

PERVASIVE MEDIA: CULTURE, VALUE, AND PRACTICE

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Who am I?

- Maoming, Guangdong, China
- BSc (Huazhong University of Science & Technology, 2008), PhD (National University of Singapore, 2013)
- Research: interactive handicraft, ubiquitous/pervasive computing (<http://zhukening.me>)
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I am new here ☺
請多多指教

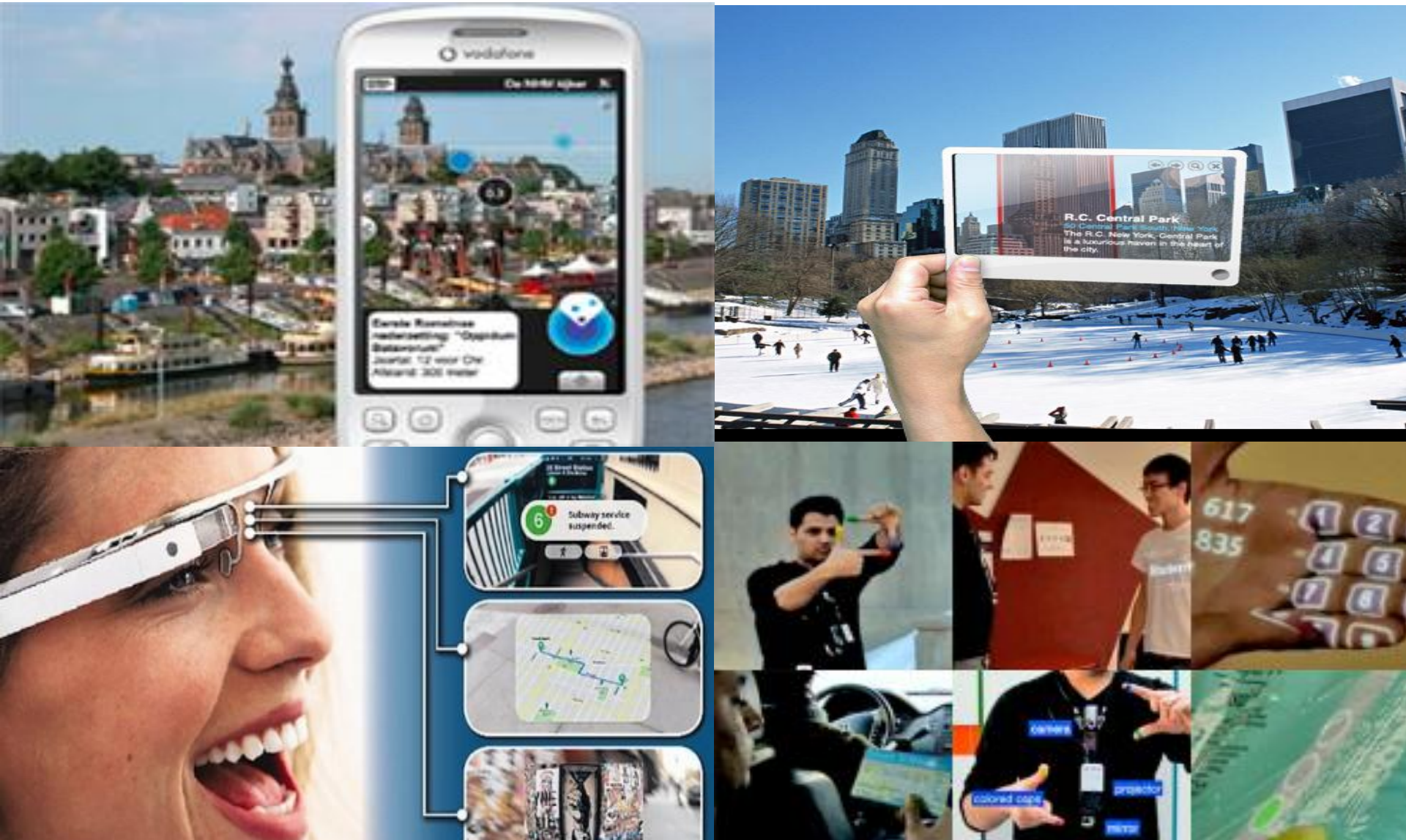
What is this course about?

Quick Survey

- How many of you are using **iTouch/iPhone/Android** phones?
- What do you use your phone for?



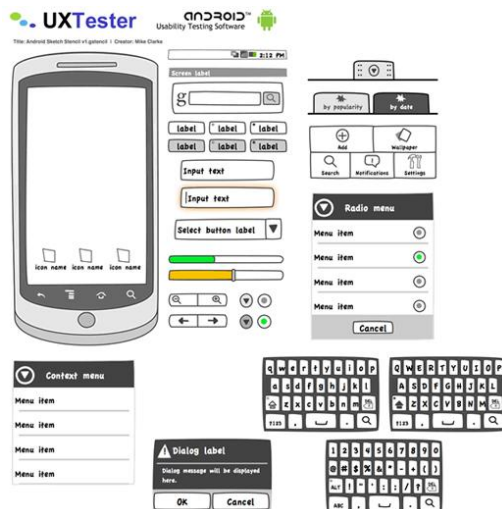
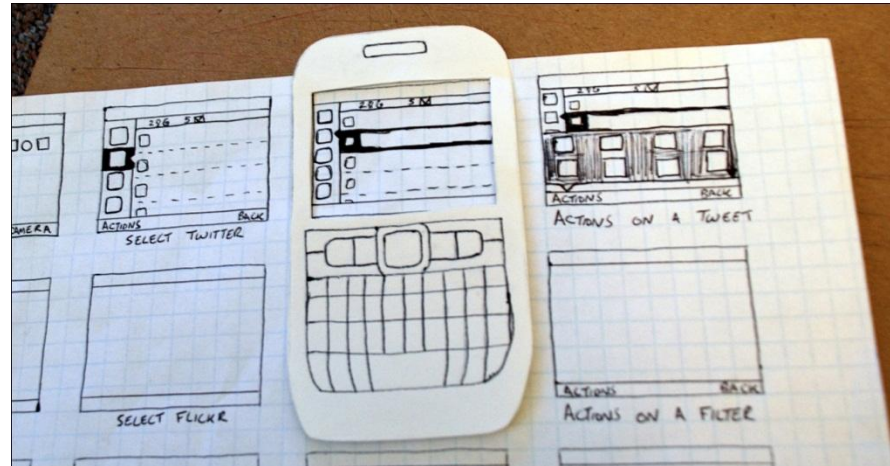
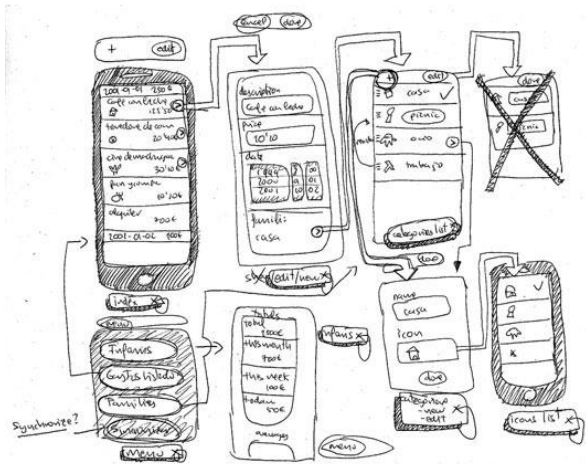
What is Pervasive Media



