



Kolloquium Technische Kybernetik WS 2017/18

Interaction Control and Monitoring in Robotics

Prof. Sami Haddadin

Institute of Automatic Control
Leibniz University, Hannover, Germany

Dienstag, 5. Dezember 2017, 16:00 Uhr
Seminarraum V 9.41 - Pfaffenwaldring 9 - Campus Stuttgart-Vaihingen

Abstract

In my talk I will introduce modern control and observer techniques for complex robot systems that physically interact with the world and manipulate it. After shortly reviewing essential robot modeling foundations I introduce the overall problem of interaction control and monitoring, discussing well known concepts such as impedance and force control, arriving then at modern schemes such as energy-based and adaptive control algorithms. Finally, I outline the design and use of nonlinear observers in interaction and collision handling.

Biographical Information

Sami Haddadin is Full Professor and Director of the Institute of Automatic Control at Leibniz Universität Hannover, Germany. After declining offers from top US universities he accepted to become founding director of TUM's Munich School of Robotics. He received degrees in EE, CS and Technology Management from TUM and LMU. He obtained his PhD from RWTH Aachen. He organized/edited several international robotics conferences and journals and published more than 120 scientific articles. His research topics include physical Human-Robot Interaction, nonlinear robot control, real-time motion planning, real-time task and reflex planning, robot learning, optimal control, human motor control, variable impedance actuation, and safety in robotics. He received numerous awards at the top international robotics conferences and journals. Among other things, he is a recipient of the 2015 IEEE/RAS Early Career Award, the 2015 RSS Early Career Spotlight, the 2015 Alfred Krupp Award and was selected in 2015 and 2016 as 2015 Capital Young Elite Leader under 40 in Germany for the domain "Politics, State & Society". In 2017 he was awarded the German President's Award for Innovation in Science and Technology.

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Institut für Systemtheorie und Regelungstechnik
Prof. Frank Allgöwer
frank.allgower@ist.uni-stuttgart.de
+49 711 685 67734