

Friday, 24 January 2014

FOUNDATIONS OF UX

Quick Introduction – Official Stuff

Samantha Merritt

Doctoral Candidate, Informatics

(Human-Computer Interaction specialization)

Indiana University, Bloomington, Indiana, US

School of Informatics and Computing

PhD Minor: Cultural Anthropology

Research Committee:

Erik Stolterman (Committee Chair, Informatics, HCI, Indiana University)

Eden Medina (Social Informatics, Indiana University)

David Hakken (Social Informatics, Indiana University)

Richard Wilk (Cultural Anthropology, Indiana University)

Janet Vertesi (Sociology, Princeton University)

Quick Introduction – Official Stuff

Agenda and Dissertation Research Topic:
Technology Design and Culture

**I aim to clarify the role of culture in
technology design and research.**

I am motivated by the challenges in
“cross-cultural” technology projects and
those in resource constrained contexts.

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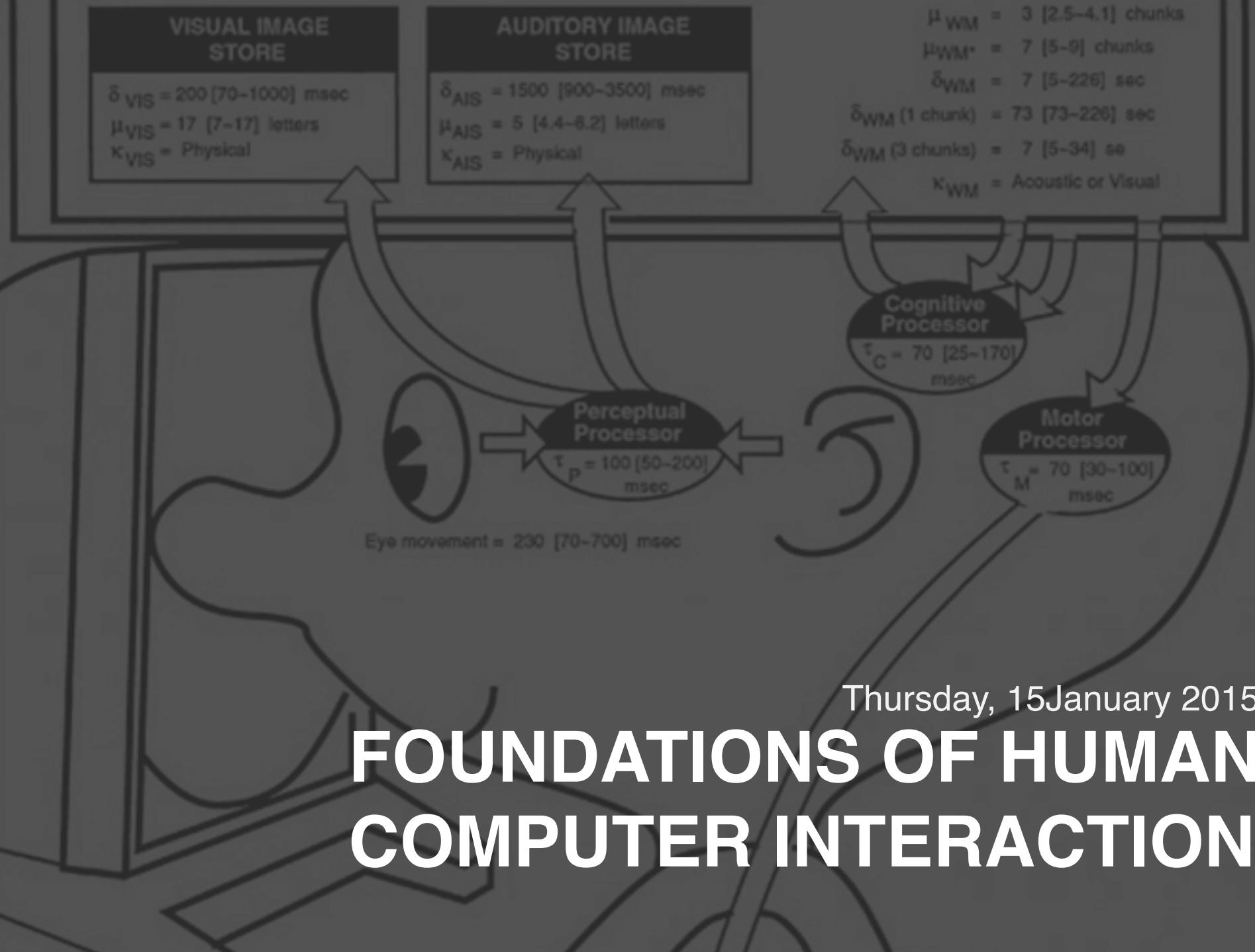
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Today's Plan and Objectives

Part 1: 9:00am – 10:15am

Why UX?

What is UX (and all those other words)?

What matters in UX?

History/Terminology

Activity / Break: 10:15am – 10:45am

Part 2: 10:45am – 12:30pm

Quick Usefulness

Take-Home Review Points

Homework

Why UX?

You tell me.

Terminology Deluge
So many words....

HOW UX WANTS TO BE SEEN

- Field research
- Face to face interviewing
- Creation of user tests
- Gathering and organizing statistics
- Creating personas
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- Requirement writing
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- Working tightly with programmers
- Brainstorm coordination
- Design culture evangelism

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Try this...

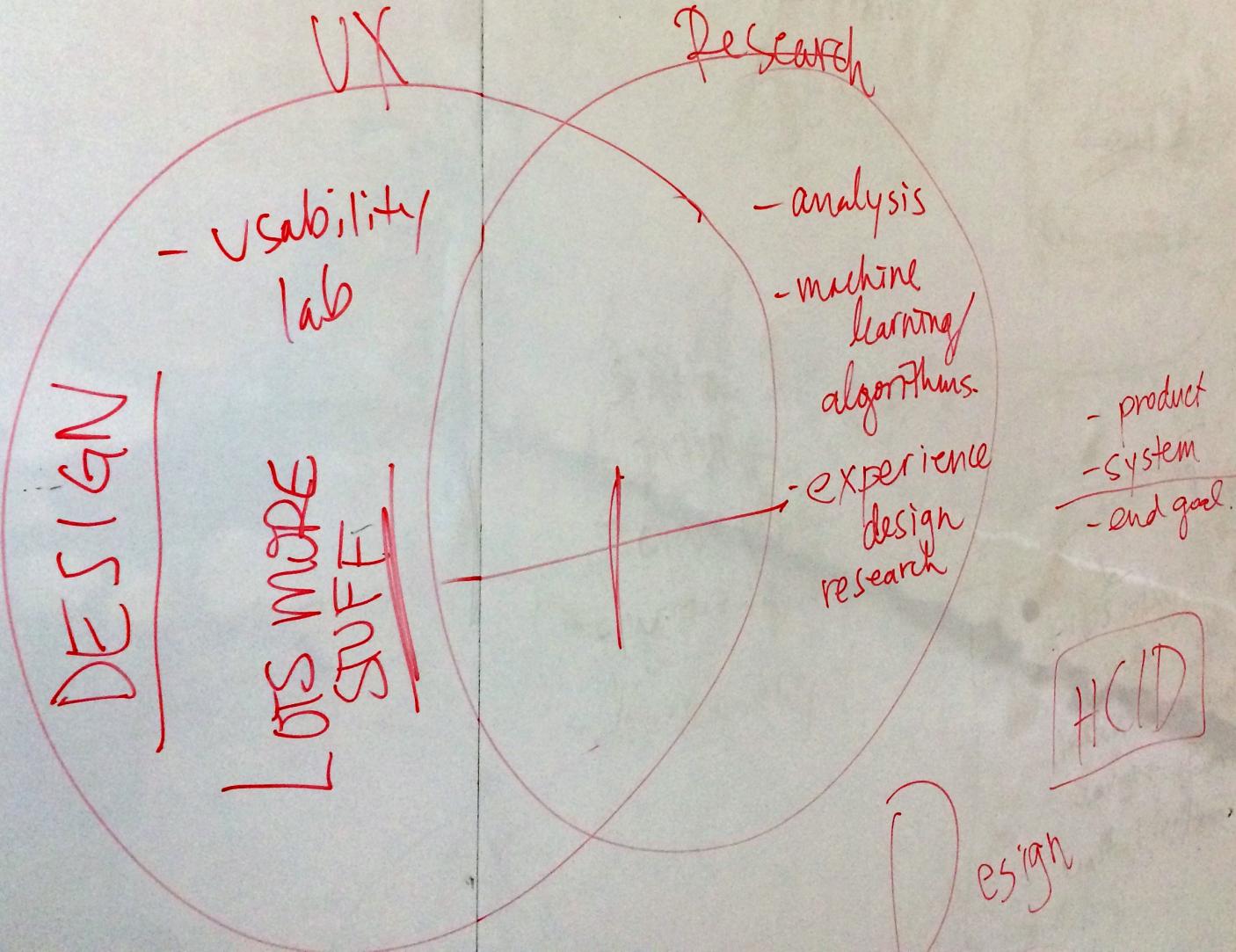
Write down every word you know related to the field of human-computer interaction (or UX) and the kinds of work/specialties, tasks, or disciplines.

