SEMINAR

READINGS IN VISUAL PERCEPTION

ECTS 4
Weekly – Wednesdays
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)

LECTURER

Prof. Dr. Mehul Bhatt
University of Bremen, Germany

READINGS IN VISUAL PERCEPTION

ABOUT THE COURSE

This seminar will address research on human visual perception (primarily) and computational cognitive vision (small component) from the viewpoints of cognitive science, and spatial cognition & computation. With a focus on the conceptual, theoretical, and applied facets of visual perception, 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 visual perception can be situated.

The research papers chosen and presented will be primarily concerned with examining the manner in which humans process and interpret continuous imagery (involving human interaction in everyday living) into high-level events. Another line study will be visuo-spatial mental imagery and its link to reasoning about space, events, actions, image schemas, and visual / visuo-locomotive embodiment during a perceptual task.

As an application area, a particular focus on the seminar will be on cognitive film studies[1] in the context of conventional and non-conventional visuo-auditory narrative forms; however, other areas of application may also studied based on individual interests (this will have to be discussed with the lecturer beforehand).

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; alternate possibilities for final evaluation will also be presented at the start of the seminar (first two weeks).

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, Wirtschaftsinfor-matik). **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.

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[1] Semantic Question-Answering with Video and Eye-Tracking Data: AI Foundations for Human Visual Perception Driven Cognitive Film Studies. IJCAI 2016: 2633-2639. PDF: http://www.ijcai.org/Abstract/16/374

- **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, SoSe 2016).

    http://www.mehulbhatt.org/learning/

  - Visuo-Auditory Narrativity and the Moving Image (WiSe 2015-2016).

    http://www.mehulbhatt.org/learning/wise15-16/

  - Evidence Based Design (SoSe 2016)

  - EMBODIED COGNITIVE EXPERIENCES – Media | Perception. Interpretation. Synthesis. Digital Media Masters Project (WiSe 2016-2017).

    http://www.mehulbhatt.org/learning/wise16-17/

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.

LECTURER

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