How to Design Pervasive Media



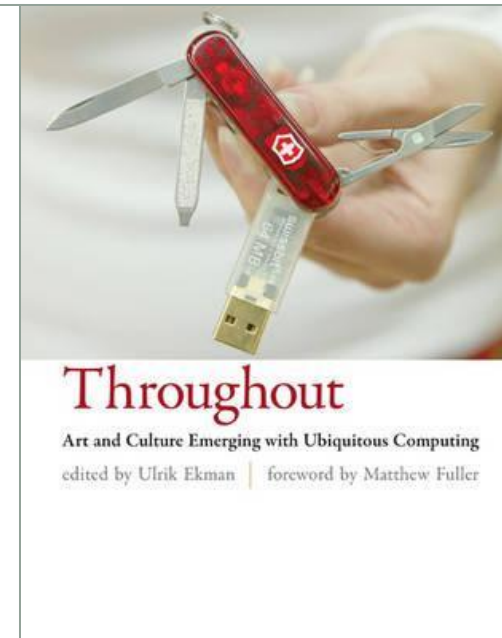
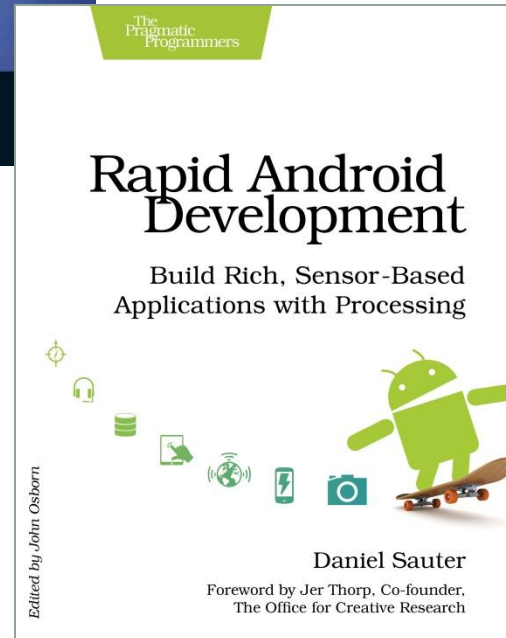
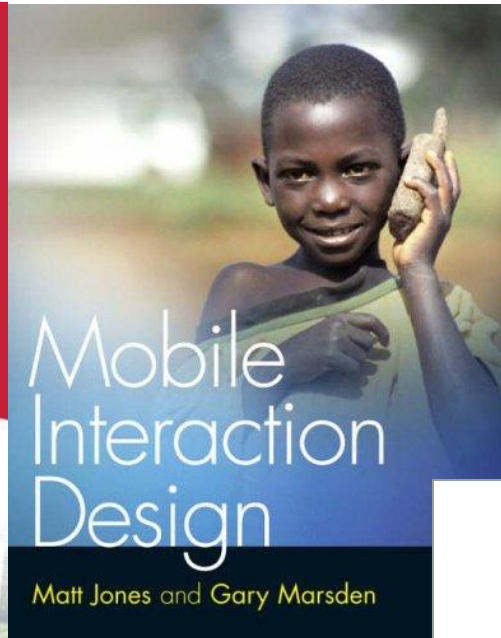
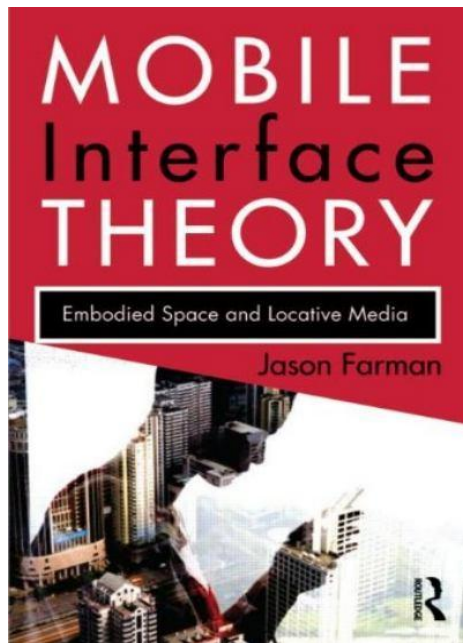
How to Prototype Pervasive Media



How to Evaluate Pervasive Media



Recommended Books



Assessment

- Individual Assignments **50%**
 - Writing Assignment 1 20%
 - Writing Assignment 2 10%
 - Programming Assignment 20%
- Final Project (Group) **40%**
 - Final Report 15%
 - Final Presentation 25%
- Class Participation **10%**
 - In-class discussion, online forum discussion, ect.

Class Schedule

- Week 1: Introduction on Pervasive Media
 - Assignment 1: Writing 20%
- Week 2~3: Existing Projects on Pervasive Media
 - Week 2: I will introduce some of the cases
 - Week 3: It is your turn (each of you will get 5 minutes to present one case-study)
 - Assignment 2: Writing 10%
- Week 4~6: Design Methods for Pervasive Media
- Week 7~10: Prototyping Methods for Pervasive Media
 - Assignment 2: Programming 20%
- Week 11~13: Evaluation Methods for Pervasive Media
- Week 14: No class
- Week 15: Final Project Presentation 40%

Final Project

- Group Project
 - Maximum 4 Persons in a Group: Don't work alone!
 - Freely form a group with your friends
- Task
 - Propose a new design of pervasive media: mobile artwork/application
 - Write up a proposal (less than 8 pages) including
 - What is your design? How do you come up with this design?
 - Why is your design new and important?
 - Prototype of design (it can be low-fidelity one: sketch, paper prototype, etc.)
 - Programming Prototype will get extra points tho.
 - Evaluation of your design (whether people like it or not)
 - Final Presentation of the projects
 - Share your story to the class
 - Every group member presents your part in the project

Final Project

- Important Dates
 - Group Presentation:
 - Dec 13th 2014
 - Proposal Submission:
 - Due Dec 20th 2014
 - You can submit early if you want, and enjoy your pre-Christmas :P

Plan your final project properly

- Form your group now
 - Roles: designing, prototyping, evaluating, marketing if you want
- Have group meeting frequently (once a week?)
 - I can provide time slot for group discussion in class (last 30 min?)
- Start thinking about ideas as early as possible
- Hopefully you would have an idea on what to do after **week 6**

And...

