

# Lecture

# Pervasive Computing

## Chapter 0: Organization

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# Lecture: Pervasive Computing

- Aims of the lecture
  - Provide an introduction to the innovative topics of pervasive computing
  - Focus on technological aspects
  - Discuss applications and “non-technical” issues
- Curricula
  - Information and Communications Engineering  
Catalogues: „NC Advanced“ and „ICE Supplement“
  - Robotics & Artificial Intelligence: specialization topic
- Teaching method
  - Lecture
  - Student presentations
  - Accompanied by a lab course

# Lecture: Pervasive Computing

- Related master lectures (selected)
  - Sensor Networks (incl. lab)
  - Wireless Networks
  - Network Simulation Lab
- Prerequisites/recommended bachelor courses
  - Computer Organization
  - Computer Networks
  - Programming

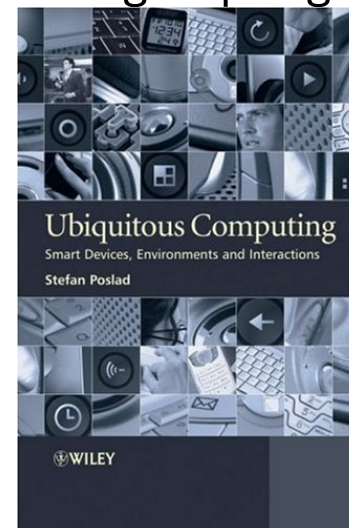
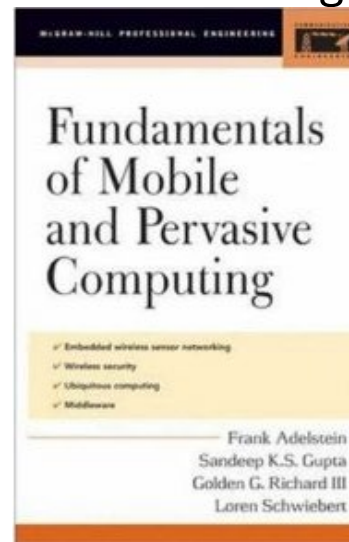
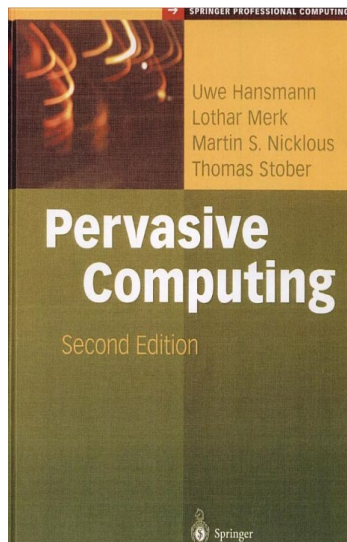
# Outline

1. Introduction & Motivation
2. Trends and Enabling Technologies
3. Wireless Personal Networking
4. Localization
5. Identification
6. Context-Awareness
7. Sensor Networks
8. Wearable Computing
9. Cooperation
10. Middleware Systems
11. Presence and Future (non-technical issues)

- Course web site: [https://bernhardrinner.com/?page\\_id=6138](https://bernhardrinner.com/?page_id=6138)
  - Lecture slides
  - Auxiliary material (papers, links etc.)
  - Self evaluation and sample exam
  - Most documents are password-protected
- Schedule
  - Two teaching units per week
  - Check AAU Campus site for details on schedule and rooms
- Virtual classroom: <https://classroom.aau.at/b/bri-foe-xpz-npj>
  - Recordings of lecture

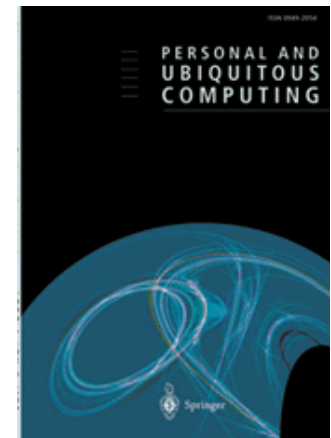
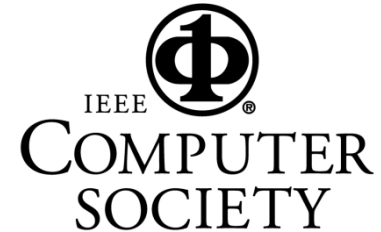
- Books

- Hansmann et al. “Pervasive Computing”, Springer, 2003
- Adelstein et al. “Fundamentals of Mobile and Pervasive Computing”, McGraw-Hill, 2005
- Poslad. “Ubiquitous Computing”, Wiley 2009
- Mattern. “Die Informatisierung des Alltags. Springer 2007



# Research Literature

- Journals/Magazines
  - IEEE Pervasive Computing
  - IEEE Transactions on Mobile Computing
  - Personal and Ubiquitous Computing (Springer)
- Conferences
  - Intern. Conference on Ubiquitous Computing
  - Intern. Conference on Pervasive Computing
  - IEEE Intern. Conf. on Pervasive Computing and Communication (Percom)



# Case Study Presentations

- Presentation **by students**
  - Teams of 2
  - 15 minutes total presentation time (including discussion)
  - Provide summary (3-4 pages) and presentation slides
- Selection of topics
  - Topics will be announced on November 7, 2024
  - Topic selection until November 14, 2024
  - **First come, first served**
  - Open for **your topic proposals** (via e-mail)
  - Planned day for presentations: January 2025
  - Dates will be chosen by the lecturer depending on the topic



# Case Study Presentations

- For each topic you will get a scientific paper or some other description **as a starting point**
  - Additional research via, e.g., IEEE Xplore, ACM, Google Scholar, ... (don't use Wikipedia as a primary source)
- Presentation is **mandatory**
  - Accounts for the overall grading
  - Final exam needs to be passed
- Presented topics are **relevant for exam** (for others)
  - Summaries and presentation slides are made available on course site

# Examination

- Grading composed by two components
  - Presentation of the assigned/approved topic
  - Oral exam at end of semester
- Oral exam (approx. 20 minutes)
  - Can only be taken, if student has successfully presented the assigned topic in that semester
  - Answers either in English or German possible
  - Date: Feb 6, 2025 at 9am
- Overall grade composed of student presentations (25 %) and oral exam (75 %)

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