Now, try to organize them as you think is best.

Make a ...
picture.
diagram.
flowchart.
hierarchy.
Venn diagram (or set diagram).

Does anything **overlap**? How much?
Are there words with the **same** meaning?
Do some elements **oppose** each other?

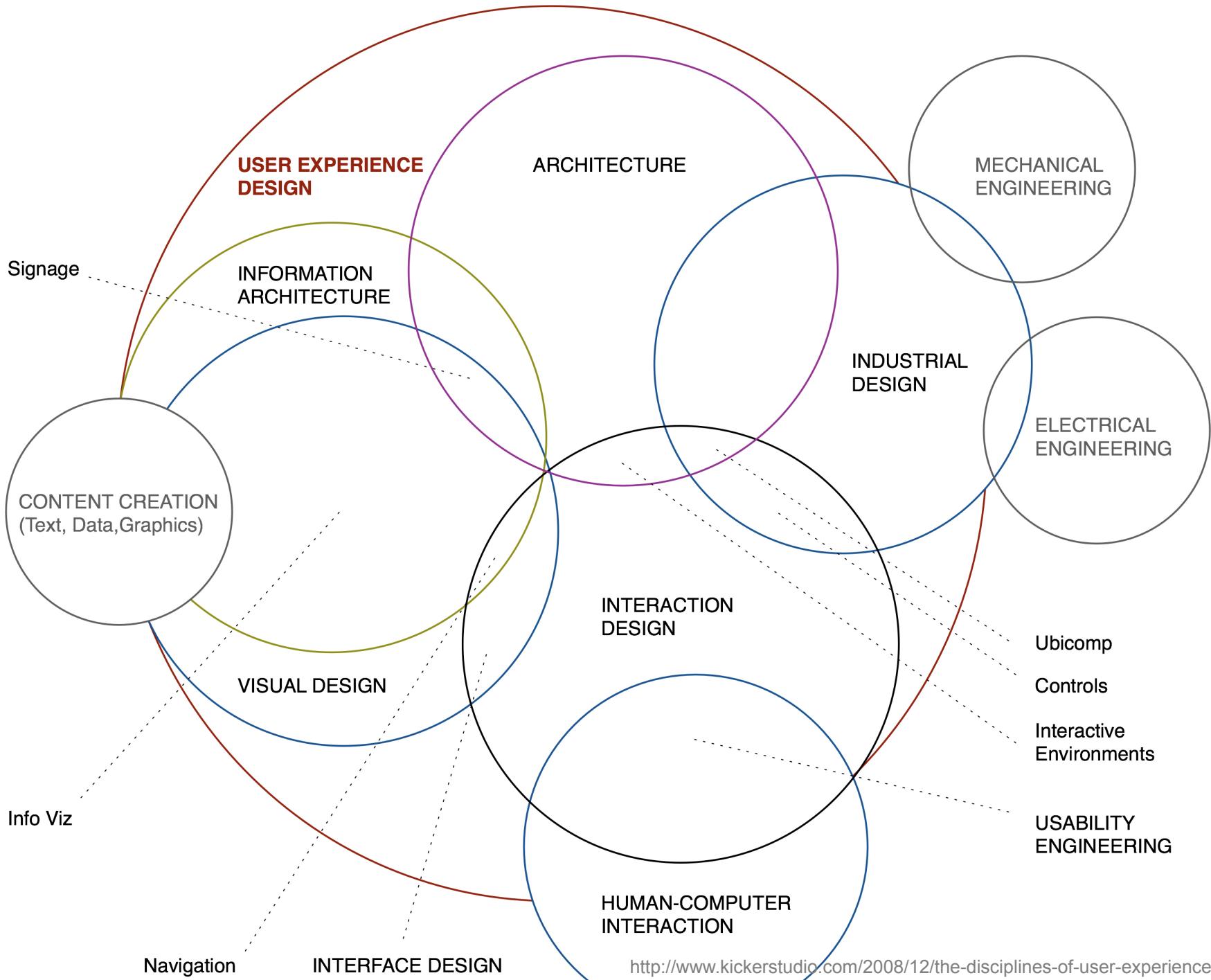
Which words do you know, but feel you **do not understand** at all?