- Feel free to talk to me
 - for **comments** and **ideas**
 - or if you are interested in doing **research** in pervasive media/handicraft
 - or **internship** in Singapore, Taiwan, Japan, etc.
- I can speak Cantonese, Mandarin, English.
- But...only English in class please~

Grading Policy

Be on time please!

- Attend the class on time
 - **More discussion are expected** if you are late, to make up the score for the attendance.
- Submit your assignment on time
 - **Better assignments are expected** if you submit after the deadline.
 - School policy on penalty for late Submission
 - For each day of overdue
 - A deduction of 10% available mark or
 - 1/3 of a Letter grade (e.g., B+ B-)
 - Late for more than 7 working days, no mark for that assignment or project

Grading Policy (cont.)

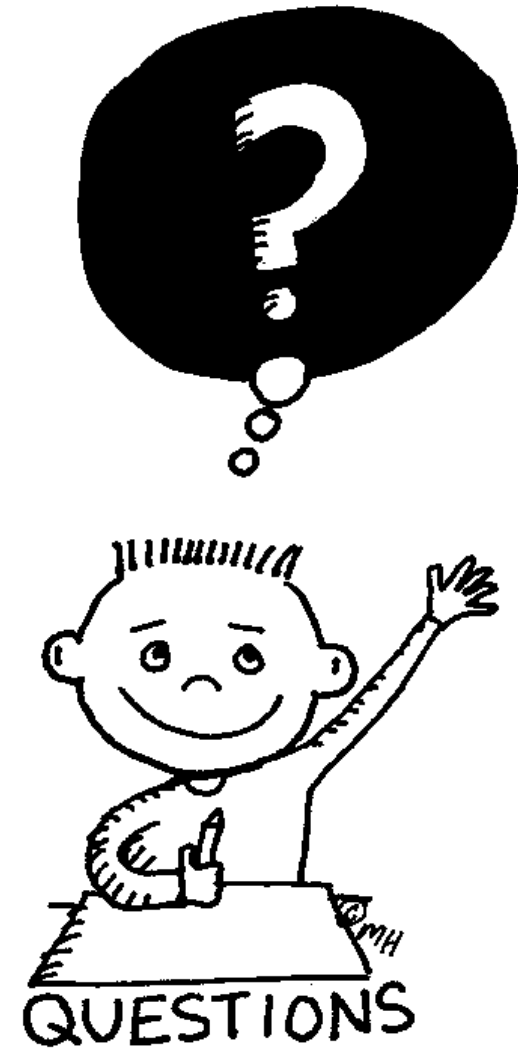
- Good Document Writing
- Creative Ideas
- Active Class Discussion

Question me!

Challenge me!

Surprise me!

Question?



Break and Form your group

Introduction on Pervasive Media

Kening Zhu (Ken)

Assistant Professor

School of Creative Media

City University of Hong Kong

Agenda

- What is Pervasive Media?
- History of Pervasive Media
- State of the Art
 - Technologies
 - Applications
 - Issues and Challenges
- Future of Pervasive Media

What does “Pervasive” mean?

- Pervasive
 - Definition from Oxford Dictionary

adjective

spreading widely throughout an area or a group of people.

Synonyms

Everywhere, Ubiquitous, Invisible, Natural

Pervasive Media is everywhere!

What kind of digital technology is pervasive?



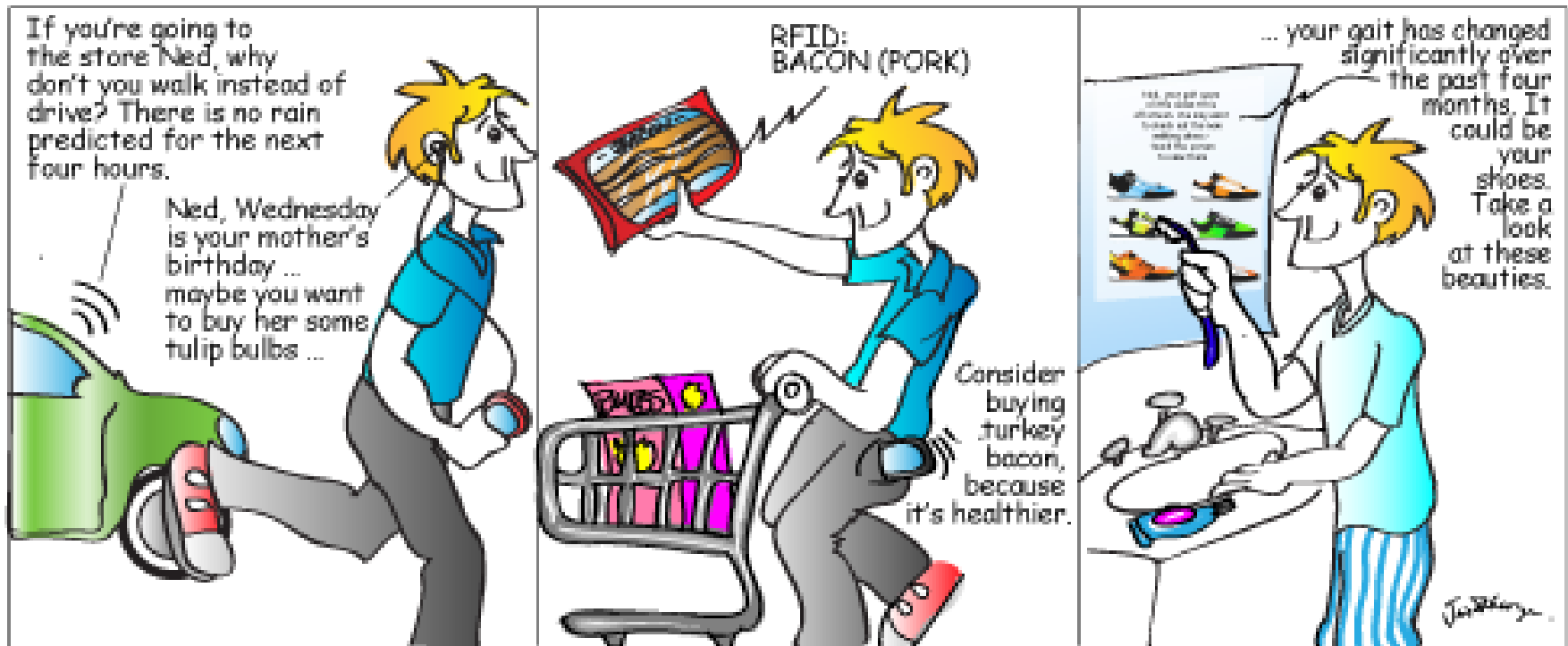
Are they all Pervasive Media?



