


The University of Sydney  
ALERE FLAMMAM

# Aspects of Pervasive Computing Week 1: Introduction

Honours Subject (Sem2, 2003)  
School of Information Technologies

*Tue 10-12 : Carslaw 452*

1




The University of Sydney  
ALERE FLAMMAM

## Today's Lecture

- ◆ Administration
- ◆ Overview
- ◆ CRC-Smart Internet Technology
- ◆ Literature Survey

Aspects of Pervasive Computing © Josiah Poon, 2003


2

 The University of Sydney  
ALERE FLAMMAM

# Instructors

- ◆ Academic staff
  - Judy Kay
  - Bob Kummerfeld
  - Josiah Poon
  - Aaron Quigley
- ◆ *and YOU ...*

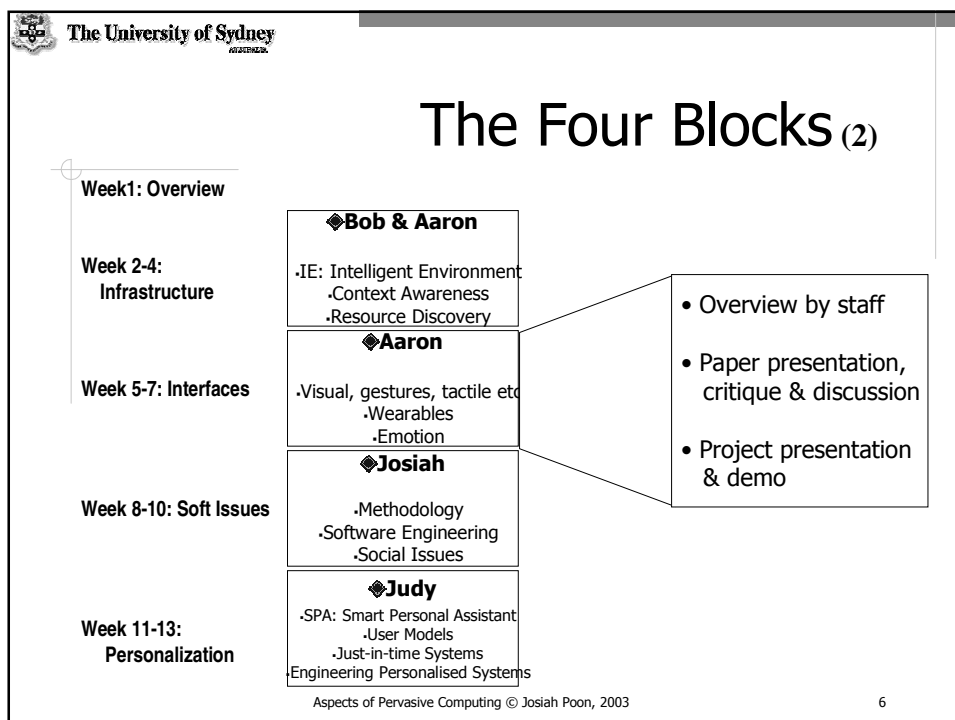
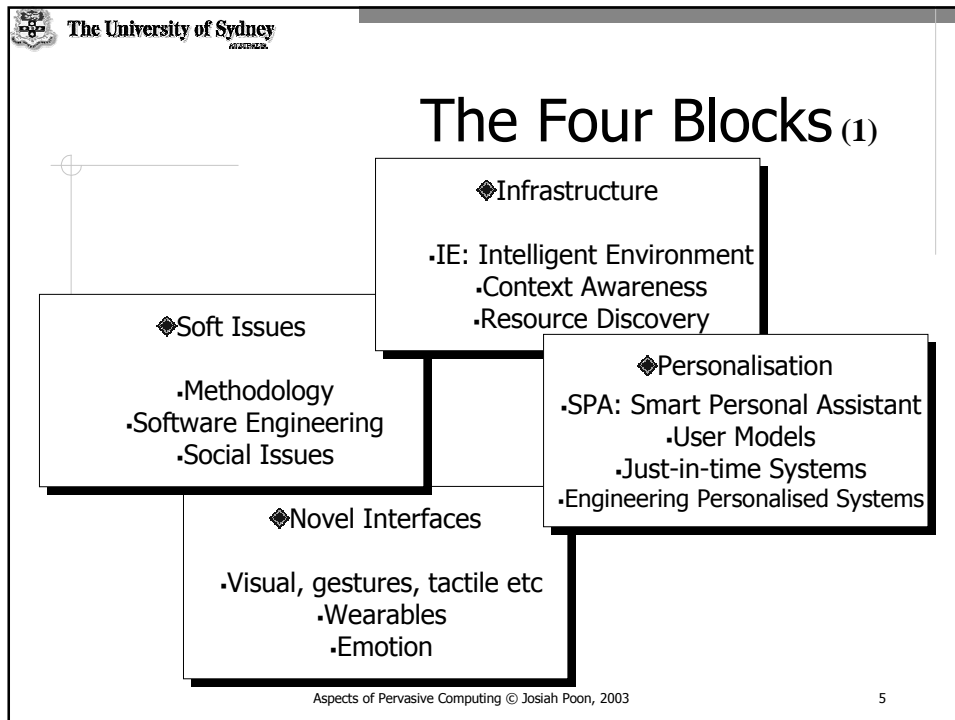
Aspects of Pervasive Computing © Josiah Poon, 2003 3