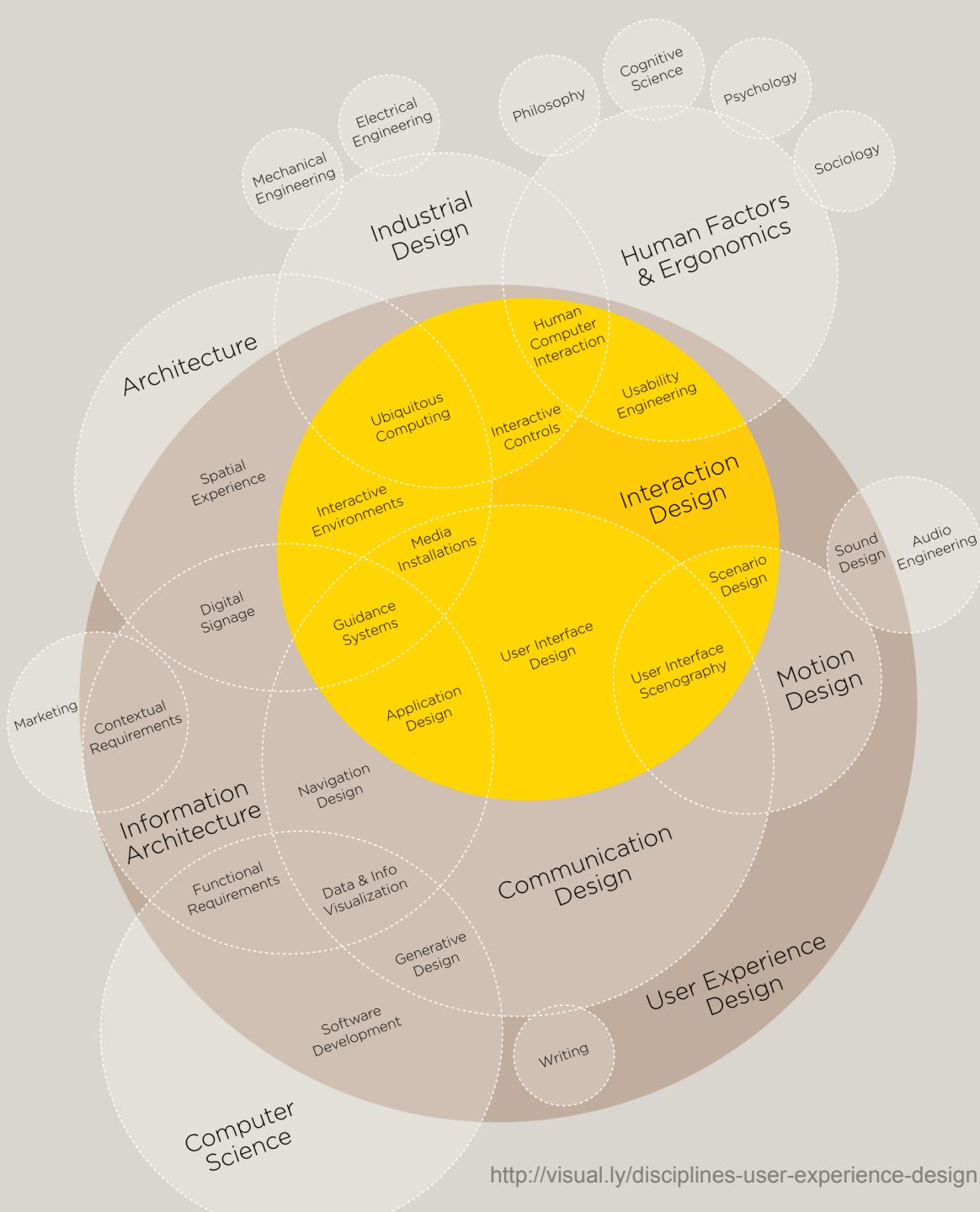


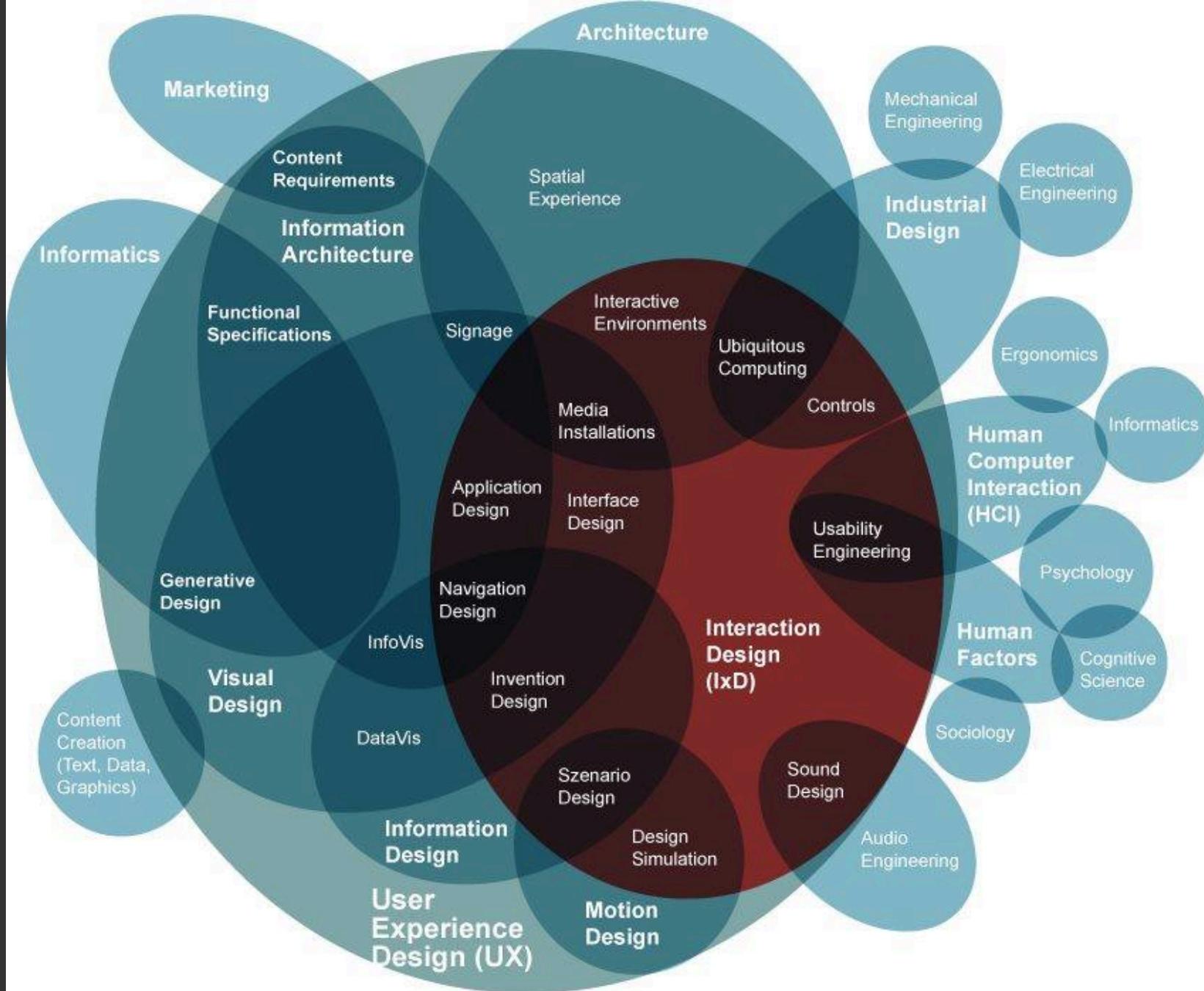
Other output?

- prototype
- mock-up
- report
- presentation
- event

[HCID]







HOW TO BECOME A UXD

(USER EXPERIENCE DESIGNER)

Learn how to pursue a career in human-centered design

THE ELEMENTS OF UXD



USER EXPERIENCE DESIGNERS AT WORK

<http://www.theworkbuzz.com/find-the-job/infographic-how-to-become-a-uxd-designer/>

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Confused? You're not alone.

“...Don’t see this as the only road map for the entire UX design industry, but **a postulation as to why it’s so darned complicated to nail good UX**. To think anyone could be an expert in each of these circles is sheer absurdity. Scratch that: To think any designer could be an expert in each of these circles is sheer absurdity, but to recognize that every end user is an expert in each of these circles is highly important. As humans and end users, we might not know what makes an experience right, but we certainly know when it’s wrong.”

<http://www.fastcodesign.com/1671735/infographic-the-intricate-anatomy-of-ux-design>

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Terminology and Abbreviations:

HCI:

Human-computer interaction

ICT:

Information communication technologies

ICT4D:

Information communication technologies for
(socioeconomic) development

... So what really matters?

The user.

A close-up photograph of a stack of antique books. The books are bound in dark, heavily textured leather. The spines feature gold-tooled decorations, including raised bands and tooling along the edges. The leather is worn, with significant loss of material at the corners and edges, revealing the light-colored board underneath. The pages of the books are visible, showing they are aged and yellowed. The lighting is dramatic, coming from the side, which highlights the texture of the leather and the thickness of the book stack.

Why bother with history?

Before HCI

4

IRE TRANSACTIONS ON HUMAN FACTORS IN ELECTRONICS

March

Man-Computer Symbiosis*

J. C. R. LICKLIDER†

Summary—Man-computer symbiosis is an expected development in cooperative interaction between men and electronic computers. It will involve very close coupling between the human and the electronic members of the partnership. The main aims are 1) to let computers facilitate formulative thinking as they now facilitate the solution of formulated problems, and 2) to enable men and computers to cooperate in making decisions and controlling complex situations without inflexible dependence on predetermined programs. In the anticipated symbiotic partnership, men will set the goals, formulate the hypotheses, determine the criteria, and perform the evaluations. Computing machines will do the routinizable work that must be done to prepare the way for insights and decisions in technical and scientific thinking. Preliminary analyses indicate that the symbiotic partnership will perform intellectual operations much more effectively than man alone can perform them. Prerequisites for the achievement of the effective, cooperative association include developments in computer time sharing, in memory components, in memory organization, in programming languages, and in input and output equipment.

I. INTRODUCTION

A. Symbiosis

THE fig tree is pollinated only by the insect *Blastophaga grossorum*. The larva of the insect lives in the ovary of the fig tree, and there it gets its food. The tree and the insect are thus heavily interdependent: the tree cannot reproduce without the insect;

will be coupled together very tightly, and that the resulting partnership will think as no human brain has ever thought and process data in a way not approached by the information-handling machines we know today.

B. Between "Mechanically Extended Man" and "Artificial Intelligence"

As a concept, man-computer symbiosis is different in an important way from what North² has called "mechanically extended man." In the man-machine systems of the past, the human operator supplied the initiative, the direction, the integration, and the criterion. The mechanical parts of the systems were mere extensions, first of the human arm, then of the human eye. These systems certainly did not consist of "dissimilar organisms living together . . ." There was only one kind of organism—man—and the rest was there only to help him.

In one sense of course, any man-made system is intended to help man, to help a man or men outside the system. If we focus upon the human operator(s) within the system, however, we see that, in some areas of technology, a fantastic change has taken place during the last few years. "Mechanical extension" has given way to replacement of men, to automation, and the men who

Paradigms of Technology Design

“...a paradigm refers to a particular approach that has been adopted by the community of researchers and designers for carrying out their work, in terms of shared assumptions, concepts, values, and practices ...a set of practices that a community has agreed upon...”

Paradigms of Technology Design

“...a **paradigm** refers to a particular approach that has been adopted by the community of researchers and designers for carrying out their work, in terms of shared assumptions, concepts, values, and practices ...a set of practices that a community has agreed upon, including:

- The questions to be asked and how they should be framed.
- The phenomena to be observed.
- The way findings from experiments are to be analyzed and interpreted (Kuhn, 1962).”

Paradigms of Technology Design

1980s interfaces

- Command
- WIMP/GUI

1990s interfaces

- Advanced graphical (multimedia, virtual reality, information visualization)
- Web
- Speech (voice)
- Pen, gesture, and touch
- Appliance

2000s interfaces

- Mobile
- Multimodal
- Shareable
- Tangible
- Augmented and mixed reality
- Wearable
- Robotic

Table 6.1 The selection of interfaces, grouped into three decades, covered in this chapter that have evolved during the last 30 years

Preece, J., Rogers, Y. and Sharp, H. *Interaction Design: Beyond Human-Computer Interaction*. 2nd ed.
West Sussex, England: John Wiley & Sons Ltd, 2007. p. 220.

