“00 Lecture Organization”
Principles of Interaction >> General Information

- **Lecturer (contact)**
  - For both lecture (340.300) and exercise group G1 (340.301)
  - Instructor: Priv.-Doz. Dipl.-Ing. Dr. Andreas Riener (Postdoctoral research fellow, Lecturer)
  - Address: Johannes Kepler University Linz
  - Institute for Pervasive Computing
  - Altenberger Straße 69
  - Science Park III, 6th floor, S3 0607
  - A-4040 Linz
  - Phone: +43-732-2468-4773
  - Email: riener@pervasive.jku.at
  - WWW: http://www.pervasive.jku.at/About_Us/Staff/Riener/
  - Office hours: on appointment (Email, Phone)
User Centered Design, Human Factors

- **Automotive UIs** (Implicit interaction, attention management, perception extension, mental state analysis, etc.)
- **Collective/cooperative systems** (Global optimization, Incentive-driven behavior change, etc.)

### Embedded intelligence (in pervasive and cyber-physical systems)
- Miniaturized devices
- Sensor/actuator couplings
- System integration (sensors, actuators, communication)
- SW/HW co-evolution
- Advanced sensor technologies
- Implicit and noninvasive UIs
- Processing power issues
- Communication protocols
- Real-time constraints (e.g., in automotive settings)
- Context-sensitive systems

### Perception
- Machine detection/understanding of human activities, behavior, reactions
- Sensing and interpreting of physiological measures
- Internal representations (models) of the human individual
- Human understanding of machines
- “Simplicity” of interaction
- Proactive reasoning and “targeted” reaction
- Appl. of natural user interfaces (NUIs)
- New forms of feedback (gestures, body poses, face/gaze tracking, etc.)
- Ethical and cultural issues
- Human factors (age, gender, culture, religion, experience, preferences)

### Software development
- Software quality (document.)
- Code and runtime efficiency
- Load balancing
- Real time behavior
- Safe software
- Reliability analysis
- Backtracking/error recovery
- P2P computing
- Self*-capabilities
- Location-aware systems
- Modeling/simulation

### Projects and research visits

- **Siemens FACT** (2007-2009)
  - Context sensitive & energy aware systems, Smart city architectures, HMI
- **Siemens APS** (2005-2007)
  - P2P, self* capabilities, sensor/actuator technologies
- **SOCIONICAL** (2009-2013; FP7, FET 8.4)
  - Agent-based models (ABM), socio-technical/embedded systems, traffic simulation
- **AutoUI (09-15)**
  - Driver-vehicle UIs, HMI, social-inspired approaches, quality of UIs
- **Visit @MTU (2013)**
  - Human factors, physiology, cognitive and affective aspects
- **Visit @UMTRI (‘15):**
  - Standardization of studies, processes; simulation, driver workload reduction

### Human-machine integration (focus: emotion & cognition)
- User centered design (UCD)
  - Human factors/ergonomics
  - User interface design
  - Human centered design
  - Participatory design
  - Interaction design
- Guidelines and principles
  - Shneiderman’s 8 Rules
  - Norman’s 7 Principles
  - Nielsen’s 10 Usability Heuristics
  - Theories/Models: Fitt’s law, Hick’s law, GOMS, KLM, etc.
- Standards/Norms
  - ISO 9001 (8.2.1 customer satisfaction)
  - ISO 9241 (ergonomics of HMI incl. haptics)
  - ISO 10075 (mental load principles)
  - ISO 159 (ergonomics in industrial design)

### Work experience (1998-2004)
- **LTS**: Training
- **RACON**: PL/I
- **LKUF**: Networks
- **SIEMENS**: C++, riatech: Req. A.
- **RIPE Hagenb. (2006-2009)**
  - I/O coupling, lab/field studies, transport technologies

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JKU Linz // Principles of Interaction // March 6, 2015 // Slide 3

A. Riener
Principles of Interaction >> General Information

Course characteristics

- Lecture plus accompanied exercise
  - Lecture 340.300 Principles of Interaction (2 SWS, 3.0 ECTS) (corresponding: VO Unconventional User Interaction)
  - Exercise 340.301 Principles of Interaction (1 SWS, 1.5 ECTS) (corresponding: UE Unconventional User Interaction)

- Education level
  - Master's program CS, major subject „Pervasive Computing“ (1st year, 2nd semester)
  - Mandatory course
  - Prerequisites: -
  - Frequency: Anually, summer term; (blocked course; this year mistakenly announced as weekly lecture; details later)

- Detailed information
  - Course website
    https://www.pervasive.jku.at/Teaching/lvaInfo.php?key=459
  - CEUS (Study guide of JKU Linz)
    https://lss.jku.at/studienhandbuch/32252 (lecture)
    https://lss.jku.at/studienhandbuch/32251 (exercise)
Principles of Interaction >> General Information

Course characteristics

- **Main objectives**
  - Learn and self-define „Human-Computer Interaction“ (HCI).
  - Understand the HCI domain and learn about its constructs, theory, people, methodologies, and applications.
  - Evaluate critically related articles and interactive products in real life.
  - Experience the interaction design life cycle as an individual and within a team by (re)designing human-machine systems based on user-centered design principles.
  - Get some sense of HCI practice in industry.

