



Overview & welcome

Fundamentals of Human-Centered Computing



Introduction

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Current: Clemson University

Asst. Prof. in Human-Centered Computing

University of California, Irvine

PhD in Informatics

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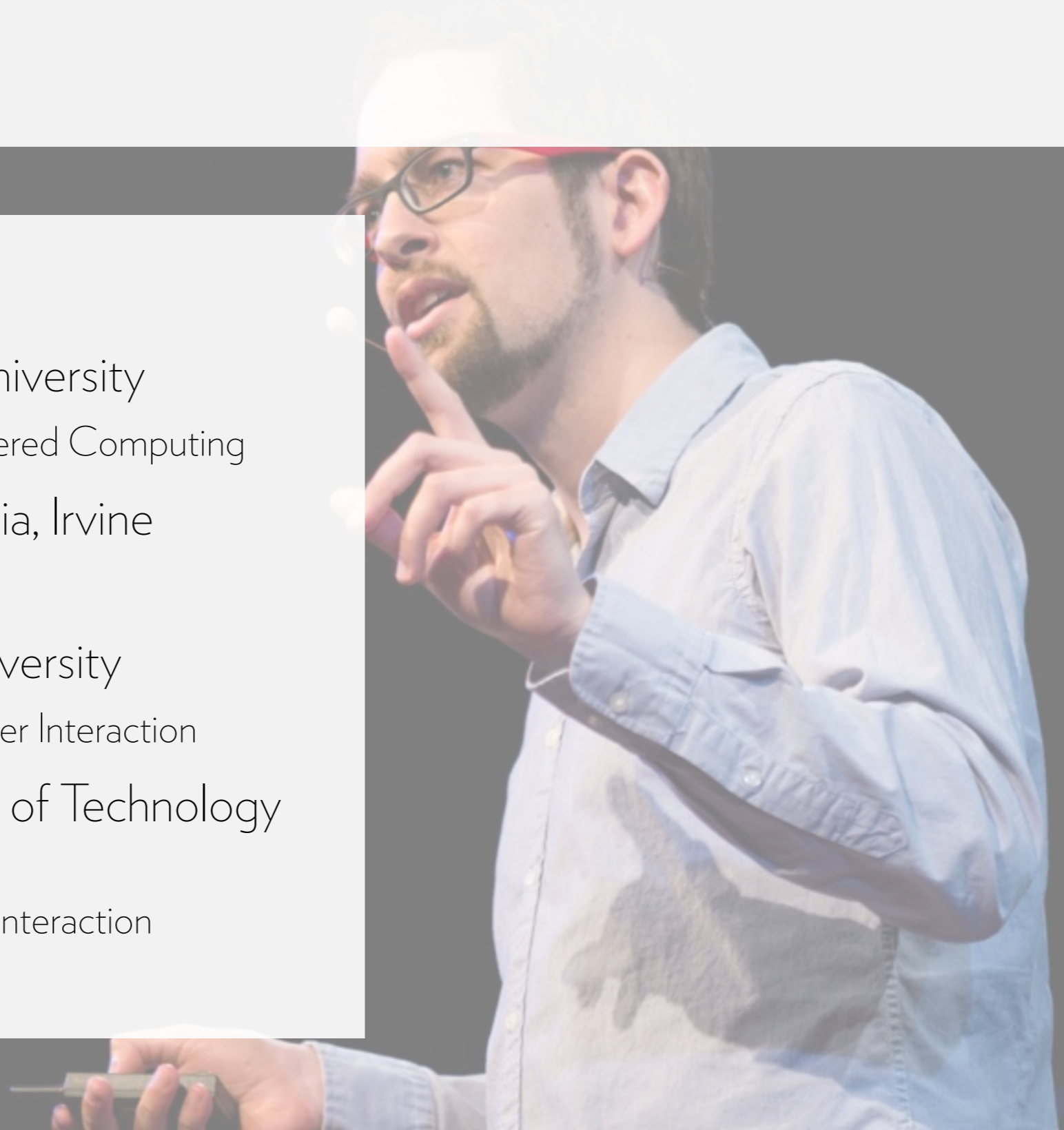
Master in Human-Computer Interaction

Eindhoven University of Technology

Researcher & teacher

MS in Human-Technology interaction

BS in Innovation Sciences





Introduction

Research areas

Recommender systems

Expert in user-centric evaluation of personalized systems

Privacy decision-making

Research on adaptive privacy decision support

Google PhD fellowship in Privacy

Human-like interface agents

Research on user expectations and usability



Introduction

Hobbies:

