

Curriculum Vitae

Prof. Dr.-Ing. Alin Albu-Schäffer
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PERSONAL DATA

First name: Alin
Surname: Albu-Schäffer
Date of birth: 20.10.1968
Place of birth: Timisoara, Romania
Citizenship: German

H- index: 43 (google scholar)

EDUCATION

- **2002:** PhD Degree at the Technical University Munich
Department of Electrical Engineering and Information Technology
- **1993 – 1994:** TU Munich, Electrical Engineering – PhD admission
- **1988 – 1993:** Diploma Degree, Technical University Timisoara, Department of Electronics and Telecommunications, specialization: Industrial Robots

EMPLOYMENT

- **04.2013 - pres.:** Full professor, Technical University Munich, Department of Computer Science, Chair of “Sensor Based Robotic Systems and Intelligent Assistance Systems”
- **07.2012 - pres.:** Director of the Institute of Robotics and Mechatronics, DLR – German Aerospace Center
- **2009 –2013:** Head of the Department “Mechatronic Components and Systems” in the DLR Institute of Robotics and Mechatronics
- **2009:** Full professor appointment offered at the Technical University of Vienna. I declined the position in favour of the DLR department lead.
- **2007-2012:** Lecturer at the TU Munich, Department of Electrical Engineering.
- **2007** Declined appointment as associate professor at Twente Univ., Netherlands
- **2005:** DLR - Coordinator of the “Intelligent Manipulation Group”
Coordination of several EU-projects
- **2002:** DLR - Research engineer
- **1996:** DLR - PhD student
- **1995:** DLR – start of activity at the Institute of Robotics and Mechatronics

RESEARCH

- **Fields of interest:**
 - Modelling, identification and control of robotic systems
 - Nonlinear control
 - Control of flexible joint robots
 - Design and control of mechatronic systems
 - Force-feedback systems, telepresence and haptics
 - Physical human-robot interaction and intuitive robot programming
 - Design and control of bio-inspired robots
 - Legged and wheeled locomotion
 - UAVs and Manipulation from the air
 - Robotic On Orbit Servicing
 - Robotic planetary exploration
 - Medical robotics
 - Industrial robotics, force and image based automatic assembly
- **Contributions to technology transfer**
 - Commercialization of the DLR Light-weight arm through KUKA Roboter GmbH
 - On-going commercialization of the DLR medical robot MIRO
- **Patents:**
 - 5 in the area of control of mechatronic systems

ACADEMIC ACTIVITY

Lecture in the master curriculum on Robotics at Computer Science and Mechanical Engineering, TU Munich „Robot Programming and Control for Human Interaction” since 2014

Lecture in the master curriculum on Robotics at Computer Science and Mechanical Engineering, TU Munich „Sensor based robotic manipulation and locomotion“, since 2013

Master course lecture at the TU Munich, Electrical Engineering: „Control methods in robotics“ 2007-2012

Courses at summerschools

- Telerobotics Summer School, Munich, 2010
- Summerschool on Impedance, Herrenchimsee, 2011
- Summerschool on soft Robotics, Zurich, 2012

SCIENTIFIC ACTIVITY, BOARDS AND COMMITTEES

- **Visiting Professor, Univ. Twente**, Fac. of Electrical Engineering. Tight cooperation with the chair of robotics and Mechatronics at Univ. Twente (2013 – present)
- **Associate Editor of IEEE Transactions on Robotics** (2008-2012)
- **Board of Directors Member, EU-Robotics aisbl**, the main European Robotics Organization (elected in 2012 and re-elected in 2014)
- **Founder of the EuRobotics Topic Group Mechatronics**
- **Coordinator of the VDI/VDE group „Robot Control“** (2009 – 2014)

Annual organization of a scientific colloquium with speakers from industry, research, and academia including a lab tour at a major German robotics center.

