Haptic User Interfaces
TIEVS56 (5–10 ECTS)

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Teachers

- **Roope Raisamo, professor**
  - Lectures, course papers, general course administration
  - Room Pinni B2004
  - Email: roope.raisamo@sis.uta.fi

- **Jussi Rantala, post-doctoral researcher**
  - Weekly exercises
  - Room TietoPinni B0110
  - Email: jussi.e.rantala@sis.uta.fi
Objectives

- The course aims at giving a comprehensive overview of the research and practice on haptics
  - After this course the student knows of potentials and limits of the haptic modality and how it can be applied in both unimodal and multimodal contexts

- The content is multidisciplinary involving psychology, physiology, software engineering and hardware engineering

- For the first time, HUI 2016 has hands-on exercises every week to get to experience haptics first-hand
Previous studies

- **Required skills**
  - Basics of human-computer interaction (for example, course Introduction to User Interfaces)
  - Good command of English
  - Completing an optional course paper requires academic writing skills (for example, courses Scientific Writing or Tutkielmakurssi), a thorough literature search is expected to be carried out by the students

- **Additional guidance is available when needed**
Teaching and other forms of work

**Lectures** 12.1.-16.2. (12 hours)

Tuesdays at 14-16 in Pinni B4113

**Exercises** 13.1.-18.2. (12 hours, 2 groups)

Wednesdays at 12-14 in Pinni B0016

Thursdays at 12-14 in Pinni B0016

**Exam** primary 23.2., alternative to be announced

**Paper or a project** finished by 31.5.2016

- requirement for 10 ECTS
Course requirements

• For 5 ECTS:
  - Exam (24 points)
  - Exercise groups (max. 6 points)
  - Graded after the exam

• For 10 ECTS:
  - Exam (24 points)
  - Exercise groups (max. 6 points)
  - Paper or project (20 points)
  - Graded after returning the paper or project in time
Weekly exercises

• The goal is to provide hands-on access to haptic interaction
  - Please bring your own laptop if possible

• Starting from week 2, there will be reading tasks that should be completed before attending a group

• Participation in weekly exercises will be rewarded with points:
  - Completing a reading task & participating in a group: 1 point per week
  - Only participating in a group: ½ point per week
Course papers (optional for 10 ECTS)

• A scientific paper on a topic related to haptic user interfaces
  - The topic must be approved by the teachers
  - You need to send your topic suggestion to hui@sis.uta.fi
    by the end of the lecture period (16.2.2016)

• The formatting of papers must follow the Master’s thesis template:
  - Deadline for the final papers is May 31st, 2016
Examples of possible paper topics

- A review of a certain type of haptic applications
- Haptics used together with another modality
- Designing a haptic interface
- A survey of haptic technologies applied in a certain use
- Force feedback in simulations of some phenomena
- Tactile feedback as a communication medium
- ...

When you have an idea of your paper topic, for example, based on a lecture, please let us know!
Project (alternative for 10 ECTS)

- An alternative way to get 10 ECTS is to design and implement a haptic interaction technique using the knowledge gained during the course lectures and exercise groups.
- The implementation can focus, for example, on providing haptic notifications, guidance information, touchscreen feedback, interpersonal messages, or alerts.
- The implementation must also be documented according to the Course paper instructions above. Five pages of text is enough for documenting the implementation.
- The student is responsible for getting familiar with the programming methods needed for the implementation. This option is only for students who are skilled in programming.
Schedule of the lectures

(subject to change)

12.1.   Practical issues of the course
        Introduction to haptics, multimodal and
        crossmodal interaction

19.1.   The physiology of touch, tactile sensing

26.1.   Tactile feedback applications

2.2.    Mobile and ubiquitous haptics

9.2.    Proprioception, force sensing and control

16.2.   Force feedback applications & the next
        steps in the course
Practical issues

• The latest information of the course is available through the website: http://www.uta.fi/sis/tie/hui/
  - Slides will be added to the web pages before each lecture

• Email announcements will be sent via email in case some changes occur

• When sending email to the teachers, please use the course address hui@sis.uta.fi
Questions?

You can also send email to hui@sis.uta.fi