昵图网 www.nipic.com BY: sunjinlontongzhi

NO:201104262015223290

Pervasive Media is smart!



What is Pervasive Media?

- Pervasive Media is a kind of digital media that
 - Are spread **widely** and **seamlessly** into real life.
 - And **sensitive** to user's situation
 - Who you are
 - What time it is
 - Where you are
 - How you feel
 - Who you are with
 - etc.

Sometimes we also call it...

- Pervasive Computing
- Ubiquitous Computing
- Ambient Intelligence
- ...

Exercise

What are the pervasive computing media/devices in this lecture room?

History of Pervasive Media/Computing



Mainframe Computing
1950s

Mini Computing
1970s

**Personal
Computing**
1990s

**Mobile
Computing**
2000s

History of Pervasive Media/Computing (Cont.)



Mark Weiser: 1952-1999

- Mark Weiser's vision on Ubiquitous Computing
 - *"The most profound technologies are those that **disappear**. They weave themselves into the fabric of everyday life until they are indistinguishable from it" - The Computer for the 21st Century, 1993*

History of Pervasive Media/Computing (Cont.)

- Key Characteristics of Ubiquitous Computing
 - Supports a world of fully **connected** devices
 - Ensures information is **accessible everywhere**
 - Provides an **intuitive**, nonintrusive interface



History of Pervasive Media/Computing (Cont.)

- Steve Mann's Definition of Wearable Computing (1997)
 - Subsumed into the **personal** space of the user
 - Controlled by the user
 - **Unmonopolizing** of the user's attention
 - Attentive to the **environment**
 - Always **on** and always **accessible**



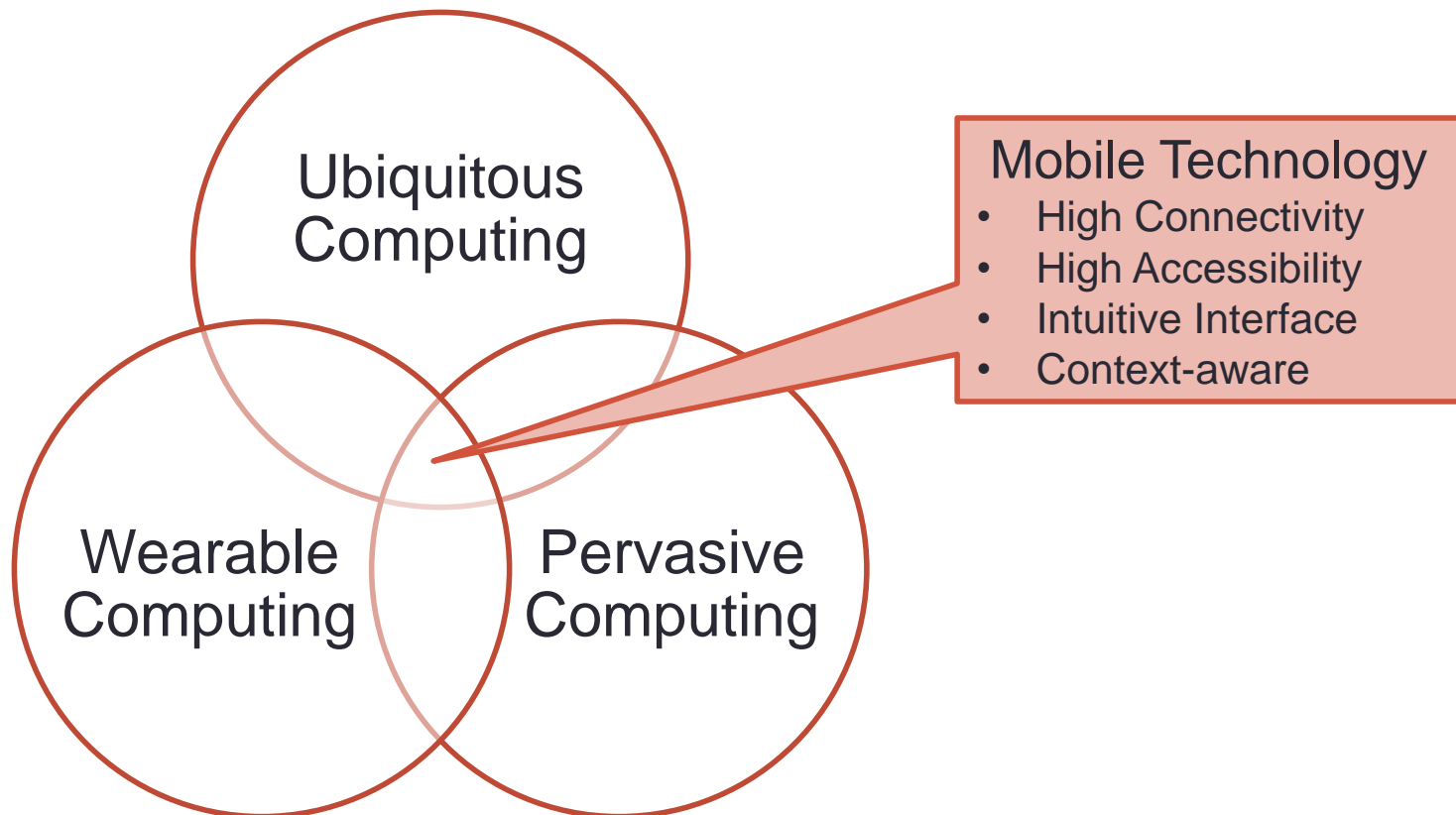
History of Pervasive Media/Computing (Cont.)

