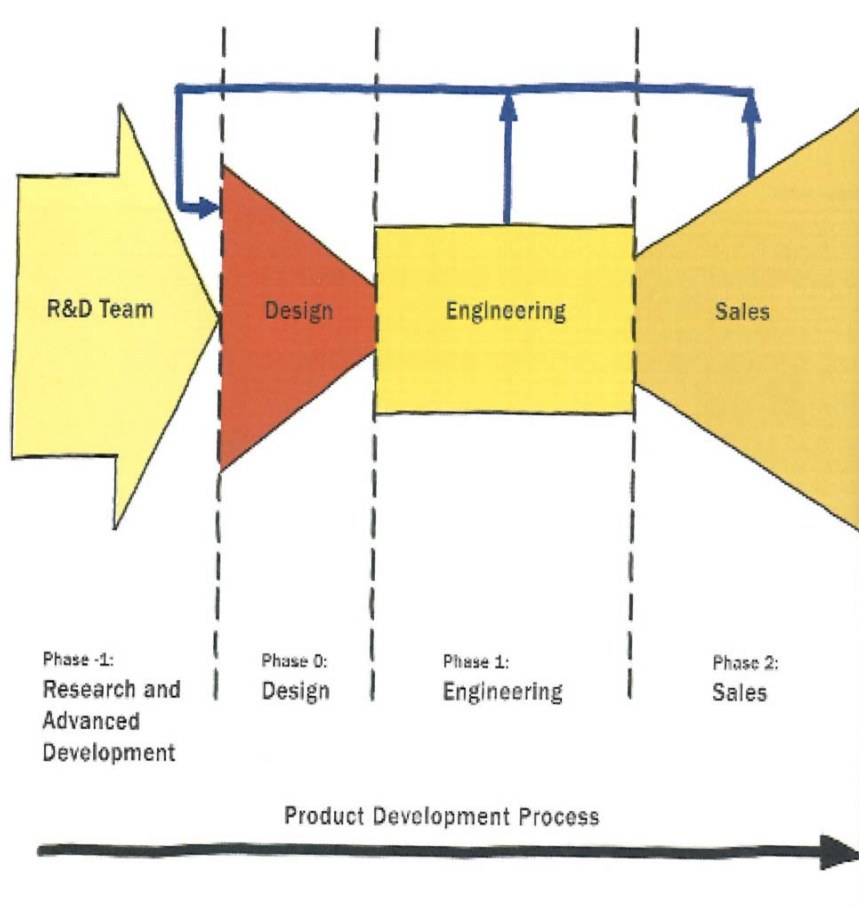
(Gillian Crampton Smith)

Assertion 3.

It makes sense to talk about aesthetic qualities of interaction. We have no adequate language as yet to do that talking. The language of HCI is not the best place to look for inspiration.

At skitsere brugeroplevelser - Buxton

Getting the design right and the right design



Design for the wild

As technology becomes more and more pervasive, it is finding itself in increasingly diverse and specialized contexts. The technologies that we design do not [...] exist in a vacuum. In any meaningful sense, they only have meaning or relevance in a social and physical context. (32)

[...] cognitive activity is embodied within the location of the activity and the tools used. (Hutchins: Cognition in the wild)

[...] notational or representational systems are not restricted to things that we draw or write. Rather, physical devices can have the same impact on the representation of a problem [...] (33)



Design for the wild

Forstå situationer!

et papirkort eller et digitalt GPS-system
fungerer ikke I alle situationer

Forstå den sociale og fysiske kontekst (Dourish)

“We need to be able to experience our design
in the wild during early stages of the
process” (37)

[http://middlesavagery.wordpress.com/
2008/03/01/tactile-maps-and-imaginary-
geographies/](http://middlesavagery.wordpress.com/2008/03/01/tactile-maps-and-imaginary-geographies/)



Den ansvarlige og innovative designer

Design is neither good or bad; nor is it neutral (Kransberg 1986). Whenever we introduce a product to our society it will have an impact.

Eksempler?

... without informed design, design is more likely to be bad than good

-> RESPONSIBLE DESIGN

‘Informed design’ betyder at vi tænker i større sammenhænge:

økosystemer, kontekstuelle og erfaringsmæssige aspekter af ‘det vilde’

Vi skal også tænke nyt. Alt for meget er baseret på konventionelle

forestillinger om hvad PC'en, Web, den grafiske brugergrænseflade etc er.

GOOD IDEAS ARE DANGEROUS!

Hvilken rolle spiller design for produktudvikling?

One of the most significant reasons for the failure of organizations to develop new software products in-house is the absence of anything that a design professional would recognize as an explicit design process. (72-73)

Design spiller en rolle gennem hele produktudviklingsprocessen (76)

Omkostningen ved at indføre en designproces forrest i produktudviklingsprocessen er langt mindre end de omkostninger der er for det endelige produkt og dets salg ved ikke at have gjort det.