Running

Photography

Design

Cycling (more of a lifestyle)

Disco (my bunny rabbit)





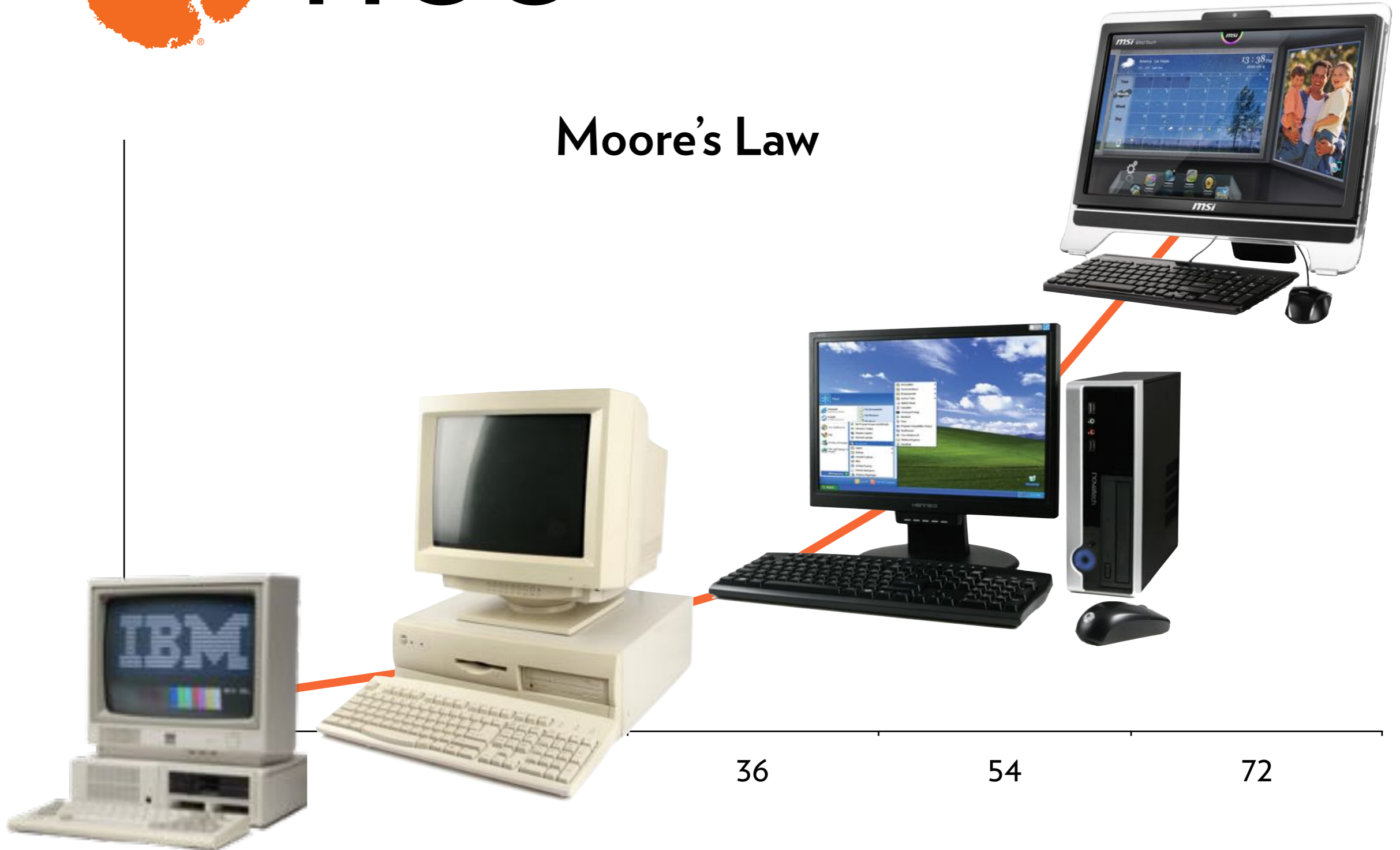
HCC

What is Human-Centered Computing?