- Mahadev Satyanarayanan first called “Pervasive Computing” (2001)
 - Distributed Systems
 - High **Availability** of Information
 - High **Security**
 - High Fault **Tolerance**
 - Mobile Computing
 - Context **Awareness**



Exercise

- What are the **common** characteristics among Ubiquitous Computing, Wearable Computing, and Pervasive Computing?



Phones are smart nowadays!



What can you do with your smart phone?



What can you do with your smart phone? (cont.)

- Input Sensors
 - Touch surface
 - Camera
 - Microphone
 - Accelerometer
 - GPS
 - Timer
 - etc...



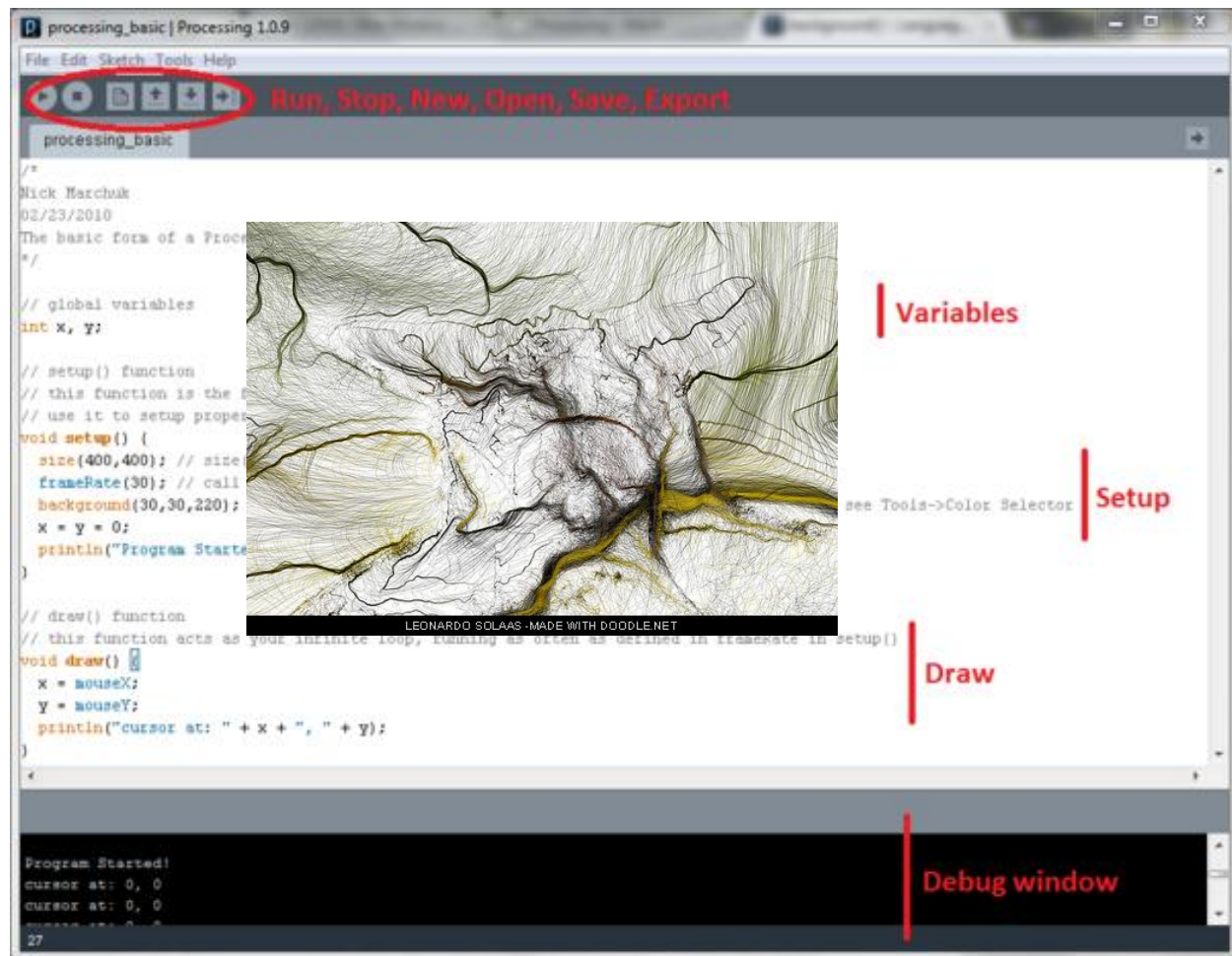
What can you do with your smart phone? (cont.)

- Output Actuators
 - Display screen
 - Sound
 - Vibrator
 - etc...



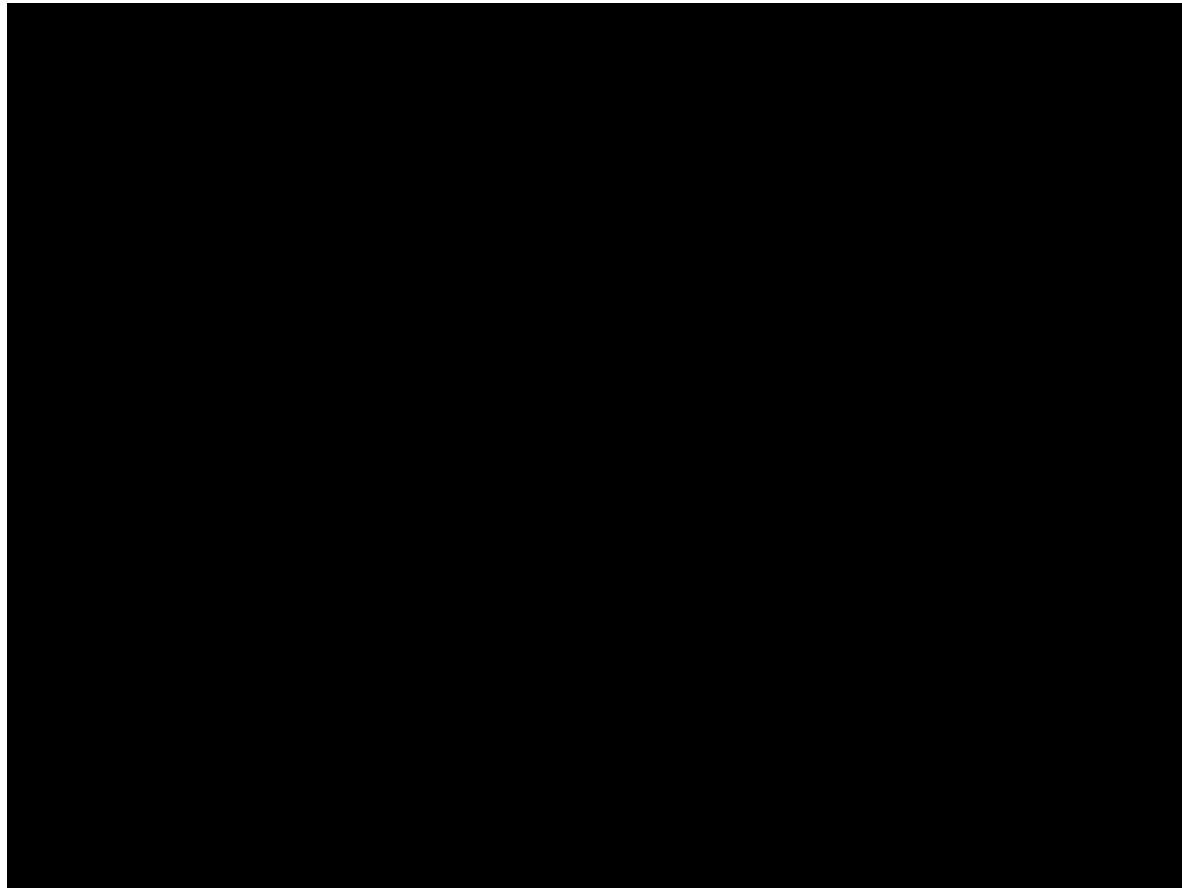
What can you do with your smart phone? (cont.)