Experience / Interaction / Interface ... Design

Interaction design = experience design

Vs interface design (juicepresser-eksempel)

Oplevelsen er et samspil af MANGE faktorer –
subjektivt oplevet

Sketching interaction

... (tænk selv over spørgsmålene s. 135 ... efter
Rapid designøvelsen I dag, og når kurset er
slut)

Designprocessen - Schön

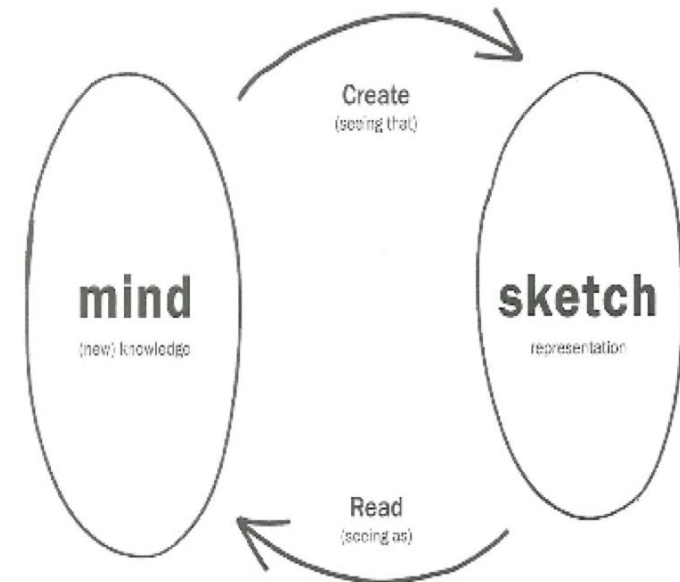
Donald Schön (1983)

Adskille to designaspekter:

- Problem solving (problemløsning: hvordan bygger vi?)
- Problem setting (problemformulering: bygge det rigtige?)

Get the design right vs Get the right design

Vi behøver begge dele: både designere og ingeniører



Design og sketching - Buxton

Norman: *We are all designers* ...nonsense!

Design can be distinguished by a particular cognitive style (Gedenryd).

Sketching is fundamental to the design process.

Design is for the real world –
the world we live in, which is messy
and constantly changing, and where
once a product is released, the
designer [...] have no control or
influence over how or where it is used.
(97)

Summeøvelse: hvad bruger I skitser /
tegninger til? – eksempler!

Hvorfor skitser i stedet for ord?



Sketches are ...

Quick

Timely

Inexpensive

Disposable (kan smides væk)

Plentiful (eksisterer i serier – del af en proces)

Clear vocabulary

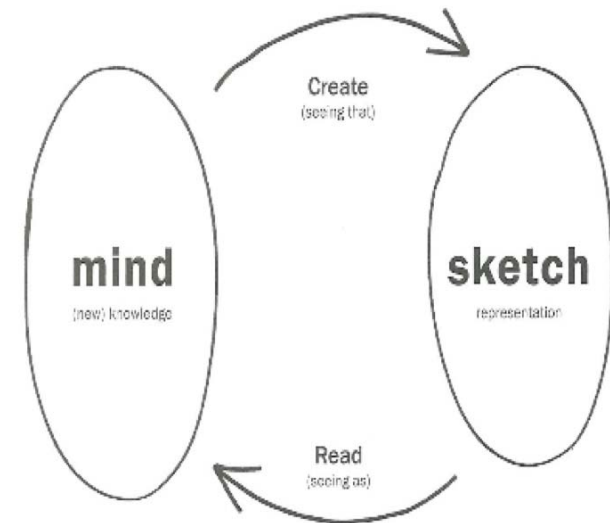
Distinct gesture (åbne / flydende)

Minimal detail (overflødige detaljer kan ignoreres)