- **Member of DLR Scientific Council**

- **Committee member for institute evaluations**

Robotics at the „Institute National de Recherche en Informatique et en Automatique“ - INRIA, France, 2009

Institute of Planetary Science, DLR, Berlin, 2013

Institute of Flight Systems, DLR, Braunschweig, 2015

- **Member of external PhD commissions**

Vrije Universiteit Brussel, Belgium, 2009

University of Umea, Sweden, 2010,

University of Pisa, Italy, 2013

Politechnical University of Madrid, 2014

Twente University, 2014

- **Organisation and Co-Organization of Workshops and Tutorials**

“Future Technological Waves in Mechatronics: Next years' innovations and long term perspectives”, Workshop at the European Research Forum (ERF 2014), Rovereto, Italy

“Human-Robot Cooperation”, Workshop, Int. Conf. on Intelligent Robot ans Systems, Tokyo, Japan, Nov. (IROS 2013)

“Nonlinear Control of Flexible Joint Robots” Tutorial, IEEE Int. Conf of Robotics and Automation (ICRA 2007) with Ch. Ott and A. De Luca.

“Variable Impedance Actuation Systems” Workshop, Robotics Science and Systems, RSS 2008, together with A. Bicchi und B. Vanderborght.

“New variable impedance actuators for the next generation of robots”, Workshop, IEEE Int. Conf of Robotics and Automation (ICRA 2010) with B. Vanderborght and A. Bicchi

“Robots Interacting with Humans – Embodied Intelligence for better” – session at the FET11, EU- conference, Science Beyond Fiction, Budapest, 2011

“Variable Stiffness Actuators moving the Robots of Tomorrow”, with R. Carloni, B. Vanderborght, A. Bicchi, ICRA 2012

- **Program Committee member:**

Int. Conference on Robotics and Automation, Barcelona, 2005

Robotics Science and Systems 2008, 2009

Humanoids 2011

- **Conference Area Chair, Regional Chair:**

Robotics Science and Systems 2010, 2011

International Conf. on Ubiquitous Robots and Ambient Intelligence 2011

Space World, 2013, 2014, 2015

Program Co-Chair IEEE ICRA 2016

- **Invited Plenary Talks**

IEEE Ro-Man Conference, Kobe, Japan, Aug. 2015

IEEE Int. Conference on Humanoid Robotics, Madrid, Spain, Nov. 2014

Int. Symposium on Robotics (ISR), Seoul, Korea, Dec, 2013

RAAD Robotics conference of Alpes, Danube, Adria, Ljubljana, 2013

International Conference on Control, Automation and Systems (ICCAS 2010), Seoul, Korea, 2010

