

Humanoide Roboter

Studiengang: Informatik (M. Sc.)					
Modul:	Grundlagenteil / Kompetenzteil Systems and Computer Engineering				
Modul alte PO (2013):	Qualifikationsmodul				
Lehrveranstaltung:	Humanoide Roboter				
LV alte PO (2013):					
Semester	Dauer (Sem.)	Häufigkeit (pro Jahr)	Art	ECTS-Punkte	Studentische Arbeitsbelastung
1-3	1	einmalig	Wahlpflicht	5.0	150h
Voraussetzungen für die Teilnahme		Verwendbarkeit			Modulverantwortliche(r)
According to the examination rules		Schwerpunkt Systems und Computer Engineering, WPF (nur Master)			Prof. H. Balthes
Prüfungsform / Prüfungsdauer (Voraussetzung für die Vergabe von ECTS-Punkten)		Vorgesehene Lehr- und Lernmethoden/-formen			
Portfolio (PF)		Lectures, Lab			
Kompetenzziele (nach Bloom)					
Students will learn the theory and praxis of intelligent humanoid robots. This includes co-design of mechanics, electronics, and software of a complex robotic system. The students will perform and evaluate several experiments.					
Lehrinhalte					
<p>This course covers a variety of topics in humanoid robotics. Topics covered include:</p> <ol style="list-style-type: none"> 1. Kinematics of humanoid robots 2. Zero Moment Point 3. Dynamics of humanoid robots 4. Inverted Pendulum Model 5. Walking Gait Design 6. Active Balancing 7. Motion Planning 8. Human Robot Interaction 					
Literatur					
I will use research papers describing both the background material as well as the current state of the art. Students are expected to understand the material as well as being able to implement simple versions of the described algorithm. Most of the papers can be accessed using Ostfalia Online library (IEEEEXPLORE and ACM).					

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