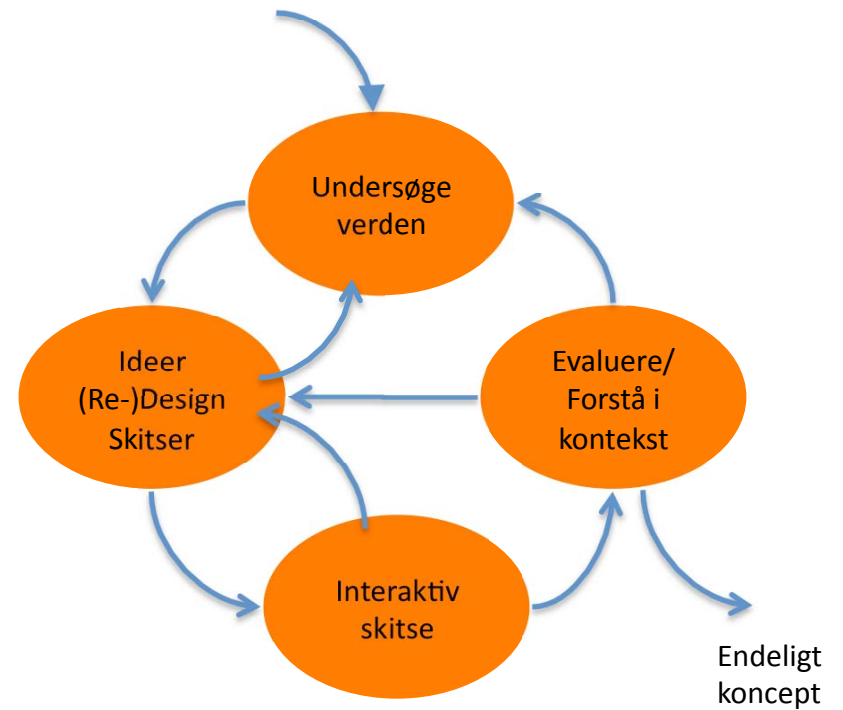
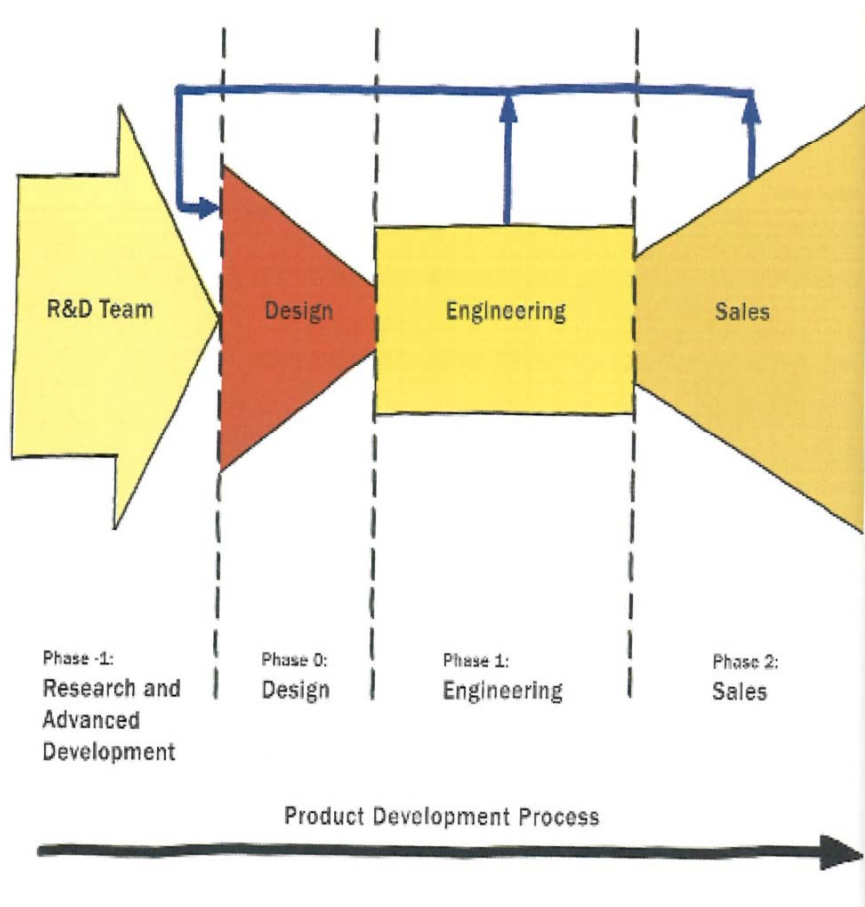
Appropriate degree of refinement (modsvarende det niveau ideen er på)

Suggest and explore rather than confirm

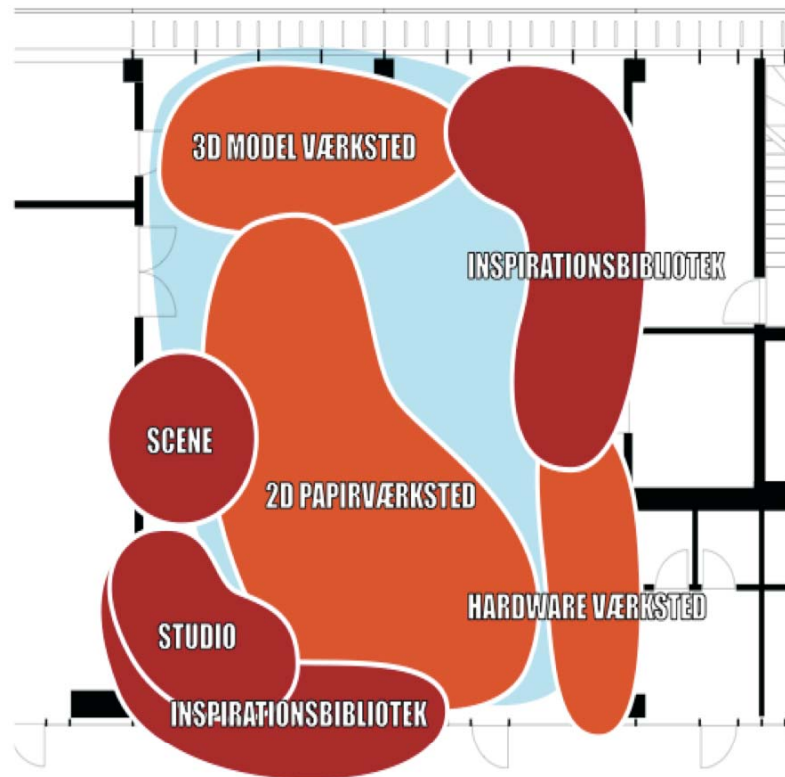
Ambiguity (bevidst dobbeltydige)