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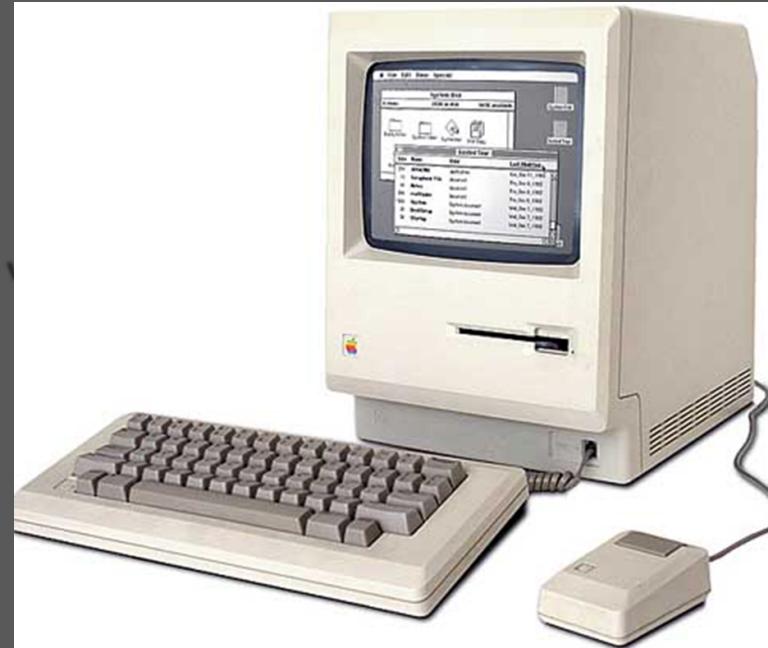


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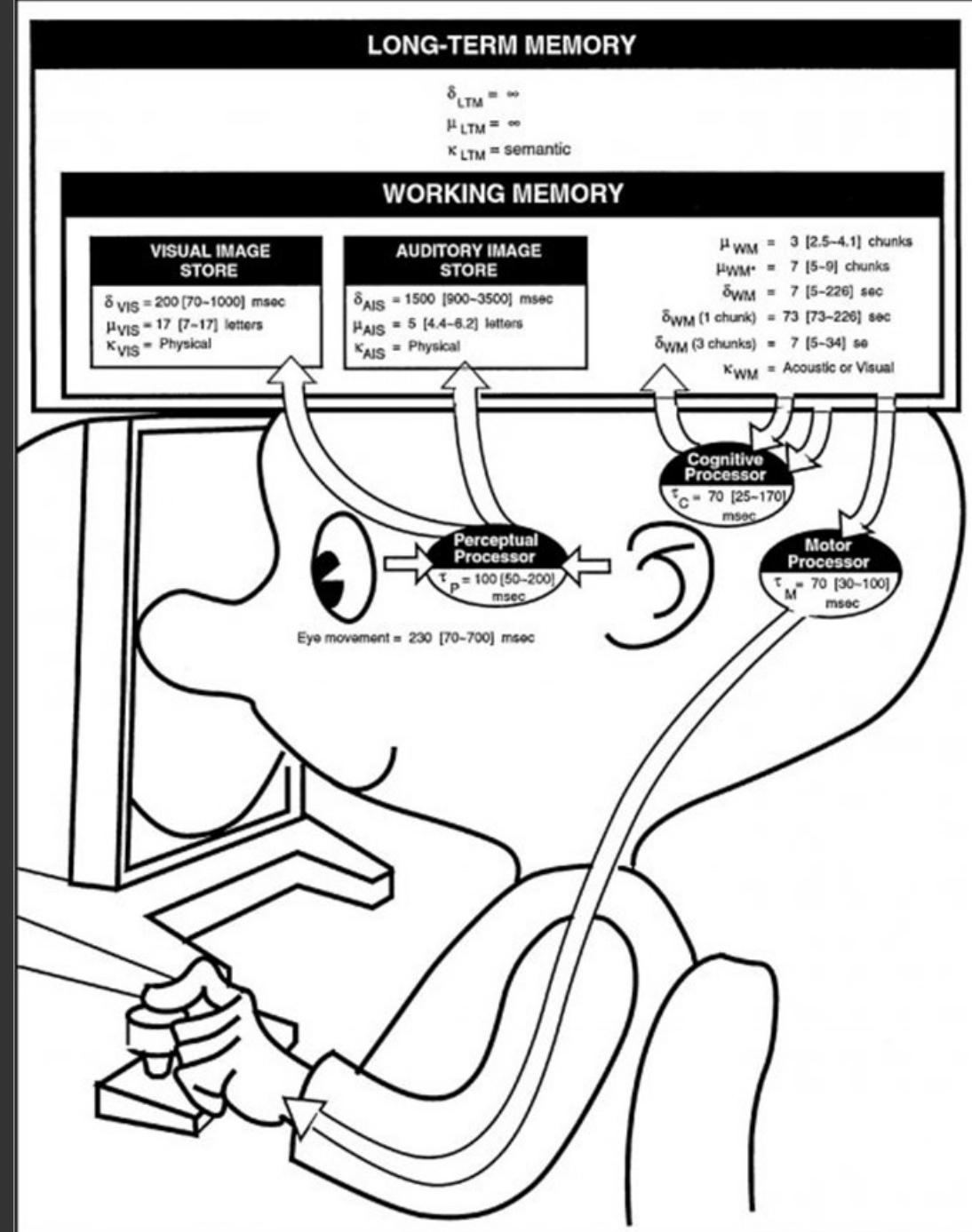
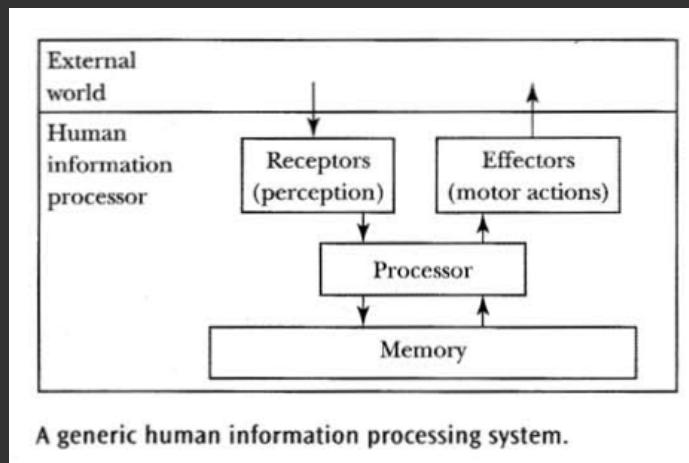
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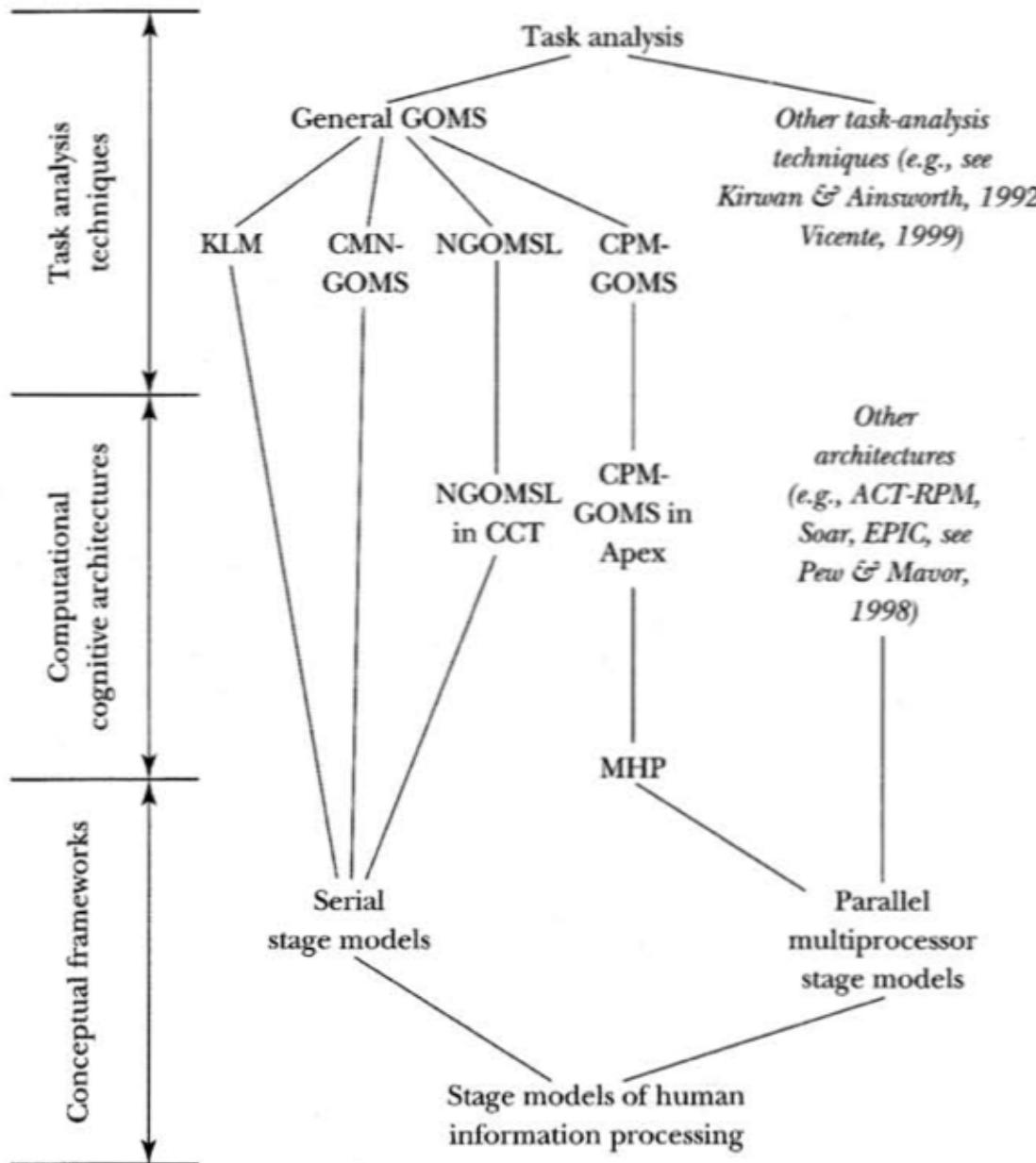
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First Wave