HCC

Moore's Law





Prof. Bill Buxton

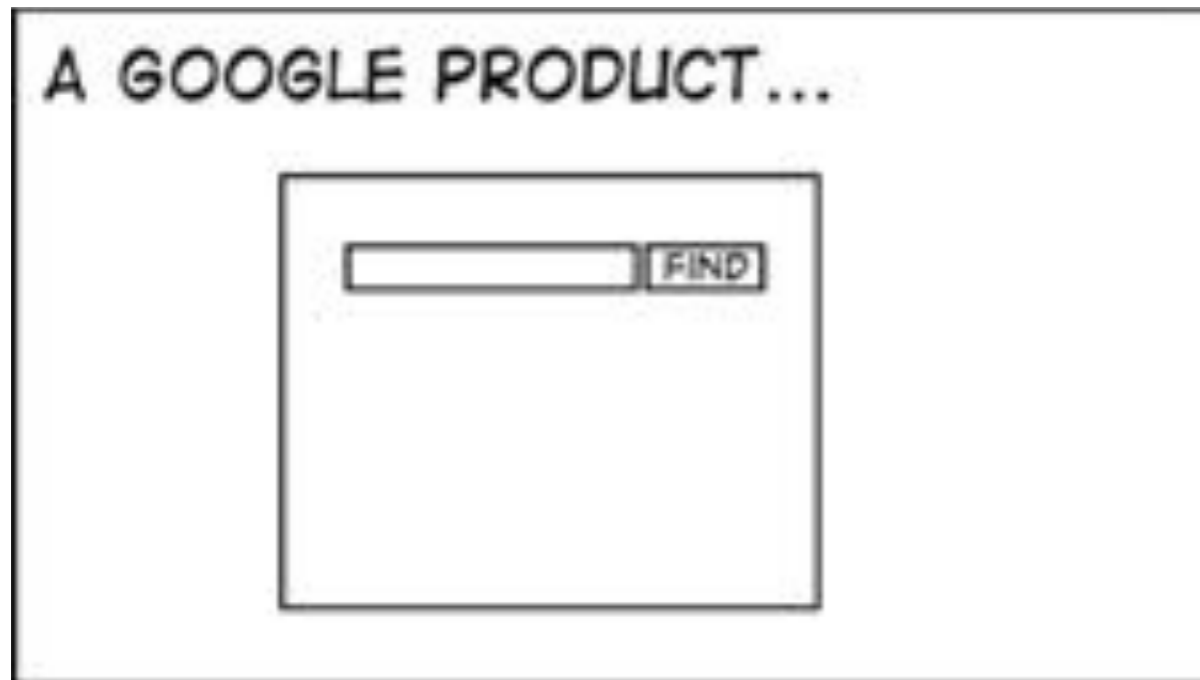
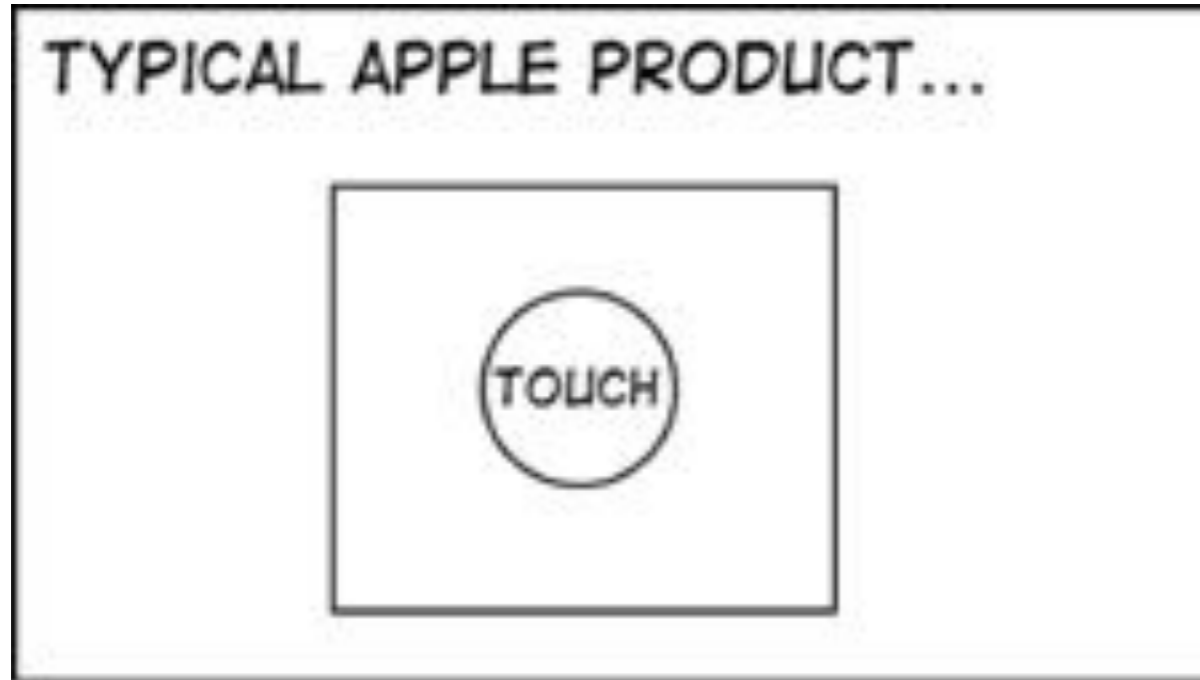


