Pervasive and ad-hoc Services

http://iihm.imag.fr/coutrix/UIS-PAHS/

Contact:
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Pervasive and ad-hoc Services

- Teachers
  - Céline Coutrix Researcher CNRS
  - Yann Laurillau Lecturer UPMF
  - Laurence Nigay Professor UJF
  - Franck Tarpin-Bernard Professor UJF
- Planning
  - Monday 9h45-12h45
  - 11 courses from Monday 23 September to Monday 16 December
  - Monday 6 January : 9h45-12h45 Oral exam 30 minutes each (+ questions)
  - Week 21-24 January: Written exam
- Evaluation
  - Oral exam and written exam
  - Final grade: 30% oral exam and 70% written exam

Pervasive and ad-hoc Services

- Oral exam
    - Subjects will be available on the web site on Monday 3rd December
    - Monday 3rd December: choice of the paper by each student
    - If problem to access related papers: email teachers

    - Oral presentation : 30 minutes + questions
        - Give the context for the research, stating why it is interesting and relevant.
        - Identify the problem or challenge as it currently exists.
        - Give an overview of the contents of the entire paper.
        - Identify, describe, cite related work.
          => you must do your own research about the related work
        - Describe, analyze and evaluate the adopted approach to the problem.
        - State the key results
        - Relate the concepts with the course

Pervasive and ad-hoc Services

- Written exam
    - The written exam covers literally every topic taught in the course including the suggested readings.

Pervasive and ad-hoc Services

- Objective and content

  - Computing services embedded in the world around us:
    Human centered environment
  - Human-Computer Interaction (HCI) in pervasive and ad-hoc environments
  - HCI point of view on pervasive environments

Pervasive/Ubiquitous computing

  - "ubiquitous computing" 1991 M. Weiser Scientific American
  - "calm technology"

  - Invisible technology
  - Technology everywhere
  - Symbiosis between the real and digital worlds
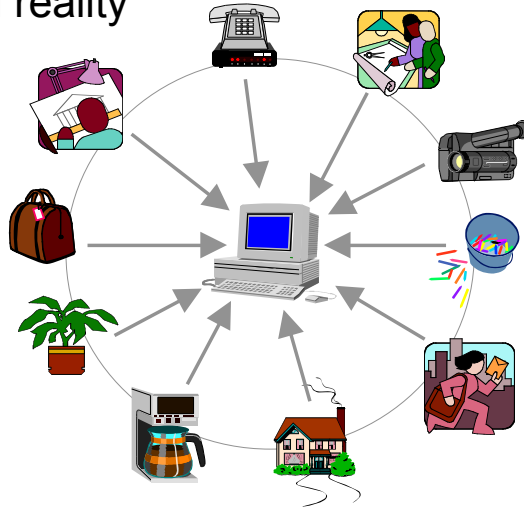
Pervasive/Ubiquitous computing

- "the idea of a "personal" computer itself is misplaced" ….

- "we are trying to conceive of a new way of thinking about computers in their world, one that … allows the computers themselves to vanish into the background"