Designprocessen



Designlabbet – inspiration – tagging – 15/9



Pause

Efter pausen:
Dourish
Exemplarium 1+2



Where the Action Is – The Foundations of Embodied Interaction

Paul Dourish

Paul Dourish is a computer scientist best known for his work at the intersection of computer science and social science

Professor at the University of California, Irvine since 2000

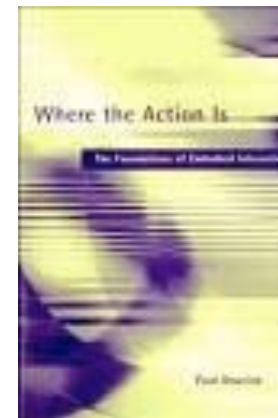
B.Sc. in Artificial Intelligence and Computer Science from the University of Edinburgh in 1989

Ph.D. in Computer Science at University College London

He has worked in research laboratories at Apple and at XEROX PARC & EuroPARC, Kilde: [Wikipedia](#)

Where the Action Is - The Foundations of Embodied Interaction.
MIT Press, 2004.

abstrakt, teoretisk, velskrevet, masser af analyser og argumentation kommer mest senere, vi tygger
'Interaktionsdesign's videnskabsteori'



Titlen: Where the action is ??

Hvordan skal den forstås?

Where the action is

First, it is about a perspective that places the action of embodied agents center stage (ix)

Rather than take action to be generated from or subservient to abstract reasoning, the perspective I will explore here sees embodied practical action in the world as the foundation for our conscious experience (ix)

Second, this approach is "where the action is" in the sense that it provides a way to understand the contributions and opportunities emerging from dynamic new forms of technological practice (ix)

Hvad handler Dourish's bog om?

Hvad handler Dourish's bog om?

Embodied Interaction

A Theoretical Foundation for Embodied Interaction

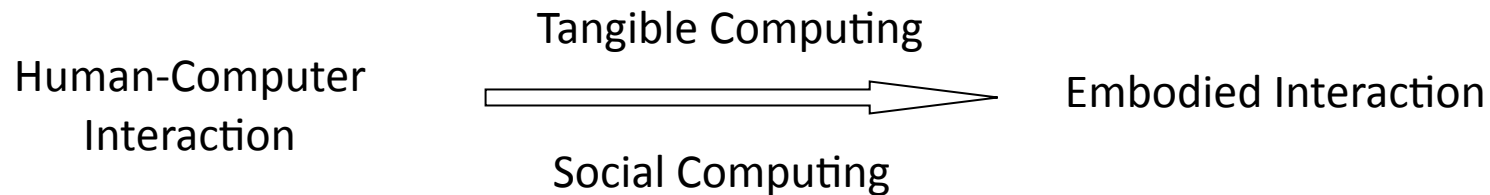
Going from the starting point Beyond the desktop and HCI
to the new developments Tangible and Social Computing to Embodied
Interaction in four steps

Tangible and social computing have a common basis

Embodiment is the core element

Embodiment is not new, can be informed by phenomenology

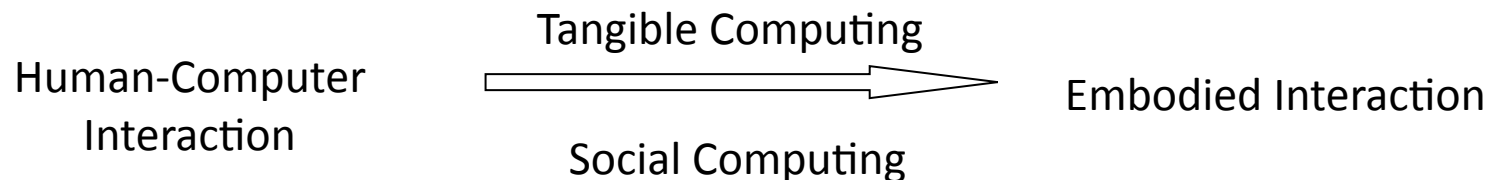
Phenomenology can help provide a foundation for embodied interaction



Hvad handler Dourish's bog om? (omslag)

In this book Paul Dourish addresses the philosophical bases of human-computer interaction. He looks for what he calls "embodied interaction" - an approach to interacting with software systems that emphasizes skilled, engaged practice rather than disembodied rationality - reflects the phenomenological approaches of Martin Heidegger, Ludwig Wittgenstein, and other twentieth-century philosophers.

The phenomenological tradition emphasizes the primacy of natural practice over abstract cognition in everyday activity.



Forord

Filosofi og computer science?