Characterizing Features:

- Lab-based
- Humans as computers or information processors
- Task analysis and predictive models
- Error-reduction and efficiency focused
- Descriptive models of human behavior





The GOMS family consists of task-analysis techniques that are related to models of human information processing.

*Human Aspects
of Computing*

Henry Ledgard
Editor

Designing for Usability: Key Principles and What Designers Think

JOHN D. GOULD and CLAYTON LEWIS

ABSTRACT: This article is both theoretical and empirical. Theoretically, it describes three principles of system design which we believe must be followed to produce a useful and easy to use computer system. These principles are: early and continual focus on users; empirical measurement of usage; and iterative design whereby the system (simulated, prototype, and real) is modified, tested, modified again, tested again, and the cycle is repeated again and again. This approach is contrasted to other principled design approaches, for example, get it right the first time, reliance on design guidelines. Empirically, the article presents data which show that our design principles are not always intuitive to designers; identifies the arguments which designers often offer for not using these principles—and answers them; and provides an example in which our principles have been used successfully.

Any system designed for people to use should be easy to learn (and remember), useful, that is, contain functions people really need in their work, and be easy and pleasant to use. This article is written for people who have the responsibility and/or interest in creating computer systems (or any other systems) with these characteristics. In the first section of this article we briefly mention three principles for system design which we believe can be used to attain these goals. Our principles

principles. In Section 5 we elaborate on the three principles, showing how they form the basis for a general methodology of design. In Section 6 we describe a successful example of using our recommended methodology in actual system design, IBM's Audio Distribution System (ADS), and the advantages that accrued as a result.

1. THE PRINCIPLES

We recommend three principles of design.

Early Focus on Users and Tasks

First, designers must understand who the users will be. This understanding is arrived at in part by directly studying their cognitive, behavioral, anthropometric, and attitudinal characteristics, and in part by studying the nature of the work expected to be accomplished.

Empirical Measurement

Second, early in the development process, intended users should actually use simulations and prototypes to carry out real work, and their performance and reactions should be observed, recorded, and analyzed.

Iterative Design

Third, when problems are found in user testing, as they

*Human Aspects
of Computing*

*Henry Ledgard
Editor*

Designing for Usability: Key Principles and What Designers Think

JOHN D. GOULD and CLAYTON LEWIS

Three Principles They Recommend:

1. Early Focus on Users and Actual Tasks
2. Empirical Measurement of Actual Users
3. Iterative Design Responding to Results

"We recommend understanding potential users, versus "identifying," "describing," "stereotyping," and "ascertaining" them, as respondents suggested."

"We recommend bringing the design team into direct contact with potential users, as opposed to hearing or reading about them through human intermediaries, or through an "examination of user profiles."

"These interviews should be conducted prior to system design, instead of first designing the system and then subsequently "presenting," "reviewing," and "verifying" the design with users, or "getting users to agree" to, or to "sign off" on the design."

Problematic Beliefs:

Belief ...

In the Power of Reason (alone)

Good Design Guidelines Should be Sufficient

Good Design Means Getting It Right the First Time
the Development Process Will Be Lengthened

Iteration Is Just Expensive Fine-Tuning

In The Power of Technology to Succeed (alone)

Second Wave

Characterizing Features:

- “From Human Factors to Human Actors”
- Studies in workplaces (actual world, not in a lab)
- Interest in groups over only individuals
- Move toward design, user involvement, and iteration
- Qualitative research methods (ethnography)
- Participatory design* methods also move in
- Other terms: Situated Action, Distributed Cognition, Activity Theory

*I will be presenting on this topic soon. ☺

Distance Matters

Gary M. Olson and Judith S. Olson
University of Michigan

ABSTRACT

Giant strides in information technology at the turn of the century may have unleashed unreachable goals. With the invention of groupware, people expect to communicate easily with each other and accomplish difficult work even though they are remotely located or rarely overlap in time. Major corporations launch global teams, expecting that technology will make “virtual collocation” possible. Federal research money encourages global science through the establishment of “collaboratories.” We review over 10 years of field and laboratory investigations of collocated and noncollocated synchronous group collaborations. In particular, we compare collocated work with remote work as it is possible today and comment on the promise of remote work tomorrow. We focus on the sociotechnical conditions required for effective distance work and bring together the results with four key concepts: common ground, coupling of work, collaboration readiness, and collaboration technology readiness. Groups with high common ground and loosely coupled work, with readiness both for collaboration and collaboration technology, have a chance at succeeding with remote work. Deviations from each of these create strain on the relationships among teammates and require changes in the work or processes of collaboration to succeed. Often they do not succeed because distance still matters.

Gary Olson is a psychologist interested in computer supported cooperative work; he is Professor in both the School of Information and the Department of Psychology. Judy Olson is a psychologist interested in computer supported collaborative work; she is Professor in the School of Business Administration, University of Michigan.

When Second Wave HCI meets Third Wave Challenges

Susanne Bødker

University of Aarhus, Denmark
Department of Computer Science
bodker@daimi.au.dk

ABSTRACT

This paper surveys the current status of second generation HCI theory, faced with the challenges brought to HCI by the so-called third wave. In the third wave, the use context and application types are broadened, and intermixed, relative to the focus of the second wave on work. Technology spreads from the workplace to our homes and everyday lives and culture. Using these challenges the paper specifically addresses the topics of multiplicity, context, boundaries, experience and participation in order to discuss where second wave theory and conceptions can still be positioned to make a contribution as part of the maturing of our handling of the challenges brought on by the third wave.

Author Keywords

Multiplicity, context, boundaries, experience, participation

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI):
Miscellaneous.

INTRODUCTION

The desktop computer has been part of our work-life for a while. Even so many work situations do not consist solely of work at the desktop. Many other artefacts are used in changing configurations with and around the computer. Most user interface design has failed to recognize this, and accordingly we are still stuck with the idea that new design should replace existing artefacts, rather than exist together with them.

or received. And on top, many work settings are not about individual documents but presupposes a network-oriented shared use of documents and services across physical place. Furthermore, while moving about, and e.g. working from home, we face a blurring of the boundaries between work and other parts of life, as well as an ongoing reconfiguration of work and non-work technologies. How do we deal with changing configurations of the interfaces in particular such that cross between work and non-work? How do experiences with non-work technology influence work, and how do we deal with those experiences in design of workplace technology?

In choosing the title "When second wave HCI meets third wave challenges" I have indicated that these questions and challenges can, will, and must be addressed in the transition from the second generation HCI, that Bannon [1] identified in his "from human factors to human actors" paper, to the third generation or wave, that one might identify as a break with the second wave, theoretically and technologically¹.