Pervasive/Ubiquitous computing

- Weiser's argument:
- "There is more information available at our fingertips during a walk in the woods than in any computer system, yet people find a walk among trees relaxing and computers frustrating. Machines that fit the human environment, instead of forcing humans to enter theirs, will make using a computer as refreshing as taking a walk in the woods"
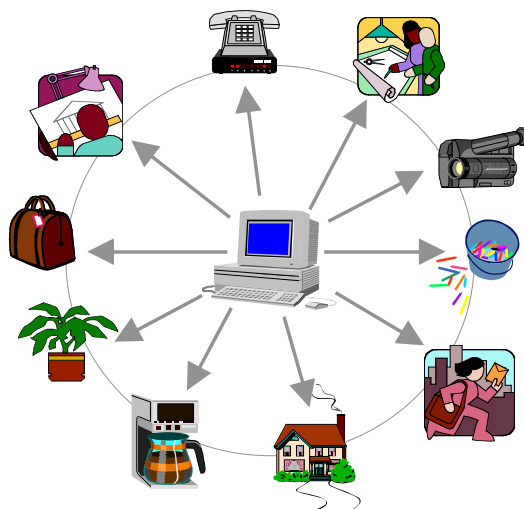
- "Focus on the task, not the tool"
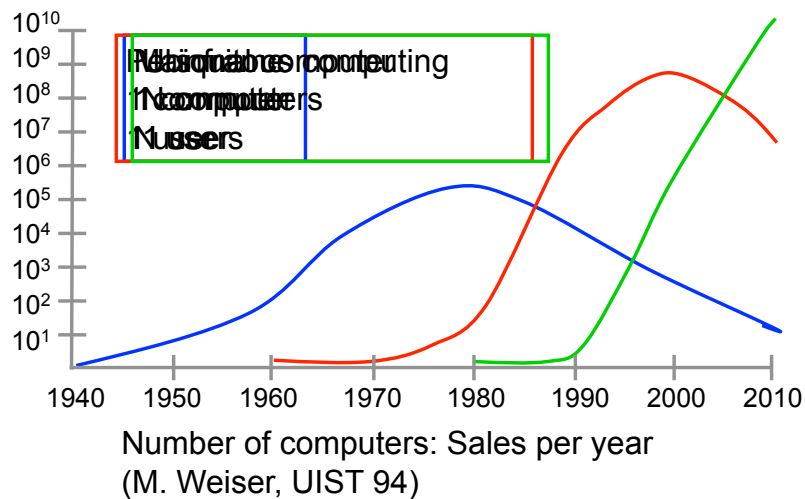
Pervasive/Ubiquitous computing

- Virtual reality

Pervasive/Ubiquitous computing

- "embodied virtuality"

Pervasive/Ubiquitous computing

- ## Major trends in Computing

Number of computers: Sales per year
(M. Weiser, UIST 94)

Pervasive/Ubiquitous computing and HCI

- HCI point of view on pervasive environments

- ***"Our surrounding is the interface"***
  to a universe of integrated services. This will enable citizens to access IST services wherever they are, whenever they want, and in the form that is most "natural" for them.

- *"However, these can all be seen as a broader research agenda: the design of appropriate computational environments for people: wherever they are, whoever they meet, whatever they are doing" Alan Dix*

  => New interactive experiences

  => New challenges for HCI

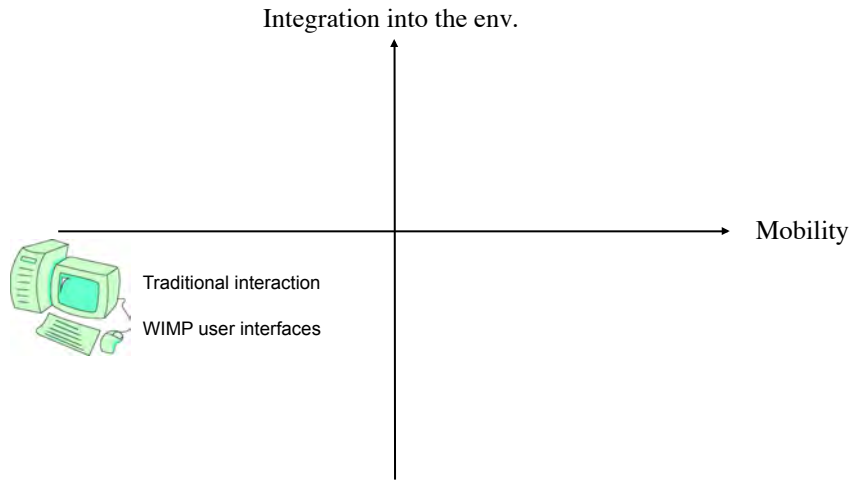# Pervasive/Ubiquitous computing and HCI
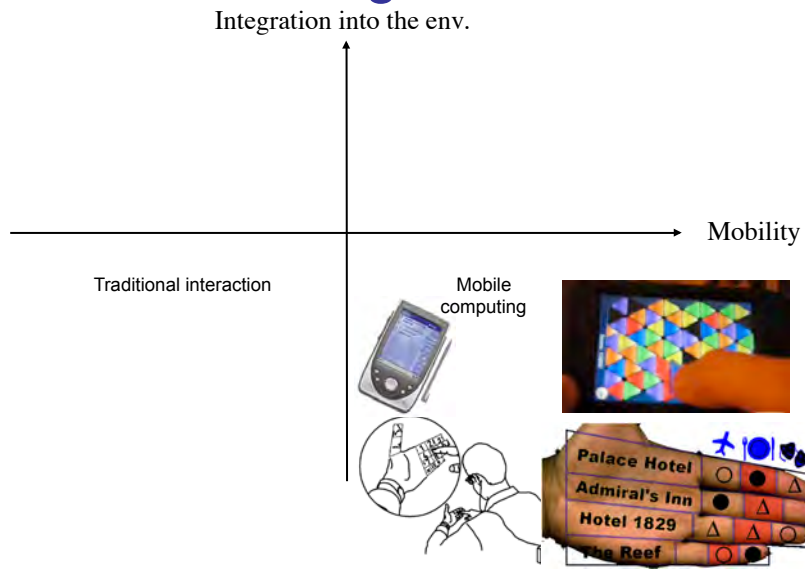