- You can also program your phone if you dare :P



Applications of Pervasive Media

- Contextual-aware service



http://www.youtube.com/watch?v=Fqi8NILq_dQ

Applications of Pervasive Media

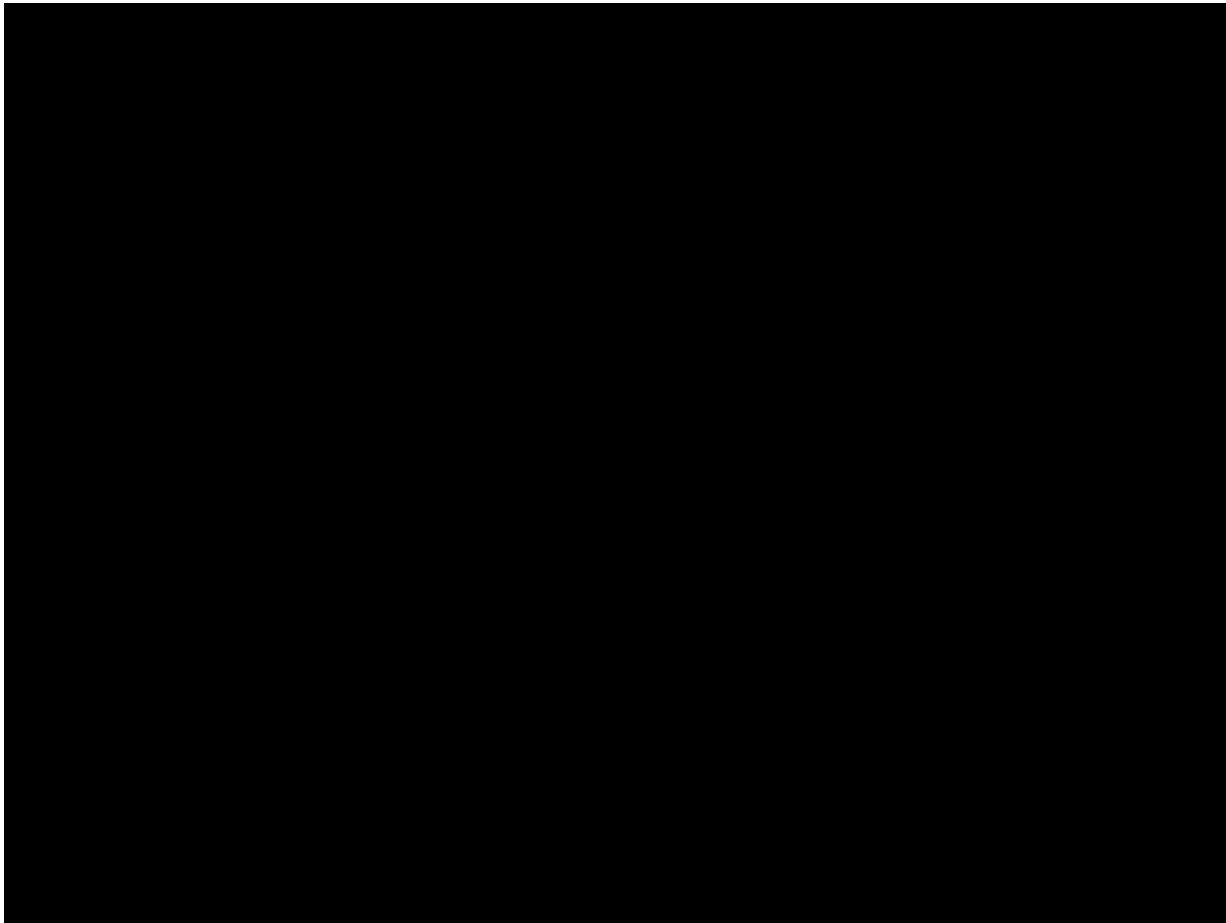
- Location-based Entertainment



<http://www.youtube.com/watch?v=YY7wfQWeBf8>

Applications of Pervasive Media

- GPS Drawing



<http://www.youtube.com/watch?v=TIZ6T5HoKq4>

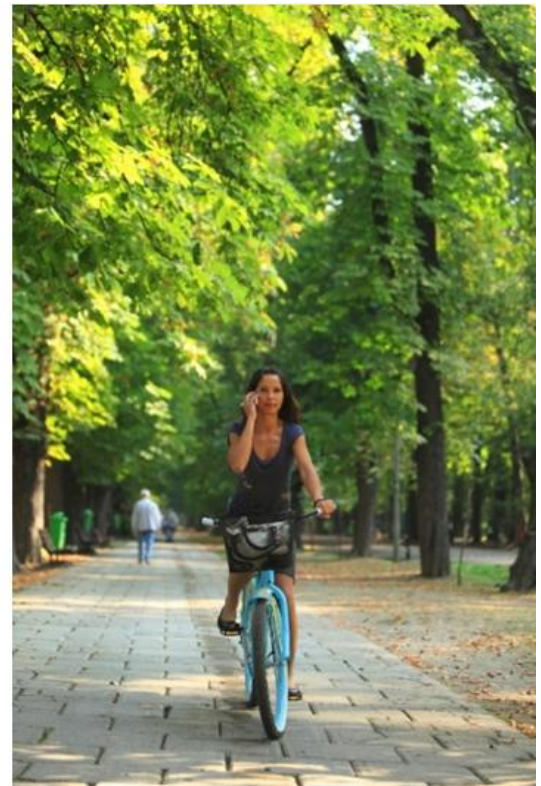
Applications of Pervasive Media

- Locative Service/Entertainment/Art
 - A lot of examples on YouTube and Google

Check it out, and get inspired!!