In the second wave, focus was on groups working with a collection of applications. Theory focused on work settings and interaction within well-established communities of practice. Situated action, distributed cognition and activity theory were important sources of theoretical reflection, and concepts like context came into focus of analysis and design of human-computer interaction. Rigid guidelines, formal methods, and systematic testing were mostly abandoned for proactive methods such as a variety of participatory design workshops, prototyping and contextual inquiries

Third Wave

Characterizing Features:

- Concern moved from workplace to home, daily life, society, etc.
- *Culture, art, emotion, empathy, experience, and critical* became keywords
- Input from broad range of fields and disciplines (art, critical literature, feminist studies, etc.)
- Presently this is the new paradigm being worked out in some communities.

Feminist HCI: Taking Stock and Outlining an Agenda for Design

Shaowen Bardzell

Indiana University School of Informatics and Computing

Usability Evaluation Considered Harmful (Some of the Time)

Saul Greenberg

Department of Computer Science
University of Calgary

Bill Buxton

Principle Researcher
Microsoft Research

Postcolonial Computing: A Lens on Design and Development

Lilly Irani¹, Janet Vertesi¹, Paul Dourish¹, Kavita Philip² and Rebecca E. Grinter³

¹Dept. Informatics, ²Dept. Women's Studies
University of California, Irvine
Irvine, CA 92697

³GVU Center and School of Interactive Computing
College of Computing
Georgia Institute of Technology

Empathy and Experience in HCI

Peter Wright

Art and Design Research Centre
Sheffield Hallam University
Sheffield, UK
p.c.wright@shu.ac.uk

John McCarthy

Department of Applied Psychology
University College Cork
Cork, Ireland
john.mccarthy@ucc.ie

ABSTRACT

For a decade HCI researchers and practitioners have been developing methods, practices and designs 'for the full range of human experience'. On the one hand, a variety of approaches to design, such as aesthetic, affective, and ludic that emphasize particular qualities and contexts of experience and particular approaches to intervening in interactive experience have become focal. On the other, a variety of approaches to understanding users and user experience, based on narrative, biography, and role-play have been developed and deployed. These developments can be viewed in terms of one of the seminal commitments of HCI, 'to know the user'. Empathy has been used as a defining characteristic of designer-user relationships when design is concerned with user experience. In this article, we use 'empathy' to help position some emerging design and user-experience methodologies in terms of dynamically shifting relationships between designers, users, and artefacts.

Author Keywords

User experience, experience-centred design, empathy, design methods, qualitative methods.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

lives while, at the same time, retaining its traditional concern for usability. This resonates with Terry Winograd's, claim in 1996 that "designing for the full range of human experience may well be the theme for the next generation of discourse about software design" [54, p.xi]. The growing interest in experience in HCI has been accompanied by a rich interdisciplinary discourse addressing topics such as the aesthetics of interaction, affective computing, ludic engagement, enchantment with technology, hedonics and so on [12, 24, 30, 32, 40, 52]. It has also resulted in a plethora of interesting new interactive devices, research methods, and design processes [16, 27, 42] as well as reflection on the scope and limits of theory and methodology within HCI [6, 9, 13, 23, 37, 55]. In this paper, we explore the implications of these developments with respect to the relationship between designer and user, and in particular what it might mean in the context of experience-centred design to 'know the user'. We use the term 'designer' here and throughout this paper to represent all of those involved in the design team including those involved in researching user experience.

'Knowing the user', when designing for the full range of human experience, presents a significant challenge that starts with the need to develop an understanding of user experience and the epistemologies, methodologies and research practices it entails. HCI has made significant methodological and conceptual progress in response to this challenge. Much work in the HCI field has focused on

It's a wavy ocean...



It's a wavy ocean... but that's okay.

Today, in the work of HCI, interaction design, user experience design (UX), or related fields, the work of all these “waves” still takes place or is in use in one form or another—for both design and research.

Reflections on Norm-Critical Design Efforts in Online Youth Counselling

Sofia Lundmark^{1,2} & M

¹School of Communication,
Media and IT
Södertörn University
141 89 Huddinge
Sweden
{sofia.lundmark,
maria.normark}@sh.se

²Department of E
Uppsala Univ
Box 256
751 05 Upps
Sweden

ABSTRACT

We explore social norms embedded in interaction design, how different identity roles are made relevant during a specific design project and how norm-critical efforts are made by different actors during this design process. We have studied the development of the Swedish National Youth Counselling site to illustrate how interaction design may construct meaning, norms and values in design. We present an ethnographic study, the development of the Love Animation. Examples are shown in which interaction design unintentionally discourages the purpose of the intended message which suggests that there is a need for further understanding of how the content and the interaction design relates to each other. Using Science and Technology theories, the research join the emergent critical tradition in HCI and a critical perspective on technology as a co-constraining agent is applied.

Author Keywords

Healthcare; Youth Counselling; Science and Technology Studies; Norm-Critical Design Efforts; Interaction Design; Values

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI);

Evaluation of Human Tangential Force Input Performance

Bhoram Lee, Hyunjeong Lee, Soochul Lim, Hyungkew Lee, Seungju Han, Joonah Park
Samsung Advanced Institute of Technology

gong-in-si, Gyeonggi-do, Korea
.lee, sj75.han, joonah}@samsung.com

Supporting Creative Collaboration in Globally Distributed Companies

Raja Gumienny, Lutz Gericke, Matthias Wenzel, Christoph Meinel
Hasso Plattner Institute
Prof.-Dr.-Helmut-Str. 2-3, Potsdam, Germany
(raja.gumienny, lutz.gericke, matthias.wenzel, meinel)@hpi.uni-potsdam.de

ABSTRACT

Creative ways of working with whiteboards and sticky notes are growing in popularity even in global companies. However, digital tools for enabling these ways of working, especially for geographically distributed teams, have still not been adopted in these companies. We present Tele-Board, a web-based digital whiteboard and sticky note system and describe how it was used in a large company at three locations. From system log data and interviews recorded after three months of use, we found that idea generation and feedback collection can be facilitated if a system offers real-time synchronous editing as well as asynchronous input. Interestingly, the users who were *not* located at the company's headquarters regarded the tool as very beneficial and used it more than their colleagues at the headquarters. We provide a detailed analysis of the study and important points for fostering the adoption of creative tools in large companies.

Author Keywords

distributed teams; remote collaboration; global work; professional communication; idea generation

ACM Classification Keywords

H.5.3. Group and Organization Interfaces: Synchronous interaction, Asynchronous interaction, Computer-supported cooperative work

INTRODUCTION

Collaborative work over geographic distances is common practice for most employees of large global enterprises [20]. Many meetings include participants from multiple locations

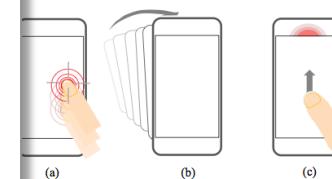


Figure 1. Input mechanism of gesture interfaces. (a) Touch input relies on 2-dimensional movement of the contact location; (b) Motion input is based on 3-dimensional spatial movement; and (c) Force input requires no movement but only application of force along the surface.

When we explore a long list, we have to repeat “flicking”, i.e. moving down on the screen and up off the screen or vice versa. This quality of touch input makes it hard to control continuous parameters. Motion-based interactions are better suited for continuous control parameters; every human motion itself is inherently continuous. A motion controller for sports or action-based games at home is one of best applications of it. Yet it tends to impose unnecessary physical burdens on mobile users.

Mobile devices support touch and motion input, a “force” dimension can be added to mobile gesture interfacing so as to be free from spatial restrictions and the requirement of movement (Figure 1). Force input in normal and tangential directions on the surface of mobile devices can be applied and measured as shown in Figure 2. Compared with other gesture input

Exam!

Supporting Creative Collaboration in Globally Distributed Companies

Raja Gumienny, Lutz Gericke, Matthias Wenzel, Christoph Meinel

Hasso Plattner Institute

Prof.-Dr.-Helmert-Str. 2-3, Potsdam, Germany

{raja.gumienny, lutz.gericke, matthias.wenzel, meinel}@hpi.uni-potsdam.de

ABSTRACT

Creative ways of working with whiteboards and sticky notes are growing in popularity even in global companies. However, digital tools for enabling these ways of working, especially for geographically distributed teams, have still not been adopted in these companies. We present Tele-Board, a web-based digital whiteboard and sticky note system and describe how it was used in a large company at three locations. From system log data and interviews recorded after three months of use, we found that idea generation and feedback collection can be facilitated if a system offers real-time synchronous editing as well as asynchronous input. Interestingly, the users who were *not* located at the company's headquarters regarded the tool as very beneficial and used it more than their colleagues at the headquarters. We provide a detailed analysis of the study and important points for fostering the adoption of creative tools in large companies.