- **Primary literature**
Principles of Interaction >> General Information

Course modalities

- **Lecture**
  - No compulsory attendance (but highly recommended!)
  - Schedule: see later
  - PDF Slides and other material (readings) will be provided online [https://www.pervasive.jku.at/Teaching/lvaInfo.php?key=459&do=material](https://www.pervasive.jku.at/Teaching/lvaInfo.php?key=459&do=material)

- **Lecture exam**
  - Written exam (closed book) at the end of the semester
    - Proposed date: Fr, May 22, 2015; 10:15-11:45, HS ? (90min. time)
  - Grading scheme

<table>
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<tr>
<th>Number grade</th>
<th>Points (from-to)</th>
<th>Rating</th>
</tr>
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<td>79-90</td>
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<td>2</td>
<td>68-78</td>
<td>“Gut”</td>
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<td>3</td>
<td>56-67</td>
<td>“Befriedigend”</td>
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<td>4</td>
<td>45-55</td>
<td>“Genügend”</td>
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<tr>
<td>5</td>
<td>0-44</td>
<td>“Nicht genügend”</td>
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Principles of Interaction >> Course Schedule (as of March 6, 2015)

Course organization
  ▪ Regular, weekly course
    • Lecture (weekly until **June 19, 2015**)
      - March 6 – June 26, 2015
      - Every Friday, 10:15 – 11:45 (2h/week)
      - Seminar room MT132
    • Exercises
      - March 6 – June 19, 2015
      - Every Friday, 12:00 – 12:45 (after lecture, 15min. break before)
      - Some additional dates (project meeting and presentations, etc.)
      - Seminar room S2 053
  ▪ For details, room changes on short notice, etc. please check the KUSSS system and/or the course webpage
## Course Schedule (as of March 6, 2015)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>No.</th>
<th>Time</th>
<th>Who</th>
<th>Content</th>
<th>Comments</th>
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<tr>
<td>KW10</td>
<td>March 6, 2015</td>
<td>1</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Introduction &amp; Motivation I (+lecture org.)</td>
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<tr>
<td>KW11</td>
<td>March 13, 2015</td>
<td>2</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Introduction &amp; Motivation II</td>
<td></td>
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<td>KW12</td>
<td>March 20, 2015</td>
<td>3</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Analysis I (ideation and creativity methods)</td>
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<td>KW13</td>
<td>March 27, 2015</td>
<td>4</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Analysis II (user requirements and use cases)</td>
<td></td>
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<tr>
<td>KW14</td>
<td>April 3, 2015</td>
<td>5</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Implementation I (human information proc.)</td>
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<td>6</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Design I (getting the design right)</td>
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<td>7</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Design II (prototyping techniques)</td>
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<td>KW15</td>
<td>April 10, 2015</td>
<td>8</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Deployment I (users study)</td>
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<td>KW16</td>
<td>April 17, 2015</td>
<td>9</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Deployment II (questionnaires and scales)</td>
<td></td>
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<tr>
<td>KW21</td>
<td>May 5, 2015</td>
<td>10</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Bridging day (Feast of Corpus Christi)</td>
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<tr>
<td>KW22</td>
<td>May 12, 2015</td>
<td>11</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Deployment III (statistical testing)</td>
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<tr>
<td>KW23</td>
<td>May 19, 2015</td>
<td>12</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Focus topic: Automotive human factors &amp; UI</td>
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<tr>
<td>KW24</td>
<td>May 26, 2015</td>
<td>13</td>
<td>10:15-11:45</td>
<td>AR</td>
<td>Lecture exam, 340.300 (90 minutes)</td>
<td>HS x?</td>
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<td>Lecture exam, resit 340.300 (90 minutes)</td>
<td>HS y?</td>
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<td>KW25</td>
<td>June 2, 2015</td>
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<td>Homework (technology)</td>
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<td>KW26</td>
<td>June 9, 2015</td>
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<td>Paper proposal</td>
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<td>Paper presentation</td>
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<tr>
<td>KW27</td>
<td>June 16, 2015</td>
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<td>Paper presentation</td>
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<td>KW28</td>
<td>July 4, 2015</td>
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<td></td>
<td>Paper presentation</td>
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</table>

### Problem 1: Two bridging days during the semester: May 15, June 5
- Lecture+exercise on May 15

### Problem 2: Lecture+exercise run until the end of the semester
- No reserve unit
- Exam date: June 26, 2015

### Problem 3: Lecture schedule affect exercises; concepts required in the exercises (group project) are taught only end of May...
- Will delay the progress in the project...
- Hard to complete it by end of June
Course organization – proposed change