Pervasive/Ubiquitous computing
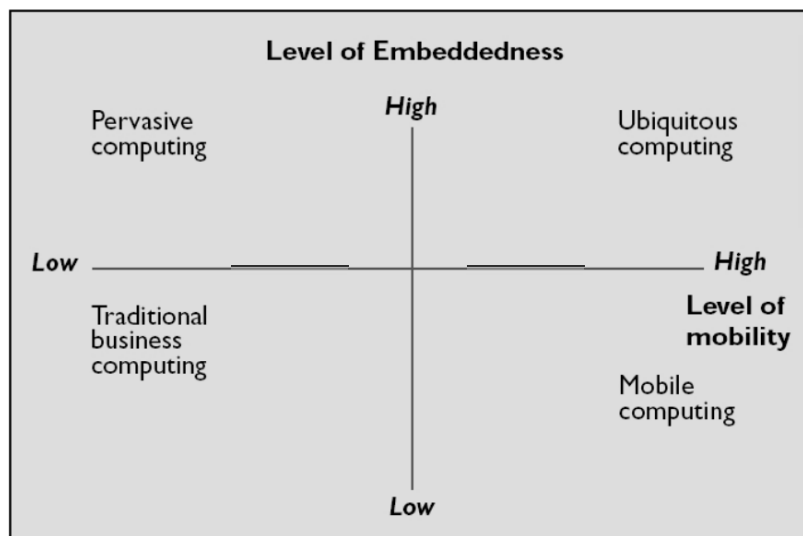
[Lyytinen & Yoo 2002]

New challenges for HCI

Integration into the env.
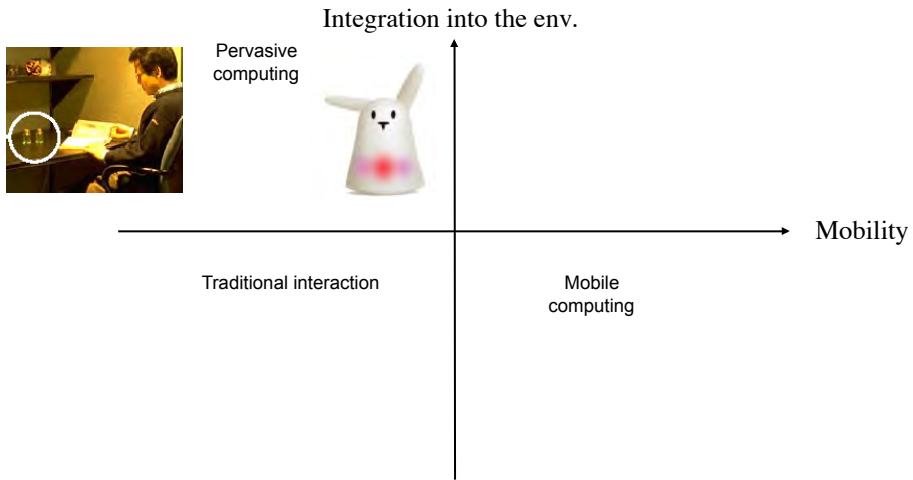
Mobility

Traditional interaction

WIMP user interfaces

[Lyytinen & Yoo 2002]

New challenges for HCI

Integration into the env.