AWARDS and HONOURS

- **Doctor Honoris Causa**, Universitatea Politehnica Timisoara, Romania, 2016
- **IEEE Fellow** Grade *"for contributions to compliant and lightweight robots"*, 2016
- **EU-Robotics TechTransfer Award**, Third Prize, on behalf of DLR, together with the Spin-Off Company Kastanienbaum, 2016
- **ICRA Best Automation Award Finalist, for the paper:** A Passivity-Based Approach for Trajectory Tracking and Link-Side Damping of Compliantly Actuated Robots: M. Keppeler, D. Lakatos, Ch. Ott, A. Albu-Schäffer, 2016
- **IEEE King-Sun Fu Best Paper Award of the Transactions on Robotics** for the paper "Robots Driven by Compliant Actuators: Optimal Control Under Actuation Constraints", 2014
- **IEEE King-Sun Fu Best Paper Award of the Transactions on Robotics** for the paper "Human Like Adaptation of Force and Impedance in Stable and Unstable Interactions", 2012
- **IEEE Int. Conf. on Intelligent Robots and Systems (IROS 2012) Best Video Award**, as Coordinator of the VIATORS consortium, 2012
- **IEEE Int. Conf. on Intelligent Robots and Systems (IROS 2012), IROS 2012 Best Jubilee Video Award**, with a summary of DLR research results on variable compliance actuator robots, 2012
- **EU-Robotics TechTransfer Award**, on behalf of DLR, together with Ralf Koeppel (KUKA), for the technology transfer of the light-weight robot, Vasteras, 2011
- **ICRA 2010 Best Cognitive Robotics Paper Award Finalist** for the paper: "Biomimetic motor behaviour for simultaneous adaptation of force, impedance and trajectory in interaction tasks" G. Ganesh, A. Albu-Schäffer, M. Haruno, M. Kawato, E. Burdet, 2010
- **Walter Reis Innovation Award for Robotics 2010**, 3. prize.
- **ICRA 2009 Best Service Robotics Award** for the paper: The "DLR Crash Report": Towards a Standard Crash-Testing Protocol for Robot Safety - Part I: Results – Part II: Discussions, IEEE Int. Conf. on Robotics and Automation, Sami Haddadin, A. Albu-Schäffer, M. Frommberger, J. Rossmann, G. Hirzinger, 2009
- **ICRA 2009 Best Video Award** for "Rolling' Justin - Mobile Platform with Variable Base" Ch. Borst, T. Wimböck, F. Schmidt, M. Fuchs, B. Brunner, F. Zacharias, P. Robuffo-Giordano, R. Konietschke, W. Sepp, S. Fuchs, Ch. Rink, A. Albu-Schäffer, G. Hirzinger, IEEE Int. Conf. on Robotics and Automation
- **ICRA 2009 Best Video Award Finalist** for "The DLR MiroSurge - A Robotic System for Surgery" R. Konietschke, U. Hagn, M. Nickl, S. Jörg, A. Tobergte, G. Passig, U. Seibold, L. Le-Tien, B. Kübler, M. Gröger, F. Fröhlich, Ch. Rink, A. Albu-Schäffer, M. Grebenstein, T. Ortmaier, G. Hirzinger
- **Best Application Paper Award** for the paper: "Collision Detection & Reaction: A Contribution to Safe Physical Human-Robot Interaction" IEEE Int. Conf. on Intelligent Robots and Systems, **IROS2008**, Sami Haddadin, A. Albu-Schäffer, Alessandro De Luca, Gerd Hirzinger.
- **Outstanding Paper Award** for the paper: "The DLR MIRO: a versatile lightweight robot for surgical applications", Industrial Robot Journal, 2008, U. Hagn et. al.
- **3. Prize ICCAS/Hearth Centre Leipzig CURAC 7. Conference of the German Society of Computer and Robot Assisted Surgery** „DLR MiroSurge-Towards Versatility in Surgical A. Tobergte et.al., 2008
- **Outstanding Paper Award** for the paper "The DLR lightweight robot - design and control

concepts for robots in human environments” Industrial Robot Journal, 2007, A. Albu-Schäffer, S. Haddadin, Ch. Ott, A. Stemmer, T. Wimböck und G. Hirzinger.

- **DLR Science Award 2007: Award of the Management Board of DLR** for the paper „A Unified Passivity-based Control Framework for Position, Torque and Impedance Control of Flexible Joint Robots”, A. Albu-Schäffer.
- **DLR Innovation Award 2007**, to O. Eiberger, A. Beyer, M. Schedl, A. Albu-Schäffer, G. Plank, G. Schreiber for the technology transfer of the DLR Light-weight Robot, 28./29.11.2007, Göttingen, 2007
- **ICRA 2007 Best Video Award** for the contribution: „A Humanoid Upper Body System for Two-Handed Manipulation“, Ch. Borst, Ch. Ott, T. Wimböck, B. Brunner, F. Zacharias, B. Bäuml, U. Hillenbrandt, S. Haddadin, A. Albu-Schäffer, G. Hirzinger, 2007
- **Best Paper Award in at-Automatisierungstechnik 2005** with the paper: Kartesische Impedanzregelung von Robotern mit elastischen Gelenken: Ein passivitätsbasierter Ansatz, Ch. Ott, A. Albu-Schäffer, A. Kugi, S. Stramigioli, and G. Hirzinger, at-Automatisierungstechnik, Oldenbourg Wissenschaftsverlag, s. 378-388, August 2005.
- **Best Paper Award on Mechatronics VDI Wissensforum IWB GmbH** T. Ortmaier, C. Ott, H. Weiß, U. Hagn, M. Grebenstein, M. Nickl, A. Albu-Schäffer, S. Jörg, R. Konietschke, G. Hirzinger, Essenreiter, Bertram, 2005.
- **VDI/VDE award of a supervised master thesis (Christian Geist) 2003.**