 The University of Sydney  
ALERE FLAMMAM

# Teaching Arrangements

- ◆ Block-mode
  - 4 blocks
  - Each block has a central theme
  - Each block span over 3 weeks
  - Each block consists of
    - ◆ Overview by staff
    - ◆ Paper presentation, critique & discussion led by students
    - ◆ Project discussion
    - ◆ Discussion on Assignment 2

Aspects of Pervasive Computing © Josiah Poon, 2003 4



The University of Sydney

## Assessment

<b>Literature Presentation</b>	
Presenter	9%
Commentator: Critique & Lead the discussion	6%
<b>Assignment 1: Team-Based Project</b>	
Project Proposal - Week4 (10%)	60%
Interim Report - Week 8	
10-page Conference Paper - Week 12 (30%)	
Final Presentation - Week 13 (10%)	
Poster - Week 13 (10%)	
<b>Assignment 2: Week14 - 6 Nov (Wed) 4pm</b>	
A Phd proposal in the area of Pervaise Computing which are of interests to the CRC-Smart Internet	25%
<b>Total</b>	<b>100%</b>

Aspects of Pervasive Computing © Josiah Poon, 2003

7


The University of Sydney

## Marking Criteria *for* Literature Presentation

- ◆ **Content – 60%**
  - Able to accurately report the content of the paper concerned
  - Able to highlight the core contributions
- ◆ **Additional Material – 25%**
  - Able to include additional material/information from the authors' other papers
- ◆ **Presentation Skill – 15%**
  - Quality of the slides
  - Able to draw the attention of the audience etc...


Aspects of Pervasive Computing © Josiah Poon, 2003

8

 The University of Sydney  
**Marking Criteria *for* Literature Critique**


- ◆ Critique – 60%
  - Extent – *on* scope, assumptions, limitations, experiments, discussion ...
  - Validity
  - Offering of alternatives
  - Materials used
- ◆ Presentation Skill – 25%
  - Quality of the slides
  - Able to draw the attention of the audience etc...
- ◆ Leading the Discussion – 15%

Aspects of Pervasive Computing © Josiah Poon, 2003 9

 The University of Sydney  
**Marking Criteria *for* Assignment 1**

- ◆ Project Proposal Presentation – 10%
  - Innovation
  - Relevance
  - Background study
- ◆ Interim Report
  - 2 pages.
  - No marks. But it is used to scale the 10-page conference paper.
- ◆ 10-page conference paper – 30%
  - Pretend you are asked to write up your project and submit to the Conf. of Pervasive Computing
  - Format:
- ◆ Final Demo & Presentation – 10%
- ◆ Poster – 10%


Aspects of Pervasive Computing © Josiah Poon, 2003 10

 The University of Sydney  
ALERE FLAMMAM

## Projects List *for* Assignment 1

- ◆ *Aaron*
  - user interfaces for invisible and embedded computing
  - software engineering principals for pervasive computing
  - nymity and the control of identity
- ◆ *Judy*
  - personalised system
  - Just-in-time system
- ◆ *Josiah*
  - control of slide presentation using speech & gesture
  - "Are you in office?" – a computer-supported awareness system

Aspects of Pervasive Computing © Josiah Poon, 2003 11

 The University of Sydney  
ALERE FLAMMAM

## Assignment 2

- ◆ A 10-page report describing a PhD proposal relevant to the CRC-Smart Internet.
- ◆ Including
  - Aims & Significance of the Project
  - Related Work
  - Methods & Techniques
  - Research Plan
  - Risk Analysis

Aspects of Pervasive Computing © Josiah Poon, 2003 12

The University of Sydney

## Marking Criteria *for* Assignment 2

Marks distribution	
Significance of the Project	10%
Critical analysis of the related work	30%
Methods & Techniques ( <i>novelty ...</i> )	50%
Clarity in Presentation	10%
<b>Total</b>	<b>100%</b>