Mobility

Traditional interaction

Mobile computing

Palace Hotel
Admiral's Inn
Hotel 1829
The Reef

New challenges for HCI

Integration into the env.

Pervasive computing

Traditional interaction

Mobile computing

Mobility

New challenges for HCI

Integration into the env.

Pervasive computing

Ubiquitous computing

Traditional interaction

Mobile computing

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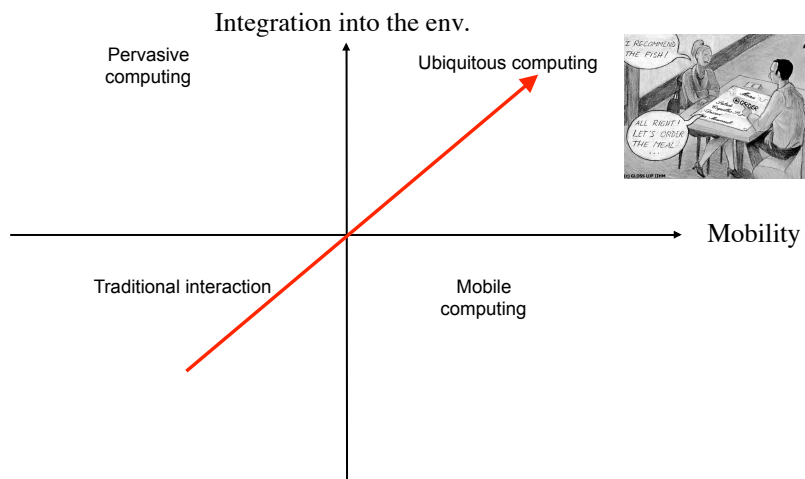
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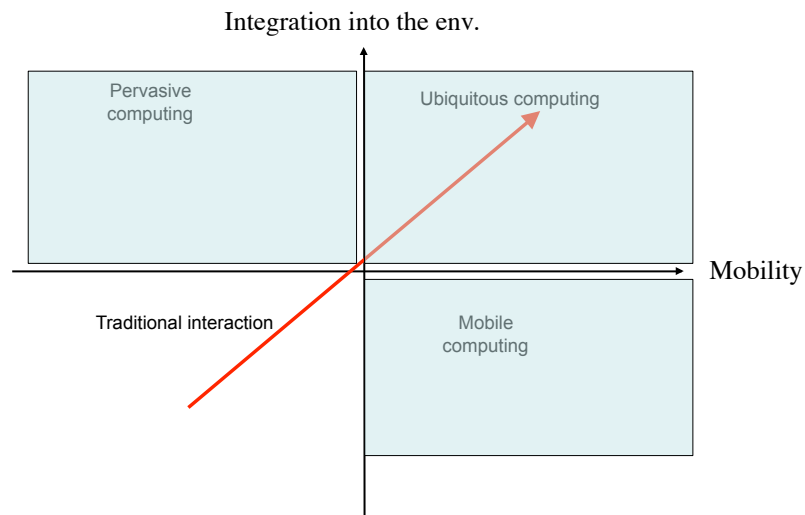

The Xerox Star
WIMP

AmbientSubway.mov
IN/OUT visible

Pervasive/Ubiquitous computing and HCI

- For addressing these challenges, the course will cover:
  - Interaction modalities and multimodal interaction

Modalities / Multimodality

Pervasive/Ubiquitous computing and HCI

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  - Interaction modalities and multimodal interaction
  - Mixed reality systems

Mixed reality systems

Integration into the env.

