

DOCTOR HONORIS CAUSA

Prof. Dr. Eng. Alin ALBU-SCHÄFFER – German Aerospace Center – DLR

Prof. Dr. Eng. Alin Albu-Schäffer, was born on October 20, 1968 in Timișoara. After graduating the “Nikolaus Lenau” high school in Timișoara, he attended the Faculty of Electronics and Telecommunications, Industrial Robots specialization, within the Technical University of Timișoara (today Politehnica University of Timișoara), where he received his Engineer’s Degree. His diploma paper focused on the application of neural networks in robotics, under the supervision of Prof. dr. eng. Virgil Tiponuț.

After 1990, the engineer Alin Albu-Schäffer moved to Germany, where he developed a professional career at the highest level at the Institute of Robotics and Mechatronics within DLR.

In 1995, he enrolled in a PhD program at the Technical University of Munich, Department of Electrical Engineering and Information Technology. In 2002 he defended his PhD thesis, under the supervision of the renowned specialist in Robotics, Prof. Dr. Eng. Gerhard Hirzinger.

He started his career path within DLR first as a research engineer, and then, in 2005 he became the coordinator of the research group “Intelligent Manipulation Group”, conducting numerous national and international research projects. Between 2009 and 2013, he was the Head of the Mechatronic Components and Systems Department.

DLR is the National Aeronautics and Space Research Center of the Federal Republic of Germany (das Forschungszentrum für Luft- und der Bundesrepublik Deutschland Raumfahrt).

Research and development activities focus on aeronautics, extra-terrestrial space research, development of green technologies for power supply and methods of using it effectively in communication, transport, and security systems. DLR is also the space agency of Germany and bears the responsibility for planning and implementing the German space program, as assigned by the federal government.

In July 2012, Dr. eng. Alin Olimpiu Albu-Schäffer became the Director of the Institute of Robotics and Mechatronics, and then a representative of all three research institutes, reunited in the RMC competence centre of DLR for research and development in robotics, mechatronics and optic systems.

As a recognition of his scientific results, in 2013 he was appointed professor at the Technical University of Munich, Department of Computer Science, and then guest professor at prestigious universities in the European Union (Twente University, Netherlands, Technical University of Vienna).

The entire scientific activity of Dr. Eng. Alin Albu-Schäffer was mainly targeted at the field of robotics (development, control), with significant theoretical contributions in:



- Modelling and control of robots systems;
- Nonlinear control techniques;
- Development and control of mechatronic systems;
- Development and control of autonomous robots;
- Assembly systems based on artificial sight intelligence and;
- Functional robots in the extra-terrestrial space;
- Medical robotics;
- Softrobotics;
- Light and compliant robots;
- Intelligent sensors.

His remarkable results obtained in research and innovation, respectively in research management, include numerous significant German and European projects, including “PHRIDOM” (Physical Human-Robot Interaction in Anthropic Domains), “PHRIENDS” (Physical Human-Robot Interaction: Dependability and Safety), the European Project VIATORS, the 5 registered patents in the field of mechatronic control systems, etc.

His two decade-long experience in their fields of robotics and nonlinear control was appreciated by invitations received for disseminating knowledge to specialists from other countries, such as:

- Lectures on the following disciplines in the curriculum of the Master's programme in Robotics, Computer Science and Mechanical Engineering, Technical University of Munich: "Robot Programming and Control for Human Interaction" (from 2014), "Sensor based robotic manipulation and locomotion" (from 2013), and "Control Methods in robotics" (between 2007-2012),
- Supervision of PhD programmes and member of PhD committees at renowned universities in Germany, Belgium, Sweden, Italy, Spain, Holland, etc.,
- Visiting Professor at famous universities in the European Union.

The recognition of his scientific merits and of his professional experience was extended in Germany but also internationally, Dr. Eng. Alin Albu-Schäffer being thus elected in many prestigious professional structures:

- Associate Editor of IEEE Transactions on Robotics (2008-2012);
- Board of Directors in its EU-Robotics AISBL, the first European organization in Robotics;
- Founding member of EU Topic Robotics, Mechatronics Group;
- Coordinator of the group "Robot Control" VDI/VDE (Verein Deutscher Ingenieure / Verband der Automobileindustrie) (2009-2014);
- Member in the Scientific Board of DLR;
- Member in evaluation committees of some research institutes:
 - 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 specialized PhD committees at renowned universities in Germany, Belgium, Sweden, Italy, Spain, the Netherlands.

His scientific papers received numerous national and international distinctions, among which are worth mentioning those obtained at IEEE conferences, in his fields of activity:

- Dr. Eng. Alin Albu-Schäffer was elected IEEE Fellow, for contributions to light and compliant robots, Piscataway, New Jersey, USA, January 2016;
The title IEEE Fellow is conferred by the IEEE Board of directors on a person who registered outstanding results in one the research areas affiliated to the IEEE world-renowned association.
- 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 International Conference on Intelligent Robots and Systems (IROS 2012) Best Video Award, as Coordinator of the VIATORS consortium, 2012,
- IEEE International Conference 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, etc.

Publications

The experience gained as a result of his research and development activity, allowed Prof. dr. eng. Alin Albu-Schäffer to write a large number of scientific articles, published in renowned journals recognized, conference proceedings and collective volumes (as guest expert). Some of his most remarkable publications include:

- more than 40 articles published as Journal articles or Book chapters;
- more than 140 articles published as "Peer reviewed conference articles".

Relations with Politehnica University of Timișoara

As a graduate of the Politehnica University of Timișoara, prof. Alin Albu-Schäffer was – over the years – in permanent contact with Timișoara and with Politehnica University. He regularly visited the old Alma Mater, the Faculty of Electronics and Telecommunications and the Mechatronics Department of the Faculty of Mechanical Engineering. He participated in numerous scientific conferences held in PUT; he was invited and accepted unreservedly to lecture for teachers, PhD and BS students with concerns in the areas of robotics, automation and mechatronics. The lectures, some of which are listed below, were given at a very high scientific and technical level:

- "Developments in Robotics at the DLR Institute for Robotics and Mechatronics" ISETc Symposium, 2006;
- "Light robotic arm KUKA - DLR" 2008;
- "Fundamentals of engineering management in robotics, the lecture for the discipline Intelligent robots at the Department of drives and automation", TU Munich, 2010;
- "Human-robot cooperation: From outer space to Earth," 2014;
- "From the benches of PUT to the top of European technology, HRD project, OVDIP at UPT: "Soft parts robots, sensitive and compliant robots, robots interacting with the human operator and unknown environments", 2015.

Prof. Alin Albu-Schäffer promoted and collaborated with the Politehnica University, by facilitating the visits of some PUT faculty members to the prestigious research institution in Germany. He has also created opportunities for the UPT youth to conduct specialising or training sessions in the DRL labs for different periods of time.