Datalogi er baseret på før-1930-filosofi

Datalogisk praksis reducerer høj-niveau adfærd til lav-niveau, mekaniske forklaringer, formaliserer dem gennem ren videnskabelig rationalitet

Datalogi afslører herved sin historie som en positivistisk, reduktionistisk tradition

Kognitionsvidenskab er baseret på en rigid Cartesiansk adskillelse mellem sind og materie, mellem tænkning og handling

Under angreb siden 1930'erne: Heidegger og Wittgenstein

ny position inden for tænkning, sprog og mening

erstattes af en model af situerede agenter, der handler og interagerer frit i verden

Dourish kap. 1 overordnet disponering

1. A historical model of interaction
 - Electrical
 - Symbolic
 - Textual
 - Graphical
2. New models for interactive system design:
 - Tangible and social approaches to computing
3. From tangible and social computing to embodied interaction

A History of Interaction

Hvad er hovedpointen i kapitel 1?

Baggrund

Computeres udvikling: Moore's lov

antallet af transistorer pr. arealenhed fordobles hvert 2. år

computerens kapacitet fordobles hver 18. måned

We talk about how fast it is changing, but we talk less about the ways in which it is not

Many things about computers are not changing at all

Our basic idea about what a computer is, what it does, and how it does it, for instance, have hardly changed for decades

Nor have the difficulties we encounter actually using computers

Baggrund

Computeren var en sparsom ressource: effektivitet & økonomi

”Users and operators took great pride in the speed with which they could mount tapes and operate the hardware to minimize the idle time between jobs” (Auslander, 1981: 475).

”It gave rise to a model that favors performance over convenience, and places a premium on the computer's time rather than people's time. This model is largely still with us today”. (s. 2)

På tide at genoverveje denne afvejning - to udviklingstendenser
informations-overload og computerne står stille i 95% af tiden
computeren indlejret i dagligdags brugsgenstande

Leder til

nye måde at interagere med computeren

nye måder at begribe interaktion: "beyond HCI & desktop”

Baggrund

"Over the last few years, research into HCI has begun to explore ways to control and interact with a new breed of computer systems" (s. 2)

Hvilke, for eksempel?

"This book is a contribution to the emerging literature on this new approach to interacting with computers, one I call 'Embodied Interaction' ".

"Embodied Interaction is interaction with computer systems that occupy our world, a world of physical and social reality, and that exploit this fact in how they interact with us." (s. 3)

Hvad er embodiment?

Hvad er embodiment?

Embodiment (Engelsk-Dansk) (ordbogen.com)

legemliggørelse; inkarnation

Embodied Interaction - Interaction with computer systems that occupy the world, a world of physical and social reality, and that exploit this fact in how they interact with us.

Embodiment: Not a property of systems, technologies, or artifacts, it is a property of interaction. It is rooted in the ways in which people (and technologies) participate in the world. (189)

Wikipedia

In essence embodiment as an idea binds two worlds of substance and spirit, contrary to a duality (Descartes).

Thus body and mind are fused into a single being - the only distinction between matter and person being the way of observing the being.

Afviger fra (andre) HCI fremstillinger

- Mere om
 - interaktion end interfaces
 - computation end computers
 - representational power end om Gigabytes and Megahertz
 - foundational end technical
- Ikke en bog om design-løsninger eller en "how-to-do-it"
- "The goal of this foundational exploration is to provide resources to designers, by giving them tools they can use to understand and analyze their designs."
- Interaktion i centrum: ikke *hvad* der gøres, men *hvordan* det gøres

Den historiske udvikling

Kontekst: de historiske evolution af ideerne om interaktionens og HCI teknologien

Hvorfor vælger Dourish et historisk perspektiv?

Var computeren en evolution eller en revolution ?

Fokus på færdigheder (skills) gennem fire interaktionsformer

electrical	- textual
symbolic	- graphical

Electrical

Computeren var ikke en revolution, men en evolution

Hvad ser I på billedet?

