

Robotics 4.0 - The Next Big Thing

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Abstract: Robotics has been around us for 4 decades, yet now there is an unprecedented rise in applications and systems. Robotics is entering new domains requiring highly sophisticated manipulation skills and decision making, such as patient care. The new generations of medical and surgical robots may not only function as an agile extension of the human eyes and hands, but also becoming a skillful and smart partner of their human counterpart. Legislation and standardization activities are gradually following the technical development, striving to establish a safe and reliable environment for Robots 4.0.

Brief Biography

Tamás Haidegger received his M.Sc. degrees from the Budapest University of Technology and Economics (BME) in Electrical Engineering and Biomedical Engineering in 2006 and 2008, respectively. His Ph.D. thesis (2011) was based on a neurosurgical robot he helped developing when he was a visiting scholar at the Johns Hopkins University. His main field of research is control/teleoperation of surgical robots, image-guided therapy and supportive medical technologies. Currently, he is an associate professor at Óbuda University, serving as the deputy director of the Antal Bejczy Center for Intelligent Robotic. Besides, he is a research area manager at the Austrian Center of Medical Innovation and Technology (ACMIT), working on minimally invasive surgical simulation and training, medical robotics and usability/workflow assessment through ontologies.

Tamás is the co-founder and CEO of a university spin-off—HandInScan—focusing on objective hand hygiene control in the medical environment. They are working together with Semmelweis University, the University Hospital Geneva and the World Health Organization POPS group.

Tamás is an active member of various other professional organizations, including the IEEE Robotics and Automation Society, IEEE SMC, IEEE EMBC and euRobotics aisbl. He is a national delegate to an ISO/IEC standardization committee focusing on the safety and performance of medical robots. He has co-authored more than 160 peer reviewed papers published at various scientific meeting and conference proceedings, refereed journals and books in the field of biomedical/control engineering and computer-integrated surgery. He has been maintaining a professional blog on medical robotic technologies for 10 years: surgrob.blogspot.com. Tamás is a passionate photographer, rock climber and an advocate of city-biking.

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