- Blocked course
  - Lecture (weekly until **May 8, 2015**)
    - March 6 – May 8, 2015
    - Every Friday, 10:15 – 11:45, 12:45 – 14:15 (4h/week)
    - Seminar room: Needs reorg.!
  - Exercises
    - March 6 – end of June, 2015
    - Fridays, (12:00 – 12:45 or) 14:30 – 15:15 (after lecture, 15min. break before)
    - Only some specific dates (begin of the semester weekly, later sporadically!)
    - Please be aware of particular dates and changing rooms
    - Seminar room: Needs reorg.!
- For details, room changes on short notice, etc. please check the KUSSS system and/or the course webpage
## Course Schedule (as of March 6, 2015)

### Advantage 1: Lecture finished already start of May

KW10 - March 6, 2015
1. 10:15-11:45 AM: AR - Introduction & Motivation I (+lecture org.)

KW11 - March 13, 2015
2. 10:15-11:45 AM: AR - Introduction & Motivation II

KW12 - March 20, 2015
3. 10:15-11:45 AM: AR - Analysis I (ideation and creativity methods)
4. 12:45-14:15 PM: AR - Analysis II (user requirements and use cases)

KW13 - March 27, 2015
5. 10:15-11:45 AM: AR - Design I (getting the design right)
6. 12:45-14:15 PM: AR - Design II (prototyping techniques)

KW14 - April 3, 2015
NO CLASSES - Easter holidays (30.03.2015 – 11.04.2015)

KW15 - April 10, 2015

KW16 - April 17, 2015
7. 10:15-11:45 AM: MK - Implementation I (human information proc.)
8. 12:45-14:15 PM: MK - Implementation II (design guidelines)

KW17 - April 24, 2015
9. 10:15-11:45 AM: AR - Deployment I (user studies)
10. 12:45-14:15 PM: AR - Deployment II (questionnaires and scales)

KW18 - May 1, 2015
NO CLASSES – International worker’s day

KW19 - May 8, 2015
11. 10:15-11:45 AM: AR - Deployment III (statistical testing)
12. 12:45-14:15 PM: AR - Focus topic: Automotive human factors & UI

KW20 - May 15, 2015
- - - Bridging day (Ascension Thursday)

KW21 - May 22, 2015
- 10:15-11:45 AM: AR - Reserve
- 12:45-14:15 PM: AR - Reserve

KW22 - May 29, 2015
13. 10:15-11:45 AM: AR - Lecture exam, 340.300 (90 minutes) HS x?

### Advantage 2: Exam offside exam weeks
Course organization – proposed change

- Reorganization as discussed today (March 6) will take some time to be effective in KUSSS, etc. (rebooking of seminar rooms, etc.)
- Schedule for next Friday, March 13, 2015
  - Lecture: 10:15 – 11:45,
  - Exercise: 12:00 – 12:45
As of today, more than 30% of students (exercise) have no user account!

Electronic assignment delivery and submission system
Requirements

- To access the password secured area of our institute’s website, it is required to create a user account first.
  - Browse to: http://www.pervasive.jku.at

Select „Login“ to create a new user account
Principles of Interaction >> Assignment Delivery and Submission

Requirements

- To access the password secured area of our institute’s website, it is required to create a user account first.

  - Browse to: http://www.pervasive.jku.at

You have already an account? No problem, you can reuse it!

Click here to register a new account…
Principles of Interaction >> Assignment Delivery and Submission

Requirements

- To access the password secured area of our institute’s website, it is required to create a user account first.
  - Browse to: http://www.pervasive.jku.at

It is mandatory to provide a valid Email address here!

Please use here your actual name!

Exercise delivery and submission only with your valid student ID (“Matr.Nr.”) and program code (“SKZ”)
Requirements

- To access the password secured area of our institute’s website, it is required to create a user account first.
  - Browse to: http://www.pervasive.jku.at

- Once your account is created and unlocked you may
  - Access all the lecture and exercise material
  - Download assignments
  - Upload your solutions
  - Check the grades for your handed-in assignments
  - Compose articles in the related forum

- **You have already an account from previous classes** (Algo I/II, Embedded and Pervasive Systems, etc.) ?
  - No problem, you can simply reuse it!
Principles of Interaction >> Assignment Delivery and Submission

Different views
- Guest (no login, no course participant)
Principles of Interaction >> Assignment Delivery and Submission

Different views
- Registered course participants (Exercise view)
Principles of Interaction >> Assignment Delivery and Submission

Different views

- Registered course participants (Exercise view)

Assignment to download
Upload your solution here. You can overwrite existing files by re-uploading.
Finalized assignment incl. correction (by TA) and grading (17/20 max. points)
Total points so far…
Principles of Interaction >> Assignment Delivery and Submission

Different views
- Registered course participants (Exercise view)

- Upload/delete/overwrite assignments (before due date)
- Due date of assignments may overlap!
Principles of Interaction >> Assignment Delivery and Submission

Different views

- Guest (no login, no course participant)

New button “Exercises” - access assignments (upload, download, view grades)
“00 Lecture Organization”

March 6, 2015

JKU Linz