Analog beregningstradition

vejrudsigter

skydetabeller

planlægning af
vandedninger

styring af jernbanegods

Folketælling



25. Computing room at the U.S. Department of Agriculture

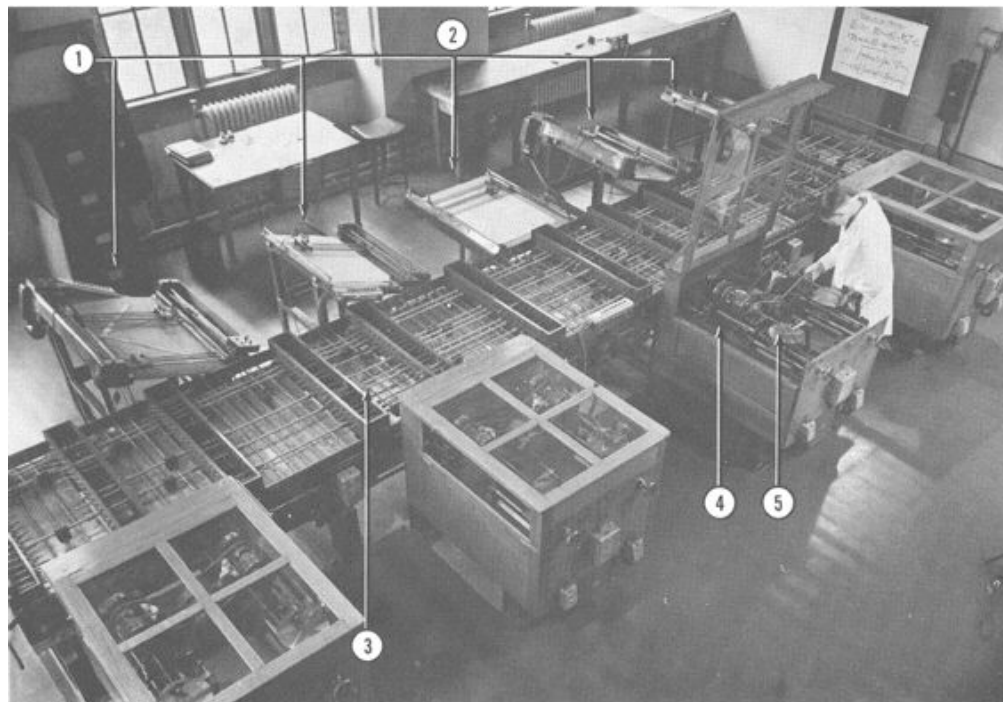
Administrativ

databelhandling baseret på hulkort

Kender I Vannevar Bush: As We May Think? (1945)

<http://www.theatlantic.com/doc/194507/bush>

Differential Analyzer



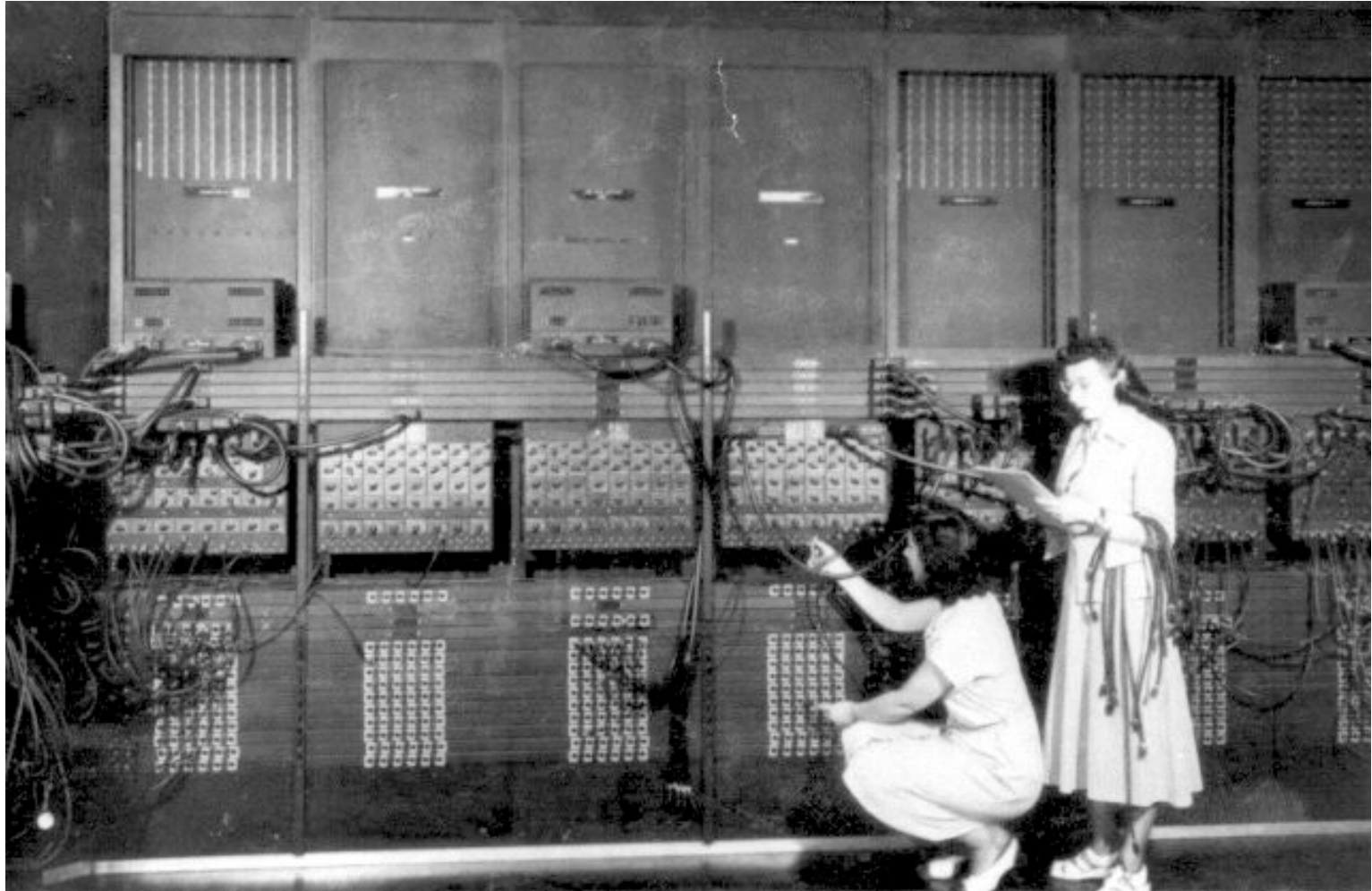
- 1 Input table
- 2 Output table
- 3 Shafts and gears used for interconnection
- 4 Torque amplifier
- 5 Integrator disk



