

Overview

Jörg Cassens

Contextualized Computing and Ambient Intelligent Systems



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1 Welcome

Me

- Jörg Cassens
 - Institut für Mathematik und Angewandte Informatik
 - cassens@cs.uni-hildesheim.de
 - +49 (5121) 883-40182
 - Building Samelsonplatz, Office A 115
- My Background
 - Media Informatics = Human-Centred Computing + Human-Computer Interaction + Artificial Intelligence + Digital Media + Transdisciplinarity + ...
- Deutsch oder English
 - German: Du oder Sie
- Office Hours
 - Mondays, 16:00-17:00

2 Rules & Regulations

2.1 Workload

Workload

- 3 SWS
 - 2 hours lecture
 - 1 hour tutorial
- 5 ECTS
- 125 hours
 - 45 hours lectures and tutorials
 - 80 hours self-study
- Written exam

Course Meetings

- *Monday, 13:30-16:00 lecture/tutorial (incl. short break)*
 - Expect changes because of scheduling conflicts, updates will be given as a learnweb posting.
- Samelsonplatz A 102
- No course on several days
 - 21.05.: Whit Monday/project week
 - 09.07.: (Leave of absence)
- Exam dates
 - First exam: Wednesday, 25.07., 14:00-16:00 *or*
 - First exam: Wednesday, 01.08., 14:00-16:00
 - Second exam: Wednesday, 27.09., 14:00-16:00

2.2 Course Format

Course Format

- The proportion of lectures and tutorials & question times will be 2 to 1 over the course of the semester
- However, that does not mean there will be a strict division
- Tutorials will be done when it fits the course
- I am not the only one to talk during lectures
- At the same time, I would like to talk during tutorials, too
- There will be required readings
 - Announced in lecture and learnweb
 - Available in learnweb
 - Discussed in tutorials
- This course is structured around attendance of the course
- However, I do not have attendance lists

Feedback

Agility

This is the first time this course will be given. Expect hiccups.

Constant feedback is explicitly welcomed. Tell me what you like or dislike, and which topics you are particularly interested in. I might be able to devote more time to those.

You never have as much influence on course development than when a course is given for the first time.

Just quitting the course does help neither you nor me, therefore, I ask you to tell me about any problems with the course immediately (if needed anonymously).

2.3 Learning Outcomes

Lernziele

Aus dem Modulhandbuch:

Die Studierenden lernen in diesem Modul verschiedene *Prinzipien, Methoden und Verfahren* für die Entwicklung kontextualisierter und ambient intelligenter Systeme kennen. *Kontextualisierte Anwendungssysteme* nehmen Kontextparameter wie den Ort, die Zeit, anwesende Personen und ähnliches in Betracht. *Ambient intelligente Systeme* treten in den Hintergrund und werden Teil der Umgebung. Aufbauend auf psychologischen und semiotischen Grundlagen wird erläutert, wie Kontextparameter analysiert und modelliert werden können. Verschiedene Methoden und Verfahren der Verarbeitung von Kontextparametern werden vorgestellt. Weiterhin werden Herausforderungen bei der Entwicklung ambienter Systeme sowie Verfahren und Technologien zu deren Realisierung dargestellt.

Lehrinhalte

Aus dem Modulhandbuch:

- Psychologische Grundlagen
- Semiotische Grundlagen
- Erfassung von Kontextparametern
- Modellierung von Kontextparametern
- Reasoning mit und über Kontext
- Herausforderungen ambienter Systeme
- Architekturen ambient intelligenter Systeme

Learning Outcomes

From the course catalog:

In this module, students learn to know different *principles, methods, and processes* for the development of contextualized and ambient intelligent systems. *Contextualized applications* take context parameters, such as location, time, persons present, into account. *Ambient intelligent systems* are ubiquitous and pervasive and become part of the environment. Starting from cognitive and semiotic principles, it is discussed how contextual parameters can be analyzed and modeled. Different methods and tools for context reasoning are examined. Furthermore, challenges for the development of ambient systems are outlined and technologies for their implementation presented.

