SEMINAR ON:

COGNITIVE COMPUTING

ECTS 4

Weekly – Wednesdays during Semester Time
14:00 – 16:00

Location:
DesignSpace Lab | Cartesium 3.01 (Enrique-Schmidt Str. 5)

STUDY PROFILE — KIKR, DMI

Artificial Intelligence, Cognition, and Robotics
(KIKR – Küstliche Intelligenz, Kognition und Robotik)

Digital Media and Interaction
(DMI – Digitale Medien und Informatik)

TUTOR
Dipl. Inf. Jakob Suchan

LECTURER

Prof. Dr. Mehul Bhatt
University of Bremen, Germany

COGNITIVE COMPUTING

ABOUT THE COURSE

Human-Centred Cognitive Computing (HC^3) aims to systematically develop theories, formal specifications, and computational models that capture human-like cognitive capabilities concerning commonsense reasoning about space, actions, change, and interaction in everyday situations. Human-centred'ness, with its emphasis on knowledge about people and their context, will be at the heart of next-generation collaborative cognitive systems and assistive technologies that empower humans in creative and productive tasks, knowledge discovery and perceptual data analyses, high-level control of autonomous systems etc.

This seminar will focus on the conceptual, theoretical, and applied facets of Cognitive Computing. State of the art literature will be discussed each week, and students will have the opportunity to specialise in one particular application area where the general concepts & theory of cognitive computing can be situated. Application areas include: architecture design cognition, cognitive vision, dynamic geographic information systems, and cognitive robotics. The seminar will also expose students to open research questions.

COURSE FORMAT

This seminar will be conducted as follows:

- The course will start with summary lectures by the presenter
- Reading group: weekly readings, reporting, and discussions of literature on the topic of Cognitive Computing and its applications
- Weekly presentations of assigned papers by select students (usually no more than two)
- Throughout the course, students will build a presentation on select topics in small sub-groups
- Final presentations of sub-group presentations on an area of specialisation selected by students in consultation with the advisor; furthermore, a short report will be written as a summary

BASIC FACTS

- **Bachelor or Master Status?**
  Both bachelor and masters students are welcome to participate.
- **Who can join?**
  All interested students are welcome to participate (e.g., Informatik, Media Informatik and Digital Media, Wirtschaftsinformatik). **Interest in one or more of the following will be valuable**: computational cognitive systems, artificial intelligence, knowledge representation, human-computer interaction, computer-aided design, computer vision, geography, robotics, digital media.
- **Are there some formal prerequisites?**
  No; the course is self-contained.

  However, the course can synergize with certain other courses. If you already have or plan to undertake any of the courses listed below, then there will be a possibility to build on previously acquired knowledge, practical skills, and possibly even programming projects:

- Spatial Reasoning for Computational Cognitive Systems (SoSe 2015, WiSe 2015-2016, or SoSe 2016).
  http://www.mehulbhatt.org/learning/

- Visuo-Auditory Narrativity and the Moving Image (WiSe 2015-2016).
  http://www.mehulbhatt.org/learning/wise15-16/

- Student "Project AUGMENT" (WiSe 2014-2015 and SoSe 2015).
  http://www.mehulbhatt.org/learning/sose2015

- Computergraphik / Computer Graphics (03-BB-708.01). Prof. Dr. Gabriel Zachmann

- Bildverarbeitung (03-BB-709.01). PD Dr. Björn Gottfried, and Prof. Dr. Michael Beetz

- KI - Wissensakquisition und Wissensrepräsentation (03-MB-710.02). Prof. Dr. Michael Beetz

RELATED COURSES

There will be a value in undertaking the course in parallel with some relevant courses or ongoing thesis work. We are happy to advice in this regard based on personal interaction on a case-by-case basis. Please consult the lecturers.

COURSE PRESENTERS

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