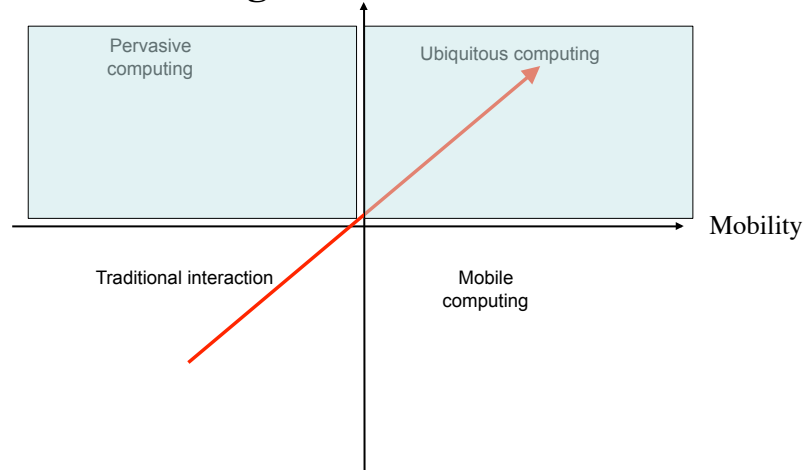|	Integration into the env.	
Pervasive computing		Ubiquitous computing
Traditional interaction	Mobility	Mobile computing

Pervasive/Ubiquitous computing and HCI

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  - Interaction modalities and multimodal interaction
  - Mixed reality systems
  - Pervasive collaborative systems

Pervasive collaborative systems

Integration into the env.

Multiple users

Pervasive computing

Ubiquitous computing

Traditional interaction

Mobile computing

Mobility

Ubiquitous will enable people to focus on their tasks and **on interacting with other people.**

Pervasive/Ubiquitous computing and HCI

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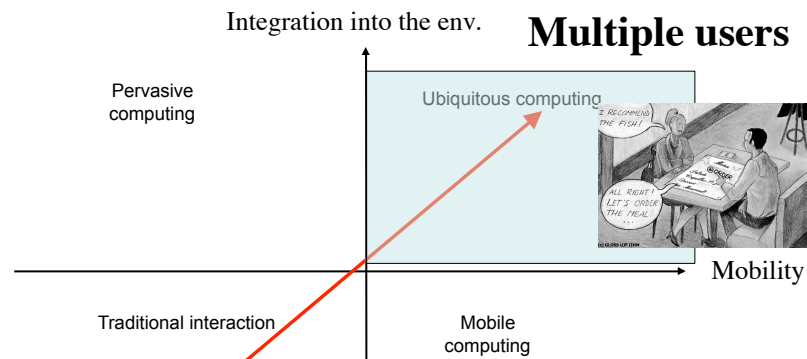 - Mixed reality systems
  - Pervasive collaborative systems

  - Each topic: 12 hours

Human-Computer Interaction

- ACM SIGCHI
- *Human-computer interaction is a discipline concerned with
  the design, evaluation and implementation
  of interactive computing systems
  for human use
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  the study of major phenomena surrounding
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Human-Computer Interaction

Context of use

Human Factors

Computer science
Device
Dialogue

Development process
Design method
Evaluation method

Readings

- Mark Weiser
  - M. Weiser, "The Computer for the 21st Century," Scientific American 265, No. 3, 94-104 (September 1991).
  - M. Weiser, "Some Computer Science Problems in Ubiquitous Computing," Communications of the ACM 36, No. 7, 74-83 (July 1993).
  - The origins of ubiquitous computing research at PARC in the late 1980s IBM SYSTEMS JOURNAL, VOL 38, NO 4, 1999
- [Lyytinen & Yoo 2002] Issues and Challenges in Ubiquitous Computing", in Communications of the ACM, December 2002, Vol. 45, No. 12
- ACM SIGCHI http://www.sigchi.org/
  - ACM SIGCHI Curricula for Human-Computer Interaction
  - http://old.sigchi.org/cdg/cdg2.html