Fig. 10—Bush testing the Profile Tracer near the reservoir at Tufts College.

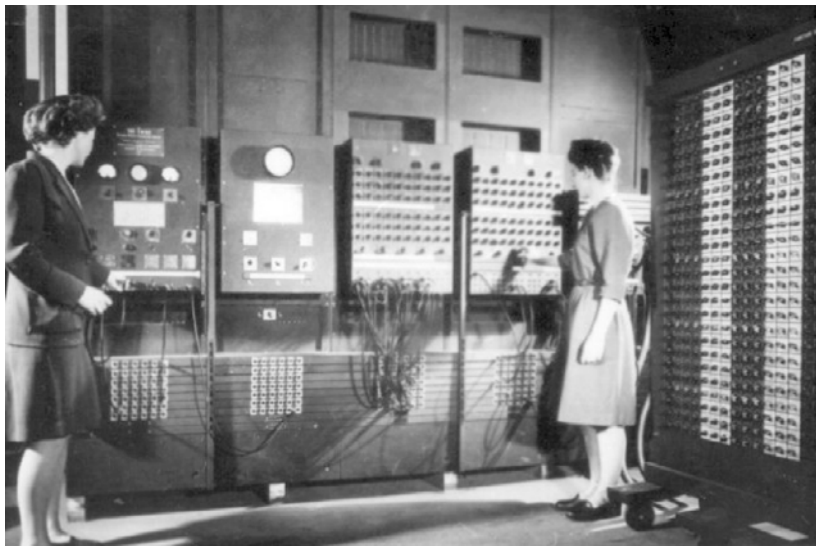


Electrical: ENIAC 1945



Electrical

Plugboard programming – maskinnært
Skills: at bruge maskinen krævede indgående
kendskab til dens elektroniske design



Symbolic

Electrical

for besværligt

brugeren blev selv programmøren

brugeren kende detaljer i maskinens
arkitektur

Symbolske interaktionsformer

Programmering

væk fra maskine

højere abstraktionsniveau

maskinkode a9 62 82 2c

assemblersprog mov (r1+), r2

højniveausprog

Symbolic - FORTRAN

FORTRAN: FORMula TRANslating, IBM, 1956,
bruges idag

integer nx, s, e

double precision a(0:nx+1, s-1:e+1)

parameter pi = 3.14159265

c

if (s .eq. 1) then

do 30 i=0,nx+1

a(i,0) = sin(pi*i/(nx+1))

b(i,0) = sin(pi*i/(nx+1))

30 continue

Symbolic - COBOL

COBOL: Common Business Language 1959 - bruges idag

02 SALES-FIELDS.

03 STORE-CODE PIC X(4) USAGE DISPLAY.

03 ORDER-NO PIC X(20) USAGE DISPLAY.

03 ORDER-DATE PIC 9(8) USAGE DISPLAY

03 PAY-TERMS PIC X(12) USAGE DISPLAY.

GET-STORE-CODE.

DISPLAY SPACE

MOVE SPACES TO D-STORE-CODE.

DISPLAY 'Enter store code (or STOP): ' NO ADVANCING.

ACCEPT D-STORE-CODE.

IF D-STORE-CODE IS EQUAL TO 'STOP', GO TO 950-OUT.

Symbolic

Skills: Vi er gode til forskellige former for symbolsk interaktion:
sprog og ikke-sproglig kommunikation

Ikoner, trafiksignaler, flag, kort, ...

Færdigheder

sprog og kommunikation

visuelle, kognitive

mere naturlig og intuitiv

Fejlfinding i maskinkode, assembler og højniveausprog

maskinkode a9 62 82 2c

assemblersprog mov (r1+), r2

højniveau MOVE SPACES TO D-STORE-CODE.