“Threshold of Frustration”

After a certain point
technology gets so
complex that it becomes
too frustrating to use



Doing it wrong...



YOUR COMPANY'S APP...

FIRST NAME:	<input type="text"/>	TYPE CD:	<input type="text"/>	4 - K
LAST NAME:	<input type="text"/>	TQP STAT:	<input type="checkbox"/>	AA2-
SSN:	<input type="text"/>	VER:	<input type="text"/>	DK9B
ID:	<input type="text"/>	FT/PT:	<input checked="" type="checkbox"/>	KKAP
PHONE 1:	<input type="text"/>	CAT CD:	<input type="text"/>	CN9
PHONE 2:	<input type="text"/>	CITY:	<input type="text"/>	AA-9
ADDR 1:	<input type="text"/>	STATE:	<input type="text"/>	
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OKAY APPLY SAVE UNDO HELP DELETE EDIT

SELECT BROWSE ERRORS

STUFFTHATHAPPENS.COM BY ERIC BURKE



Solution

Human-Centered Computing: The phenomenon of people interacting with computers

Part computer science (building software)

Part psychology (understanding people)

Part design (making things easy to use)

Optional ingredients:

Social sciences (understanding how people interact)

Engineering (building hardware)



HCC Evolutions

Evolved technology:

- Personal
- Mobile and connected
- Pervasive

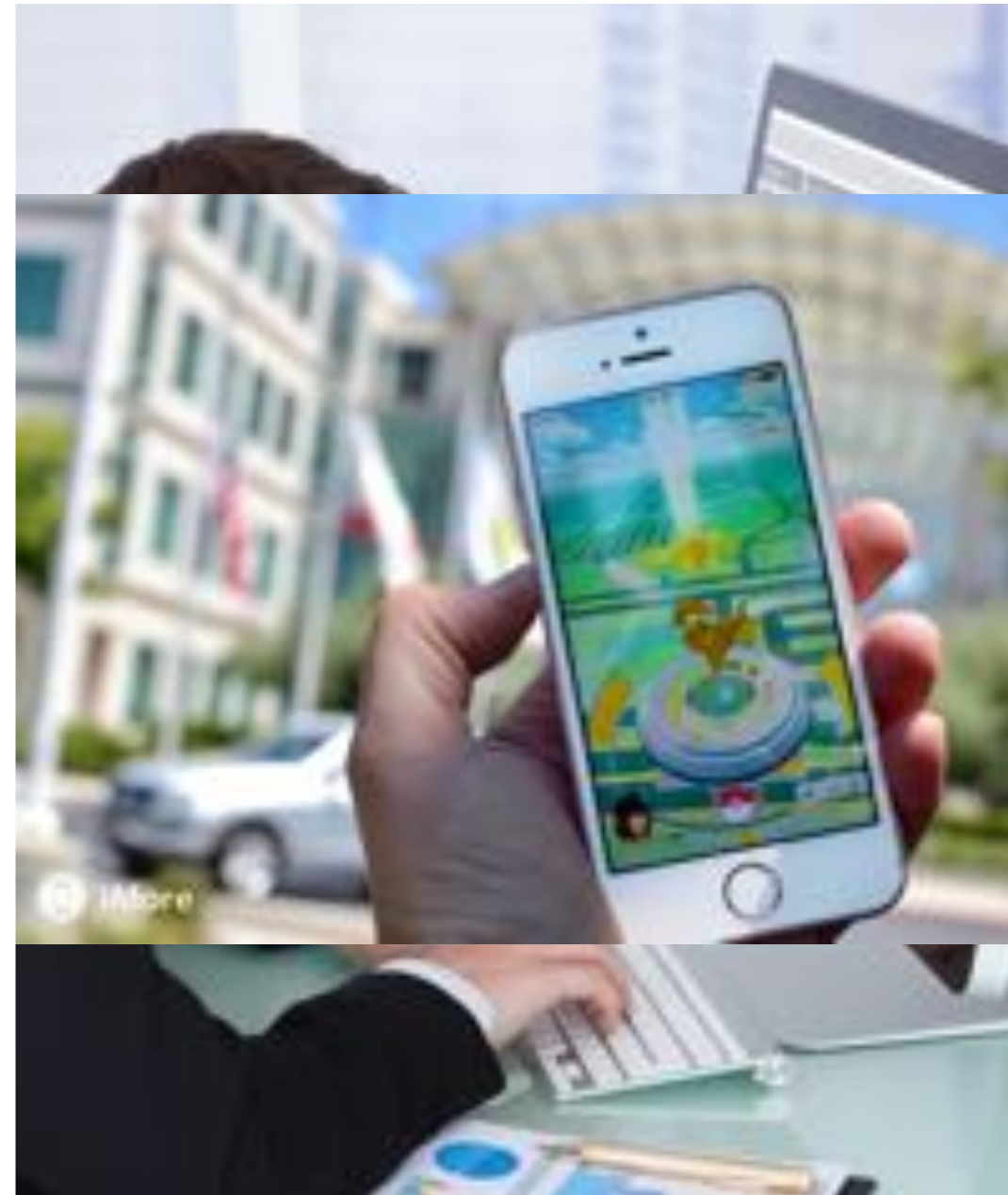




HCC Evolutions

Evolved applications:

- Work
- Life
- Play

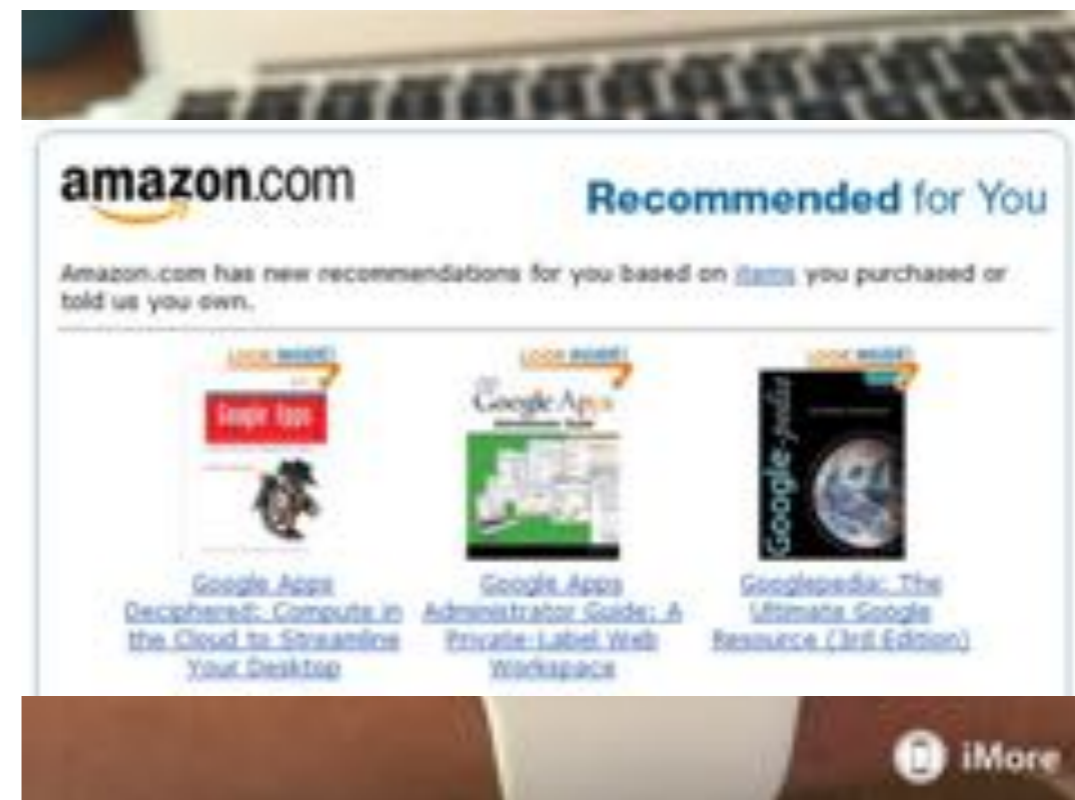




HCC Evolutions

Evolved agency:

- Reactive
- Proactive
- Predictive





HCC Evolutions

Evolved thinking about humans:

- Behavioral (ergonomics)
- Cognitive
- Social/Societal/Cultural





Jobs!