Aspects of Pervasive Computing © Josiah Poon, 2003 13

The University of Sydney

## Names, names and names...

- ◆ Pervasive computing
- ◆ Ubiquitous computers
- ◆ Information appliances
- ◆ Invisible computing
- ◆ Wearables

Aspects of Pervasive Computing © Josiah Poon, 2003 14

The University of Sydney

## What is it about?

- ◆ Summarised to
  - Embeddedness
  - Connectivity
- ◆ Move from foreground to background
- ◆ Different UI required
  - Age of calm technology
    - ◆ relax the user but, by moving unneeded information to the edge of an interface, allow more information to exist there, ready for selection when needed
- ◆ Proactive
- ◆ Make use of contextual information
- ◆ Personalisation
- ◆ Wide range of computer science fields: networking, user interfaces, distributed systems, security, databases

15

Aspects of Pervasive Computing © Josiah Poon, 2003

The University of Sydney


## Issues and Enablers

The diagram features 'Pervasive Computing' at the center. Surrounding it are several key concepts and technologies:

- Internet Everywhere
- Interconnectedness
- Biometrics
- Awareness
- Privacy
- Information Exchange
- Multi-devices
- Management
- XML etc.
- Embedded Technology
- New User Interface
- Voice Recognition
- Haptic Interface

16


Aspects of Pervasive Computing © Josiah Poon, 2003

 The University of Sydney  
1828

## Example of Active Projects

- ◆ Project Oxygen (MIT)
- ◆ The Aware Home Project (Georgia Tech)
- ◆ CoolTown (HP)
- ◆ Intelligent Room (MIT – AI Group)
- ◆ Easy Living (Microsoft)
- ◆ Ambient Project (DSTC)


Aspects of Pervasive Computing © Josiah Poon, 2003 17

 The University of Sydney  
1828

## CRCSIT

- ◆ Cooperative Research Centre – Smart Internet Technology


Aspects of Pervasive Computing © Josiah Poon, 2003 18

 The University of Sydney  
ALERE FLAMMAM

## Doing the Literature Survey *(1 of 2)*

- ◆ Start with a few papers
- ◆ Work from the References
  - Identify more papers
  - Identify key players: people & research groups
- ◆ Using web
  - Search Engines
  - CiteSeers
  - ACM Digital Library
  - IEEE
- ◆ Using library


Aspects of Pervasive Computing © Josiah Poon, 2003 19

 The University of Sydney  
ALERE FLAMMAM

## Doing the Literature Survey *(2 of 2)*

- ◆ Asking
  - Newsgroups
  - Key people
- ◆ Journals, conferences, technical reports
  - Working from the existing papers again


Aspects of Pervasive Computing © Josiah Poon, 2003 20

 The University of Sydney  
ALERE FLAMMAM

## What to do with the papers?

- ◆ Read (of course)
- ◆ Note what they have done → *strength*
- ◆ Find the gap → *weakness*
  - Note the explicit constraints & scope of projects
  - Identify implicit assumptions,
    - ◆ e.g. certain domains, systems, specific type of data ...
  - How did the authors evaluate their system?
    - ◆ Appropriate? Enough? Valid? Correct interpretation?
- ◆ Summarise the gaps
  - That is where you can contribute
  - Identify a subset of gaps where you will work on

Aspects of Pervasive Computing © Josiah Poon, 2003 21

 The University of Sydney  
ALERE FLAMMAM

## Some Good Reading

- ◆ Mark Weiser, **The Computer for the Twenty-First Century**, *Scientific American*, pp. 94-10, September 1991 ([html](#))
- ◆ **Towards a Better Understanding of Context and Context-Awareness** ([abstract](#), [pdf](#), [postscript](#))  
Anind K. Dey and Gregory D. Abowd.  
In the Workshop on The What, Who, Where, When, and How of Context-Awareness, as part of the *2000 Conference on Human Factors in Computing Systems (CHI 2000)*, The Hague, The Netherlands, April 3, 2000. Also GVU Technical Report GIT-GVU-99-22. Submitted to the 1st International Symposium on Handheld and Ubiquitous Computing (HUC '99), June 1999.
- ◆ Greenberg, S. (2001). **Context as a Dynamic Construct**. *Human-Computer Interaction*, 16. ([html](#))
- ◆ Albrecht Schmidt. **Implicit Human Computer Interaction Through Context**. *Personal Technologies* Volume 4(2&3), June 2000. pp191-199. ([draft as PDF](#), [abstract](#))

Aspects of Pervasive Computing © Josiah Poon, 2003 22