HCI Issues and Challenges

- Understand the context
 - *“all that may influence the user experience and usability of a mobile application during its use.”*



HCI Issues and Challenges

- Understand the context
 - How to gather different contextual information for design.
 - How to represent the information of different contexts
 - How to inspire design ideas from these information



HCI Issues and Challenges

- Understand the users



These are normal users...

HCI Issues and Challenges

- Understand the users

And we have more and more...



HCI Issues and Challenges

- Understand the user
 - How to observe users without interrupting their daily routine.
 - How to design for different users



Techie

Mike

25-34 single male
living with friends

Mike works as a graphic designer in a small agency and one day wants to run his own agency.

He's got an iPhone and a Vodafone 360 H1 by Samsung phone, one personal and one for work. He follows friends and key people in the design industry via Twitter, blogs, and RSS feeds. He uses his iPhone for work emails and his H1 for Facebook.

He uses Twitter to post updates about what he's up to with his project work as well as using it as a tool to find out what people are up to and to invite them to events. He uses Facebook to share personal photos and video and keeps a Tumblr blog to post interesting things he discovers and share them with his friends and followers.



Socialite

Zoë

18-33 single female
living with friends

Zoë is studying a Masters in International Development unsure of what the future lies ahead of her.

She is constantly using the Facebook app on her Vodafone 360 M1 by Samsung phone as well as on her PC to upload and tag photos and videos from places she's been to with her friends, as well as to find out and comment on who's been where at which club nights and parties.

She regularly texts and messages her friends to find out if they've heard about a new pop-up shop she heard about via a flyer, or one-off warehouse party started by friends of friends.



Cost-conscious

Geoff

35-49 married male
with young kids

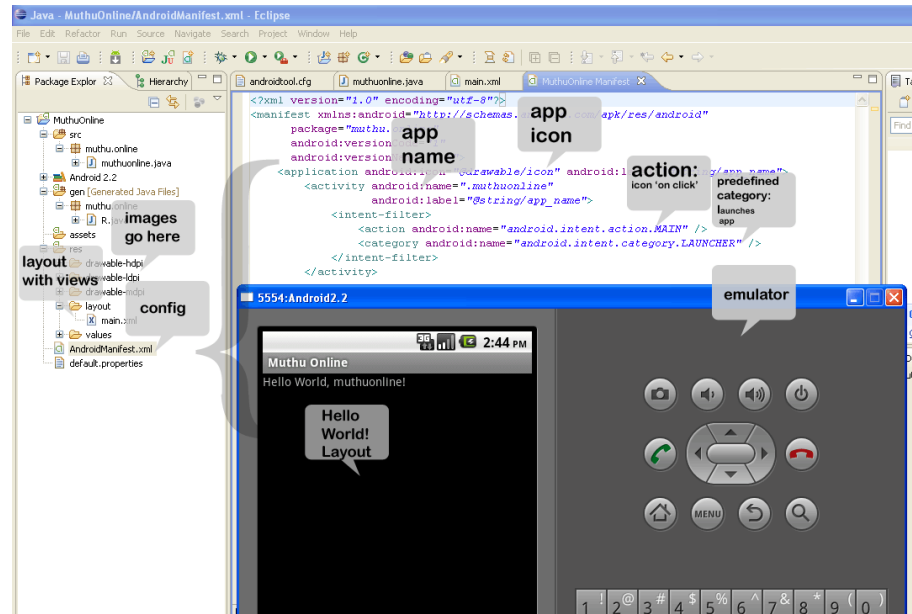
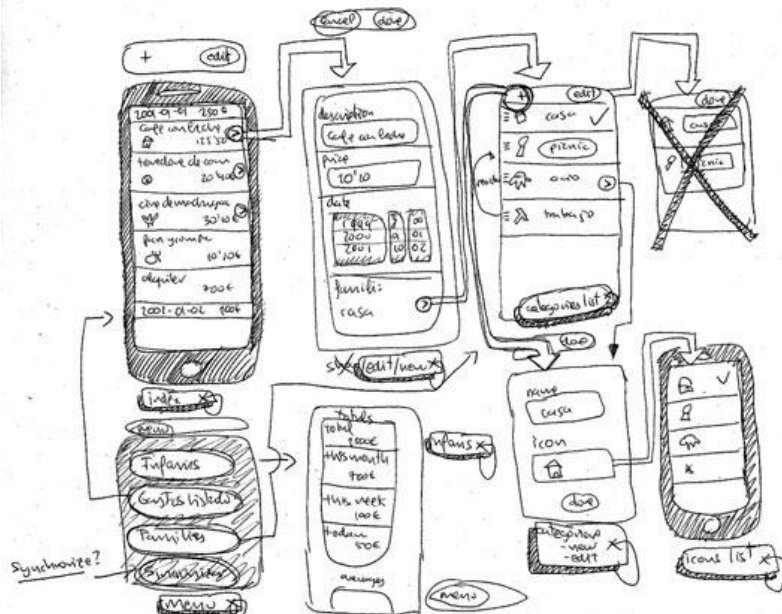
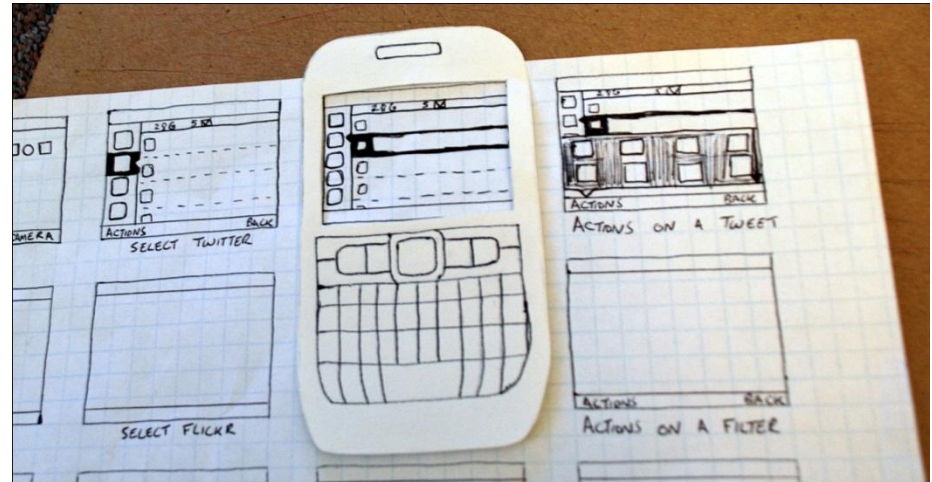
Geoff works as an senior architect in a large practice, and has a wife and a young girl and 6-month baby boy. He thinks the time is right to start looking for a bigger home for his family.

