Master module 1 or 3: Robotics (ROB)

Om kurset

uddannelse	Computer Science / Informatik
sted	Teorirum 08.2
Undervisningssprog	English
Kursus starter	06-09-2016
Kursus slutter	18-11-2016

Indhold

Robotics programming is a fast-growing field which overlaps with several other areas of modern computing, especially mobile sensor-based applications and artificial intelligence. The course covers robot software and hardware architecture as well as algorithms and principles for sensor interpretation, control, planning and navigation. The practical project work will apply these techniques and theories using physical robots including Lego Mindstorms robots and possibly other platforms.-

mål

Knowledge

- be familiar with typical robot hardware, sensor, software and communications infrastructure
- knowledge of current trends in robotics research
- understand models of robot control ranging from fully autonomous to centralised control
- understand the potential for application of robots in diverse fields, including performances, games and industrial settings.

Skills

- be able to apply algorithms for handling and arbitration among continuous sensor inputs
- be able to apply algorithms for navigation and route-finding
- understand the principles of vision processing

Competencies

- be able to construct programs for robots using current software architectures

forudsætninger

Programming, fundamental algorithms and data structures, experience of Java or similar language. Experience from one programming project.

Kursusdage

Every Tuesday at 1.15 - 5.00 p.m. in the period from 6 September - 23 November 2016.

Undervisningsform	Lectures and exercises.
Eksamensform	20 min. individual oral exam based on a written assignment. External examiner and 7-step scale
Eksamenstidspunkt	Exams period = 4. - 10. January 2017. Deadline for submitting the assignment = 23. November 2016
Vurdering	The excellent performance: • The student demonstrates solid knowledge, insight and overview of the subject area; • demonstrates solid description, competent application, and critical reflection with respect to the command and application of theories and methods; • demonstrates certainty, conceptual accuracy, and independent and clear organization with respect to structuring and communication. The good performance: • The student demonstrates knowledge of and insight into the subject area • demonstrates clear description and relatively competent application with respect to the command and application of theories and methods; • demonstrates clear presentation and organization with respect to structuring and communication. The performance meeting the minimum requirements: • The student demonstrates sufficient however limited knowledge of the subject area; • demonstrates a sufficient account of command and application of theories and methods;
Reeksamensform	20 min. individual oral exam based on a written assignment. External examiner and 7-step scale
reeksamenstidspunkt	Re-exams period = 20. - 24. February 2017. Deadline for submitting the re-assignemt = 25. January 2017
Aktivitetsansvarlig	Mads Rosendahl (madsr@ruc.dk)
Kursussekretær	Heidi Lundquist (heilu@ruc.dk)
Underviser	Henning Christiansen (henning@ruc.dk)

STADS stamdata	Valgkursus belastning : 5 ECTS prøveform : Afleveringsopgave (ut)	aktivitetskode : U40546 bedømmelse : 7-trinsskala	censur : Intern censur