

BLOCK COURSE ON:

SPATIAL REASONING FOR COMPUTATIONAL COGNITIVE SYSTEMS

ECTS 6

Mon Feb 26 2018 — Fri Mar 2 2018
09:30 - 13:00, and 14:00 - 18:30

Location:

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

STUDY PROFILE — KIKR, DMI

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

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

LECTURER

TUTOR

Dipl. Inf. Jakob Suchan

Prof. Dr. Mehul Bhatt
University of Bremen, Germany

SPATIAL REASONING FOR COMPUTATIONAL COGNITIVE SYSTEMS

ABOUT THE COURSE

This course will introduce students to declarative problem solving skills with logic programming. After a basic introduction to the declarative logic programming language Prolog, this course presents an application-driven in-depth overview of methods for commonsense spatial representation and reasoning within artificial intelligence based computer programs, computational cognitive systems, intelligent agents (e.g., in computer games).

Methods that can be used to model and implement commonsense spatial reasoning components within (hybrid) intelligent systems will be introduced in detail with state-of-the-art deployed examples from ongoing research projects in the fields of architecture design, cognitive vision, robotics, geographic information systems, computer games, spatial puzzles, smart homes.

COURSE FORMAT

This block course will involve two phases:

- Phase 1:
 - One week of lectures and practical labs during Mon Feb 26 2018 — Fri Mar 2 2018
- Phase 2:
 - One programming project to be developed & completed individually, or in a group; project will be done after completion of lecture+labs
 - The topic of the programming project has to be developed in consultation with the lecturers
 - There will be a final presentation of the programming project developed

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:** programming, artificial intelligence, knowledge representation, human-computer interaction, computer-aided design, computer vision, geography, robotics, computer games.
- **Are there some formal prerequisites?**
No; the course is self-contained.

However, the course can synergize with certain other courses pertaining to computer vision, artificial intelligence, knowledge representation. 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:

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 PRESENTER

Prof. Dr. Mehul Bhatt
Human-Centred Cognitive Assistance Lab.
University of Bremen, FB3 – Informatics
P.O. Box 330 440, Bremen 28334, Germany
bhatt@uni-bremen.de
<http://hcc.uni-bremen.de/>
www.mehulbhatt.org