Geoff uses his Vodafone 360 H1 to take photos and videos of prospective sites he visits. He purchased the H1 because of its ability to check email, surf the web, use apps, and take photos and video.

He loves the built-in camera and also uses this phone on holiday to take snaps of the family as it fits in his pocket and doesn't want to carry a large SLR around with him. He likes to upload his photos and video to Flickr and share them with his family and friends. He also creates photo books from his holidays snaps to give as gifts to his parents.

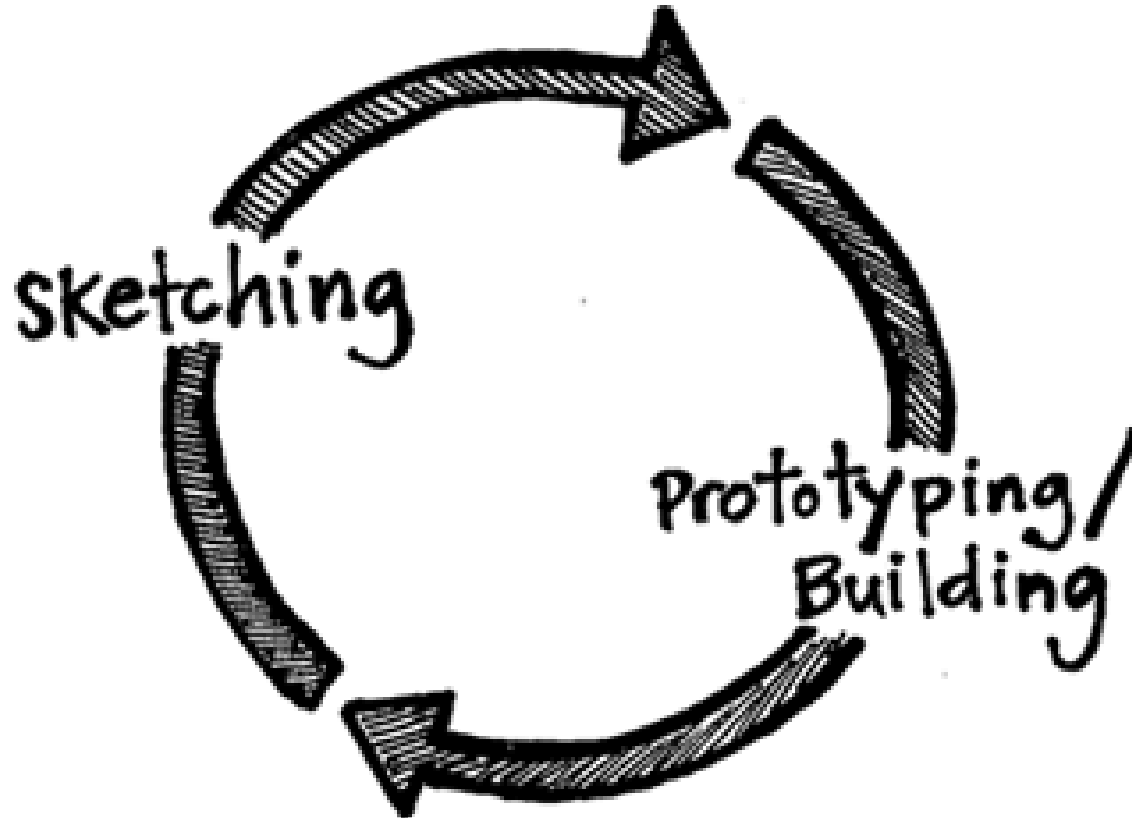
HCI Issues and Challenges

- Prototype efficiently
 - Time
 - Cost
 - Functionality



HCI Issues and Challenges

- Prototype efficiently
 - Different methods at different stages



HCI Issues and Challenges

- Evaluate Properly
 - *“emphasize the realism and the inclusion of different contexts and variables during the evaluation process, or even taking it out of the lab.”*



**In-lab experiment is
always not enough!!**

HCI Issues and Challenges

- Evaluate properly
 - Techniques
 - Equipment
 - How to collect data in changing contexts



HCI Issues and Challenges

- Security
 - Who to connect
 - Whom to share
 - What to share



Future

- What kind of future do you envision?
 - What do you expect your pervasive/mobile device to be able to do for you?



Writing Assignment 1.1

- **Due: 24:00, 27 Sept 2013 (Fri Midnight)**
- Reading Materials
 - [Weiser 91] **The Computer for the 21st Century**
 - [Mann 97] **Wearable Computing: A First Step Toward Personal Imaging**
 - [Satyanarayanan 01] **Pervasive Computing: Vision and Challenges**

Writing Assignment 1.1

- I don't expect you understand all (technical) details,
 - Please don't spend too much time on details
- You have **two tasks**
 - **Task I**
 - Short commentaries for **each paper**
 - Approximately 1-2 paragraphs or 5-10 sentences long for each paper
 - Sample format: summarize the problem, insights into the approach, questions you have, interesting applications not mentioned in the paper
 - You are not allowed to simply rephrase the paper abstract!
 - Not more than one page

Writing Assignment 1.1

• Task II

- State your own thoughts about ubiquitous computing, past present and future.
 - Several paragraphs (no more than 1 page)
 - Your statements should be supported by the literature where applicable (Paper X-Page Y).
- Sample questions: *describe the essence of Ubiquitous Computing, what is it really about? Why is it important or why not? How will it affect us in the future? What do you believe are interesting or important questions for the future? Is Mark Weiser's vision already here, or will it never come. If so, why not?*

What next?

Case Study on Pervasive Media

Study, Appreciate, Critique, Improve

欲知後事如何
To know the ending

請看下回分解
please keep on watching