Textual

Sproglige færdigheder - skrevet text og interaktion

Batch-systemer

hulkort/strimmel, afleverede sit job ved skranke, operatør kørte det, print
1/2 - 1 dag efter

Time-sharing systemer med terminaler

conversational, dialogue, interactive man-computer communication /
systems

man-machine communication

DOS `xcopy h:*.* /a /e`

Copying everything on the H drive to the current drive (implicit), with the
archive attribute set (/a) and directories and subdirectories, including empty
ones (/e)

Skills: interaktion og dialog



Graphical

Velkendt

Flere færdigheder anvendes

- perifer opmærksomhed

- mønstergenkendelse og rumlig tænkning

- informationstæthed

- visuelle metaforer

Rum og billeder

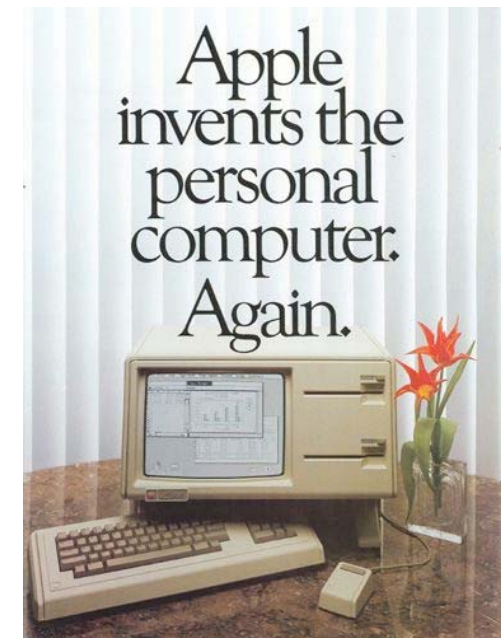
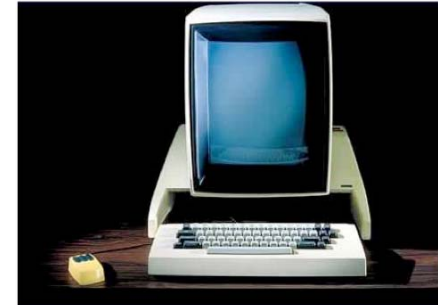
New models for interaction

Xerox Star først med vinduer, menuer og mus

Apple Lisa 1983

Apple Macintosh 1984
får fodfæste på markedet

Stort set uændret idag
men nye former



Tangible and social computing

Tangible: tre tendenser

Computere i dagligdags genstande

Dagligdags ting "forøges/forstærkes" med computeren

Direkte fysisk interface istf. det grafiske - få computeren væk

Social computing

increasing attempts to incorporate understandings of the social world into interactive systems

sociologiske, antropologiske og etnografiske tilgange

"single-user" paradigmet kan "forøges/forstærkes" med information om andre og omgivelserne

To Embodied Interaction

My reason for viewing the history of interaction as a gradual expansion of human skills and abilities that can be incorporated into interacting with computers is that I believe that it provides a valuable perspective on activities such as tangible and social computing. In particular, it shows that these two areas draw on the same set of skills and abilities.

Tangible and social computing are arguably aspects of one and the same research program.

This is the hypothesis that this book sets out to explore.

The argument comes in four parts

- Tangible and social computing have a common basis

- Embodiment is the core element

- Embodiment is not new, can be informed by phenomenology

- Phenomenology can help provide a foundation for embodied interaction

1. Tangible and social computing have a common basis

Draws on the way the everyday world works or
- perhaps more accurately - the ways we
experience the everyday world

... through directly interacting with the world

They share an understanding that you cannot
separate the individual from the world in
which that individual lives and acts.

2. Embodiment is the core element

Three arguments

interaction is intimately connected to the setting

turn to consider work activities and artifacts in concrete terms rather than abstract

the artifacts of daily interaction can play many different roles

3. Embodiment not new, informed by phenomenology

Embodiment is not a new phenomenon - it plays a special role in a particular school of thought: phenomenology

Phenomenology is concerned with how we perceive, experience, and act in the world around us

Argue that the separation between mind and matter has no basis in reality

Thinking does not occur separately from being and acting

"See and understand " rather than "understand and see"

4. Phenomenology: a foundation for embodied interaction

Build on the phenomenological understandings to create a foundational approach to embodied interaction.

Such a foundation should do two things

Account for the ways tangible and social computing are related to each other and provide a unified model

Inform and support design

Fordele og ulemper ved bogen ?

Tænk på 1-3 gode ting ved Dourish's bog

Tænk på 1-3 ting ved Dourish's bog, som kunne være bedre

Fordele og ulemper ved bogen ?

Tænk på 1-3 gode ting ved Dourish's bog

- Meget stærkt indhold: et teoretisk grundlag for embodied interaction

- Velskrevet og veldisponeret

- Klar og forståelig trods højt abstraktionsniveau

Tænk på 1-3 ting ved Dourish's bog, som kunne være bedre

- Mere konkret: eksempler, illustrationer, cases

- Mere design-orienteret

Summary

What is being advocated here is an approach that, while acknowledging the contribution that different disciplines can make to the design process, ultimately depends upon the users themselves to articulate their requirements, with the system design team, composed of a variety of specialists, acting in the capacity of consultants to the project. Design teams and users must be prepared to acknowledge each others competencies .. (s. 13)

It is in the mutual interaction of these different perspectives, including that of the end users, focused on a particular design project, that good design may emanate." (s. 13).

Exemplarium

Øvelse

Slut.