Course Content

From the course catalog:

- Cognitive foundations
- Semiotic foundations
- Elicitation of context parameters
- Modeling context parameters
- Reasoning with and about context
- Challenges for ambient systems
- Architectures for ambient intelligent systems

2.4 Credits

Credits

- **WINF (PO \leq 2011):** Veranstaltungen Master, entweder
 - Gebiete der Informatik, Gebiet Algorithmen
 - Wahlbereich, Gebiet Medieninformatik
- **WINF (PO \geq 2014):** Veranstaltungen Master
 - Spezialisierungs- und Vertiefungsmodule – Business Intelligence
- **IMIT (PO \leq 2011):** Veranstaltungen Master
 - Gebiete der Informatik – Gebiet Medieninformatik
 - Gebiete der Informatik – Gebiet Algorithmen
- **IMIT, AI (PO \geq 2014):** Veranstaltungen Master
 - Wahlmodule – Informatik – Gebiet Medieninformatik
- **Data Analytics:**
 - Elective – Application – Media Systems
- **Andere:** Maßgabe des zuständigen Prüfungsausschusses

Exam

- **Passing the final exam**
- There will be two exams, one at the beginning of autumn break and one at the end
 - See course announcements and LSF for exact dates
- Content of exam
 - Lecture content as covered in the slides and handouts
 - Lecture content as covered in the required reading
 - Tutorial content as covered in the assignments

Assignments

- There will be no compulsory assignments
 - Content of assignments relevant for exam
- However, you might want to submit some assignments
 - Submitted via the learnweb or presented in class
- Learnweb-submissions are usually to be in PDF-format
 - txt is OK for text only or code
 - SVG, PNG and JPG is OK for images
 - mp3, wav and ogg is OK for audio
 - mp4 is OK for video
 - No files from word processors or graphic programs, please (doc, docx, odt) – those will not be marked
 - You can deliver zip, gz, bz2, xz or rar archives

3 Websites

Learnweb

The screenshot shows the Learnweb interface for course 5496 Medieninformatik II. The top navigation bar includes the university logo, the course name, and a user login message. The left sidebar contains a navigation menu with links like 'Startseite', 'Meine Startseite', 'Website', 'Mein Profil', and 'Dieser Kurs'. Under 'Dieser Kurs', '5496 Medieninformatik II' is expanded, showing sections such as 'Teilnehmer/innen', 'Berichte', 'Medieninformatik II', 'Einführung und Motivation', 'Contextual Design', 'Übungsaufgabe Contextual Design', and 'Kommunikation -'. The main content area displays course information, including 'Medieninformatik II' with links to 'Nachrichtenforum' and 'Diskussionsforum', 'Einführung und Motivation' with 'Handout' and 'Folien' files, and 'Contextual Design' with bullet points for 'Contextual Inquiry' and 'Interpretation und Modellierung'. On the right side, there are modules for 'Suche in Foren', 'Neue Nachrichten', and 'Aktuelle Termine'.

learnweb.uni-hildesheim.de

course: So18_5499_VI-CCAmI, password: Course Number

LSF

The screenshot shows the LSF interface for course 5495. The top navigation bar includes the university logo and the course name. The left sidebar contains a navigation menu with links like 'Neue Veranstaltung eingeben im Winter 2012/13', 'Meine Veranstaltungen', 'Meine Teilnehmer', 'Meine Auswertungen', 'Meine Personaldaten ändern', 'Umschalten auf ein anderes Semester', 'Anmelde-/Belegungsstatistiken', 'Meine unerledigten Arbeiten', 'Suche in meinen Arbeiten', and 'Prüfungsverwaltung -'. The main content area displays course details under 'Medieninformatik I - Einzelansicht', including 'Grunddaten' (Veranstaltungsart: Vorlesung mit Übung, Co-finanziert aus Studienbeiträgen: Kurztext, Semester: WiSe 2012/13, Erwartete Teilnehmer: 20, Rhythmus: i.d.R. jedes 2. Semester, Credits: 5), 'Funktionen (Veranstaltung)' (Edit, T, PDF, etc.), and 'Funktionen (Teilnehmer)' (Edit, etc.). Below this, there are links for 'Grunddaten', 'Termine', 'Zugeordnete Person', 'Studiengänge', 'Einrichtungen', and 'Strukturbaum'.

lsf.uni-hildesheim.de

mi.kriwi.de

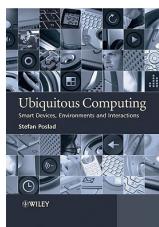
mi.kriwi.de/ami

4 Literature



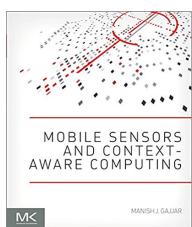
Textbook I

Krumm, John (Ed.). *Ubiquitous computing fundamentals*. CRC Press, 2010.