Author Keywords

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H.5.3. Group and Organization Interfaces: Synchronous interaction, Asynchronous interaction, Computer-supported cooperative work

INTRODUCTION

Collaborative work over geographic distances is common practice for most employees of large global enterprises [20]. Many meetings include participants from multiple locations

But this way of working is becoming more and more prevalent. It is even seen in larger companies who seek to introduce methods such as design thinking [2] in order to increase their innovative potential [21]. Though whiteboard and brainstorming applications have been developed and researched for decades (e.g. [17, 19, 25, 33]), they have not been widely adopted in larger companies [15]. It was our goal to investigate whether and how this situation could be changed.

We developed Tele-Board, a digital whiteboard and sticky note software system. It supports design thinking over geographic distances and aims to improve the communication and collaboration for globally distributed teams [9]. In order to determine how well it suits the needs of a corporate environment, we deployed our system at three locations of a large IT company. The study lasted three months.

In this paper, we present our findings on how team members at the different locations used Tele-Board and the benefits they saw in using it for their daily work. Though we thought the team would mainly use the system for synchronous remote meetings, they often used it asynchronously as well. By working asynchronously, they could prepare meetings in advance, enter feedback whenever they liked, and bridge time zones. Contrary to our expectations, we found that users at the company's subsidiaries used the system more frequently than those users at the headquarters. Furthermore, they found that the tool could save them time. The team in this study did not use any digital whiteboard hardware. This was due to organizational and economic reasons. Still, they appreciated our whiteboard and sticky note system for idea generation and feedback sessions, even on their standard computers.

Reflections on Norm-Critical Design Efforts in Online Youth Counselling

Sofia Lundmark^{1,2} & Maria Normark^{1,3}

¹School of Communication,
Media and IT
Södertörn University
141 89 Huddinge
Sweden
[{sofia.lundmark,
maria.normark}@sh.se](mailto:{sofia.lundmark,maria.normark}@sh.se)

²Department of Education
Uppsala University
Box 256
751 05 Uppsala
Sweden

³Mobile Life @ Stockholm
University
Forum 100, 164 40 Kista,
Sweden

ABSTRACT

We explore social norms embedded in interaction design, how different identity roles are made relevant during a specific design project and how norm-critical efforts are made by different actors during this design process. We have studied the development of the Swedish National Youth Counselling site to illustrate how interaction design may construct meaning, norms and values in design. We present an ethnographic study, the development of the Love Animation. Examples are shown in which interaction design unintentionally discourages the purpose of the intended message which suggests that there is a need for further understanding of how the content and the interaction design relates to each other. Using Science and Technology theories, the research join the emergent critical tradition in HCI and a critical perspective on technology as a co-constructing agent is applied.

Author Keywords

Healthcare; Youth Counselling; Science and Technology Studies; Norm-Critical Design Efforts; Interaction Design; Values

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI);

both on healthcare services and on the interaction design. In this paper we depart from a study of interaction design development in healthcare services online and analyse the process from a norm-critical perspective. We have followed the development of a Swedish national youth counselling web site <umo.se>. The developers of the website, umo.se, have actively been working with a norm-critical approach in their design work as an important approach though out all of their work. In the paper we present one specific case in detail, the development of the Love Animation that presents various possible reactions when being in love. In this project we examine the norm-critical efforts made by the participants in the project.

The reasons for choosing the healthcare domain is that, arguably, norms and values play an important role within this area. The reasons for this are e.g. the idea of patient empowerment, normative structures related to societal trends and opinions on health as well as that it concerns a wide variety of people from every aspect of life. We focus specifically on health services directed towards young people, for whom normative aspects of e.g. identity and group membership identities become particularly important.

Evaluation of Human Tangential Force Input Performance

Bhoram Lee, Hyunjeong Lee, Soochul Lim, Hyungkew Lee, Seungju Han, Joonah Park

Samsung Advanced Institute of Technology

San14, Nongseo-dong, Giheung-gu, Yongin-si, Gyeonggi-do, Korea

{ bhoram.lee, hyem.lee, soochul.lim, hyungkew.lee, sj75.han, joonah } @samsung.com

ABSTRACT

While interacting with mobile devices, users may press against touch screens and also exert tangential force to the display in a sliding manner. We seek to guide UI design based on the tangential force applied by a user to the surface of a hand-held device. A prototype of an interface using tangential force input was implemented utilizing a force sensitive layer and an elastic layer and used for the user experiment. We investigated user controllability to reach and maintain target force levels and considered the effects of hand pose and direction of force input. Our results imply no significant difference in performance when applying force holding the device in one hand and in two hands. We also observed that users have more physical and perceived loads when applying tangential force in the left-right direction compared to the up-down direction. Based on the experimental results, we discuss considerations for user interface applications of tangential-force-based interface.

Author Keywords

Force-based interface; mobile interaction; input devices

ACM Classification Keywords

H.5.2. [Information interfaces and presentation]: User Interface - *Interaction styles*;

General Terms

Design, Experimentation, Human Factors

INTRODUCTION

Sensor technologies and gesture interaction techniques provide a rich and intuitive user experience. Among such interfaces, touch-based and motion-based interfaces are widely

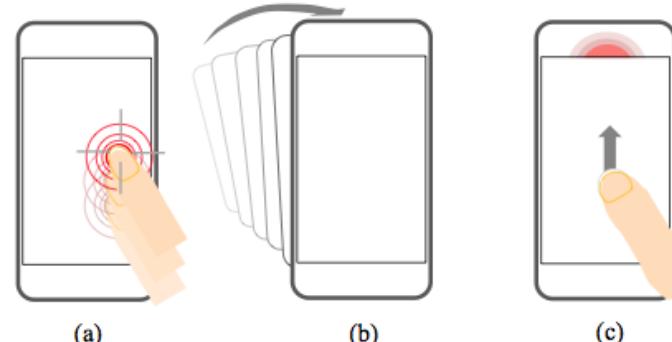


Figure 1. Input mechanism of gesture interfaces. (a) Touch input relies on 2-dimensional movement of the contact location; (b) Motion input is based on 3-dimensional spatial movement; and (c) Force input requires no movement but only application of force along the surface.

when we explore a long list, we have to repeat “flicking”, that is moving down on the screen and up off the screen or vice versa. This quality of touch input makes it hard to control continuous parameters. Motion-based interactions are better suited for continuous control parameters; every human motion itself is inherently continuous. A motion controller for sports or action-based games at home is one of the best applications of it. Yet it tends to impose unnecessary physical burden on mobile users.

Besides touch and motion input, a “force” dimension can be added to mobile gesture interfacing so as to be free from spatial restrictions and the requirement of movement (Figure 1). Force input in normal and tangential directions on the surface of mobile devices can be applied and measured as shown in Figure 2. Compared with other gesture input

Specialized Areas or Related Fields

Ubiquitous Computing (UbiComp)

Computer Supported Cooperative Work (CSCW)

Human Factors and Ergonomics

User Centered Design

ICT4D and HCI4D

Technology Design

Interaction Design and Experience Design

UX and UXd

Design Theory

...

Specialized Areas or Related Fields

Ubiquitous Computing (UbiComp)

Computer Supported Cooperative Work (CSCW)

Human Factors and Ergonomics

User Centered Design

ICT4D and HCI4D

Technology Design

Interaction Design and Experience Design

UX and UXd

Design Theory

...

Measuring Water Collection Times in Kenyan Informal Settlements

James Davis

University of California, Santa Cruz
Santa Cruz, CA, USA
1-831-459-1841
davis@cs.ucsc.edu

Ben Crow

University of California, Santa Cruz
Santa Cruz, CA, USA
1-831-459-5503
bencrow@ucsc.edu

Julio Miles

University of California, Santa Cruz
Santa Cruz, CA, USA
1-831-420-7821
jrmiles@ucsc.edu

ABSTRACT

This paper uses GPS loggers and interviews to measure the time taken to collect water in two Kenyan informal settlements. The time devoted to water collection is widely believed to prevent women and girls, who do most of this work, from undertaking more creative tasks, including income generation and education. We studied collection times in two settlements to compare Nyalenda in Kisumu, where the utility has introduced a new piped water system, with Kibera in Nairobi, where no such improvement has been made. In addition to the primary results of quantitative collections times, we discuss the use of GPS in this context and our findings that the two methods of measurement provide insights which neither would have provided alone.

Categories and Subject Descriptors

J.4 [Social and Behavioral Sciences]; K.4.2 [Computers and Society]: Social Issues

General Terms

Design, Human Factors, Measurement

Keywords

Water collection, GPS, time, Kenya, women's work

sources of water, including springs and unprotected wells.

