

Course: Seminar in Pervasive Computing
Topic: Gaze-Based Interaction
Type: SE
Lecturer: Ferscha
Hours/week: 2
Audience: Students of computer science / AI, master programme
Language: Seminar, presentations and written papers all in English
Introduction: Goals, schedule and practicalities shared at the first meeting
Content: This seminar will investigate the potential of eye tracking for selecting objects in the immediate surroundings and the design of appropriate vibro-tactile feedback delivered by a smart watch. Being able to engage with objects at a distance - just by looking at them - could enable effortless human-machine interaction and could provide various benefits. With the help of a mobile eye tracker, the user should be able to point/select 5 different objects using gaze (e.g., vacuum cleaner, lamp, thermostat, oven, air conditioner). For that purpose, Pupil Labs eye trackers and Motorola smart watches will be provided by the institute.



Deliverables: The seminar participants (in groups or alone, depending on the number of participants) will have to accomplish the following deliverables:

- Study relevant papers on the topic (Related Work)
- Initial report presentation (Concepts, Progress, Goals)
- Hardware/Design Prototype
- Small-scale user experiment (Data collection)
- Data analysis and interpretation (Methods selection)
- Discussion of results
- Final Presentation (Results; Problems; Achieved goals; Discussion)
- Written Summary (Scientific paper)

Schedule: The seminar will be held in blocks (at fixed dates, not periodically). The dates following the introduction will be discussed at the first meeting. Participation is mandatory.

Prerequisites: For a sufficient understanding of the discussed topics we recommend, apart from a completed bachelor program, the successful completion of the lectures "Embedded and Pervasive Systems", and Pervasive Computing: "Systems & Environments" and "Design & Development"

Literature: Further literature (reference publications) will be provided to participants in the supplement section of this lecture.