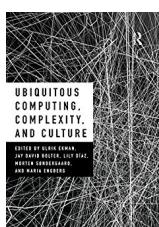
Textbook II

Poslad, Stefan. *Ubiquitous Computing: Smart Devices, Environments and Interactions*. Wiley, 2009.



Sensors & Hardware

Gajjar, Manish J. *Mobile Sensors and Context-aware Computing*. Morgan Kaufmann, 2017.



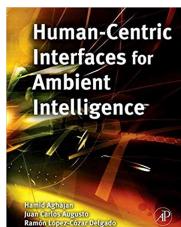
Transdisciplinary Issues I

Ekman, Ulrik, Jay David Bolter, Lily Diaz, Morten Sondergaard, and Maria Engberg, eds. *Ubiquitous computing, complexity and culture*. Routledge, 2016.



Transdisciplinary Issues II

Dourish, Paul, and Genevieve Bell. *Divining a digital future: Mess and mythology in ubiquitous computing*. Mit Press, 2011.



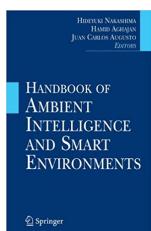
Human-Computer Interaction

Aghajan, Hamid, Juan Carlos Augusto, and Ramón López-Cózar Delgado, eds. *Human-centric interfaces for ambient intelligence*. Academic Press, 2010.



User Experience

Kuniavsky, Mike. *Smart things: ubiquitous computing user experience design*. Elsevier, 2010.



Handbook

Nakashima, Hideyuki, Hamid Aghajan, and Juan Carlos Augusto, eds. *Handbook of ambient intelligence and smart environments*. Springer Science & Business Media, 2010.



Handouts & Slides

Handouts & Slides

5 Final Remarks

Courses in Media Informatics

- Winter term
 - Media Informatics (Lec + Tut)
 - * German only
 - Seminar Media Informatics (Se)
- Summer term
 - Lab Course Media Informatics (Pr)
 - * You can still join, helpful to have passed some courses in Media Informatics before
 - * First meeting: Wed, 12-14, A 102 Spl
 - Alternating:
 - * Contextualized Computing and Ambient Intelligent Systems (Lec + Tut)

- * *Contextual Design of Interactive Systems (Lec + Tut)* Next: SoSe 2019
- * *Data and Process Visualization (Lec + Tut)* Next: SoSe 2020

Exam Dates

- Data and Process Visualization
 - First exam: Wednesday, 25.07., 14:00-16:00 or
 - First exam: Wednesday, 01.08., 14:00-16:00
 - Second exam: Wednesday, 27.09., 14:00-16:00
- Contextual Design of Interactive Systems (Medieninformatik II)
 - This year's exam: Wednesday, 13.06., 14:00-16:00
 - * Mandatory registration by 05.06. in POS for this term
 - * POS registration is opening in early May.
 - Next exam: summer term 2019
- Data and Process Visualization
 - This year's exam: Wednesday, 13.06., 16:00-18:00
 - * Mandatory registration by 05.06. in POS for this term
 - * POS registration is opening in early May.
 - Next exam: summer term 2019

Hackathon

- The Fachschaft Informatik (student council for IT studies) in co-operation with the Software Engineering Research Group organizes a Hackathon
 - Start: Fri, 27.04.18, 16:00
 - End: Sat, 28.04.18, 13:00

- Idea: develop an “Alltagshelfer mit Gamification” (everyday helper app with gamification)
- More info/applications
 - [Learnweb 2018](#), course “Fachschaft Informatik”
 - [www.facebook.com/FsWinfHi](#)
 - fs_winf@uni-hildesheim.de
- Application deadline: 20.04.18



Contact

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 - Building Samelsonplatz, Office A 115
- Office Hours
 - Mondays, 16:00-17:00
- *Important:* Register in Learnweb for email updates