In addition to measures of water collection time, we report on the introduction of a mature ICT technology, GPS, to measure collection times and distances. Household interviews are the current standard method of collecting this data. We find that GPS provides new insights into the complexity of water collection, but cannot fully replace household interviews.

We are interested in household or domestic water collection because the quality and quantity of household water, and the time devoted to water collection, have wide repercussions on well-being. Water-borne diseases are a significant source of ill-health, in non-industrial countries. Limits on the quantity of water available may also constrain livelihood options and the productivity of domestic work, such as laundry, bathing and washing utensils. In addition, the time devoted to collecting water may crowd out other more creative or rewarding uses of time.

In Sub-Saharan Africa, time devoted to the collection of water is thought to contribute to the over-work or time shortage of women. Thus, Blackden and Wodon [3] write: 'Time poverty has long been recognized as a constraint to development in Sub-Saharan Africa, with women working especially long hours due in part to a lack of access to basic infrastructure services such as water and electricity.' There is evidence that women sleep fewer hours than men in response to the time demands of their various tasks [10].

ICT**4**D or ICTD

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CFP: Oxford book series on Studies in Mobile Communication

October 4, 2013 by Melissa Densmore

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CFP: Oxford book series on Studies in Mobile Communication (OPEN)

Dear all,

Along with my co-editor Gerard Goggin, I am happy to announce the book series Studies in Mobile Communication, at Oxford University Press.

We are seeking proposals for monographs in the area of mobile communication and society. Below, you will find information on the series and how to develop a proposal

Please let us know if you have any questions or you need further information.

Rich L.

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[CFP: Oxford book series on](#)

Deliberate Interactions: Characterizing Technology Use in Nairobi, Kenya

Susan P. Wyche, Thomas N. Smyth, Marshini Chetty, Paul M. Aoki*,
and Rebecca E. Grinter

GVU Center
Georgia Institute of Technology
Atlanta, GA 30308 USA
{spwyche, marshini, beki} @cc.gatech.edu,
thomas.smyth@gatech.edu

*Intel Labs Berkeley
2150 Shattuck Ave., Ste. 1300
Berkeley, CA 94704-1347 USA
aoki@acm.org

ABSTRACT

We present results from a qualitative study examining how professionals living and working in Nairobi, Kenya regularly use ICT in their everyday lives. There are two contributions of this work for the HCI community. First, we provide empirical evidence demonstrating constraints our participants encountered when using technology in an infrastructure-poor setting. These constraints are limited bandwidth, high costs, differing perceptions of responsiveness, and threats to physical and virtual security. Second, we use our findings to critically evaluate the “access, anytime and anywhere” construct shaping the design of future technologies. We present an alternative vision called *deliberate interactions*—a planned and purposeful interaction style that involves offline preparation—and discuss ways ICT can support this online usage behavior.

Author Keywords

HCI4D, Kenya, urban computing, everyday technology

ACM Classification Keywords

guiding force that shapes the community’s design of future ICT [31].

We have chosen to examine the relationship between online access, time, and space in a context receiving increased attention among HCI researchers—developing regions [36]. To date, the HCI community’s understanding of this relationship is based on empirical studies conducted in infrastructure-rich settings in the global North [31,33], despite evidence suggesting patterns differ in other contexts [3]. To address this imbalance, we conducted a qualitative study examining ICT use among native Kenyans. Our study focused on desktop computer and mobile phone use in the home, the workplace and elsewhere. We chose to study professionals living and working in Nairobi who regularly use ICT, because understanding how they use technology highlights constraints some people encounter when using the Internet in infrastructure-poor settings.

In infrastructure-rich settings, designers expect widespread Internet connectivity in users’ homes and workplaces. Even outside of these locations, there are growing expectations

None of the Above...

CHI 2010: Storytelling

April 10–15, 2010, Atlanta, GA, USA

Designing with Mobile Digital Storytelling in Rural Africa

Nicola J Bidwell^{1,2}

¹James Cook University
Sch. of Business, Cairns campus
Australia

nic.bidwell@gmail.com

Thomas Reitmaier^{*}²

²University of Cape Town
Centre for ICT4D
South Africa

thomas.reitmaier@gmail.com

Gary Marsden²

University of Technology Sydney
Interaction Design & Human
Practice Lab & CSIRO, ICT Centre.
Australia

Australia

* Note: Reitmaier is joint-first author with Bidwell. Please abbreviate citation to Bidwell & Reitmaier *et al.*

ABSTRACT

We reflect on activities to design a mobile application to enable rural people in South Africa's Eastern Cape to record and share their stories, which have implications for 'cross-cultural design,' and the wider use of stories in design. We based our initial concept for generating stories with audio and photos on cell-phones on a scenario informed by abstracting from digital storytelling projects globally and our personal experience. But insights from ethnography, and technology experiments involving storytelling, in a rural village led us to query our grounding assumptions and usability criteria. So, we implemented a method using cell-phones to localise storytelling, involve rural users and probe ways to incorporate visual and audio media. Products from this method helped us to generate design ideas for our current prototype which offers great flexibility. Thus we present a new way to depict stories digitally and a process for improving such software.

Author Keywords

digital storytelling, mobile devices, oral knowledge, rural, ICT4D, cross-cultural, dialogical approach to design

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Experimentation, Human Factors

INTRODUCTION

Across history, around the world, people have told stories; and adapted the telling of those stories to different media.

link images to written text or voice-overs). Relations between media and storytelling contribute dilemmas in designing for communities that rely on direct, unmediated face-to-face communication or a more 'primary orality' [16], due to their antecedents or sparse use of technology. That is, we encounter a paradox in responding to "*the exclusion of 'ordinary' people's stories in broadcast media*" [10] beyond the digitally saturated world.

In this paper we reflect on our activities to design a mobile digital story application to suit the functions and qualities of storytelling in a rural community in a Xhosa tribal region of South Africa's Eastern Cape. Our goal was to enable users without access to personal computers to preserve, reflect on and share their own life experiences and express their imagination digitally. This implicitly raised the challenge of understanding the local activity of storytelling through the process of design; and, so we advanced this goal by framing design dialogically [20]. That is, we embraced the idea that the meanings we make about storytelling are always unfinished as they live in sets of relationships between ourselves, others and diverse aspects of settings. Our experience sensitized us to ways that our own interactions with stories arbitrate how we align understandings about ourselves with our users. Thus, here we also aim to show implications of a dialogical approach that are vital in 'cross-cultural design', beyond specific digital story software.

We scoped the concept of digital storytelling on mobile platforms using an interaction scenario informed by digital storytelling projects globally and own experience of storytelling. However, insights from technology experiments





<http://www.theguardian.com/media/video/2011/jun/22/google-africa-technology-video?intcmp=239>

Problem Approach is Important

“More often than not, especially when it comes to Africa and the developing world, there is this idea that the only lens with which we look at technology is ICT4D ... It drives me nuts. It limits the potential of technology ... and it makes a fundamental **wrong assumption**: that **we don't enjoy technology like everyone else does.**”

Ory Okolloh

Manager, Government and Policy Relations, Africa - Google

ICTs *in** Developing Nations

*not “for” development, but simply there. :)

Technology design, invention, and creation happens **anywhere and for varied reasons**.

ICTs, like Okolloh suggests, are sometimes for **enjoyment and communication**—not solely economic development purposes.

This is obvious to some, not to others!

Sam's UX Pillars

Constraints are awesome.

Critique is not opinion.

All UX is knowledge based.

For every rule, there is a reason to break it.

You are not, and never will be,
your user.

Users are bad designers, but they
know bad design.

Expect to be wrong, and embrace it.

It depends.

Quick Usefulness

Man on the street –ish.

Take Homes, What are they?

Why UX?

What is UX (and all those other words)?

What matters in UX?

History/Terminology

Homework

Reading.

Don Norman, The Design of Everyday Things

User Centered Design

Usefulness for you – Man on the Street Interview

Image Sources*

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<http://oldcomputers.net/pics/macintosh.jpg>

GPS:

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Surfing Cat:

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Surfing Llama:

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Nicola Bidwell:

<http://deliveryimages.acm.org/10.1145/2380000/2377797/ins01.gif>

*Image credits for diagrams are on each slide. Contact me for additional source references.

Ask me questions!

Thank you.

All of the papers mentioned today will be made available to you after today's training.

Samantha Merritt

iHub UX Lab, Operations Lead

Indiana University, School of Informatics and Computing

Social Media and Stuff:

Twitter: @zuanto

Email: sam@moringaschool.com

<http://samanthamerritt.com/blog/>