Tárgyleírás

Tárgy neve: AI Robotics

Tárgyfelelős neve: Kristian Fenech

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja angolul / Aim of the subject:

Knowledge

- A theoretical understanding of the physical models used to describe the kinematics and dynamics of common robotic systems. Knowledge of different control paradigms and robot architectures.

Abilities:

- Experience in programming robotic systems in state-of-the-art simulation environments as well as the knowledge of terminology and experience to communicate and interact with other researchers in the field of robotics.

Attitude:

- They follow professional and technological developments in their IT field.
- They are committed to lifelong learning and are open to acquiring new IT competencies.

Autonomy, responsibility:

- They take responsibility for their professional decisions made in their IT-related activities.
- They undertake to meet deadlines and to have deadlines met.
- They bear responsibility for their own work as well as for the work of their colleagues they work together with in a project.
- Regarding mission critical IT systems, they can be entrusted with developing and operational responsibilities that are in accordance with their professional competencies.

Az oktatás tartalma angolul / Major topics:

- Components and Types of Robots
- Sensing, Vision and perception
- Spatial descriptions
- Kinematics
- Statics

- Dynamics
- Motion planning
- Control
- Trajectory generation
- Robot simulation

A számonkérés és értékelés rendszere angolul / Requirements and evaluation:

Mixed assessment, exam

Irodalom / Literature:

- Bruno Siciliano, Oussama Khatib: **Springer Handbook of Robotics**, Springer International Publishing, 2016, ISBN: 978-3-319-32550-7, DOI 10.1007/978-3-319-32552-1
- Peter Corke**: Robotics, Vision and Control**, Springer International Publishing 2017, ISBN 978-3-319-54412 0, DOI 10.1007/978-3-319-54413-7
- Gordon McComb: **Robot Builders Bonanza**, McGraw-Hill Education, 2018, ISBN-13: 978-126013501
- Kevin M. Lynch and Frank C. Park: **Modern Robotics: Mechanics, Planning, and Control**, Cambridge University Press, 2017, ISBN 9781107156302.