Industry versus academia

Research versus product

Stage in the development cycle





This course...

Industry versus **academia**

Research versus product

Stage in the development cycle

(or even earlier!)





Fundamentals

What are the fundamentals of HCC research?



Fundamentals

HCC research contributions

- Empirical research
- Artifacts
- Methodology
- Theory
- Datasets
- Surveys
- Opinions



This course...

HCC research contributions

- Empirical research
- Artifacts
- Methodology
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- Datasets
- Surveys
- Opinions



Types of studies

Qualitative versus quantitative

Opinions versus behaviors

Observation versus experimentation

Exploration versus confirmation



This course...

Qualitative versus quantitative

Opinions versus **behaviors**

Observation versus experimentation

Exploration versus confirmation

(note: Measurement and Evaluation covers the other side!)



This course

What are we going to do in this course?



This course

Week 1: Form a group, decide on a topic

Week 2: Write a topic proposal

Week 3: Write an IRB proposal, do IRB training

Weeks 4-7: Grounded Theory

Weeks: 8-13: Learn existing HCC theories

Weeks 14-15: Write and present your term paper

Week 16: Make-up class slots (if needed)



Group + topic

Group size: 4 students

Use class forum + time after class

Two types of topics:

- Any situation that could benefit from (a fundamental rethinking of) digital assistance
- Any situation where computers create a new social dynamic or a social/societal problem

Be creative; ask me if you're not sure



Topic proposal

Explain why this topic is interesting from an HCC perspective

Define the scope of your topic

Plan who you want to interview/observe

Explain how you want to do the interview/observation



IRB proposal

The Institutional Review Board has to sign off on any research that involves human subjects

(including interviews and observation studies)

Research needs to be proposed and approved

Everyone will write a proposal, only submit if you want to actually publish your outcomes

Additionally, human subjects researchers need to do an online IRB training

You too!



Grounded Theory

Intensive interviews / observations (individual)

3-4 interviews per person

Several types:

Watch the person while they do activity and ask questions

Ask the person to recall past activities; walk through them

Use an artifact to guide the discussion

Record your interviews and transcribe them! (individual)

Save your recordings and transcripts!



Grounded Theory

Analyze the transcripts (individual/group activity)

“coding”, memo-writing

Construct a theory (group activity)

Discuss to find patterns in your results

Note: This is an iterative process!

You find new interviewees and new questions based on most recent analysis

You will present your preliminary findings in class (weeks 6-7)



Learn theories

Read 1-2 papers per class, write a reflection (individual)

Reflections may include:

- A reaction to the reading, e.g. a critique
- A theoretical position on the broader topic that the paper addresses
- Supplementary ideas, taken from other sources on the topic
- An application to your term paper topic



Term paper

Your term paper includes:

- Your motivation for researching this topic
- Your constructed theory (backed up by analysis and anonymized interviewee quotes)
- An analysis of how your theory fits within existing theories

Due on December 7 at noon

You will present a preliminary version in class (weeks 14-15)



Tips

How can I succeed in this class?



Tips

Start early

Interviews take effort, developing theory takes time

The process is iterative so you cannot do it all at once

Truly collaborate

Don't just delegate tasks between group members

The best theories are the result of discussions



Tips

Make your group work fun

Go do something together other than work

There will be peer evaluations; grades will reflect those

No plagiarism!

Learn how to properly cite: <http://bit.ly/citeproper>

“Faking” an interview is considered plagiarism!



More general tips

Master students:

Find out whether you want to go into industry, or do a PhD

Put a lot of effort into finding a good internship

PhD students:

Go to conferences, promote yourself

Everyone:

Pick your advisor based on style and method, not topic



Questions...



Topics and groups

How do I find a topic and form a group?



Topics and groups

Talk to your neighbor for 5 minutes about possible topics

- Why this topic is interesting from an HCC perspective?
- What would you consider on- and off-topic?
- Who would you interview/observe?
- How would you conduct the interview/observation?



Topics and groups

Mingle for 5 minutes, try to find someone with similar interests



Topics and groups

If you are a group with < 4 people, please create a post with your topic on the blackboard forum!

If you don't have a group yet, please find a group on the forum!