

How will Robotics and AI change our future?

Bojan Jerbić

Faculty of Mechanical Engineering and Naval Architecture
CRTA – Regional Center of Excellence for Robotic Technologies
University of Zagreb



The scientific, technological and social changes we face on a daily basis are accelerating to unimaginable limits. Some confuse us and others scare us. New technologies are drastically changing our culture and economy. The main drivers of these changes are robotics and artificial intelligence. Without an understanding of the aforementioned technological trends, we will not be able to shape the future. In addition, we need to be aware of the challenges ahead. These are not just legal and ethical issues. The scientific and technological transformation of society will deepen social and economic inequalities. The lecture will try to touch on the mentioned challenges and present how CRTA - Regional Center of Excellence for Robotic Technologies at the Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, and its researchers are dealing with them.

Prof. dr. sc. Bojan Jerbić

University of Zagreb

Faculty of Mechanical Engineering and Naval Architecture

Zagreb, 19 January 2022

CV

Prof.dr.sc. Bojan Jerbić graduated from the Faculty of Mechanical Engineering and Naval Architecture (FSB) of the University of Zagreb in 1983. He defended his master's thesis at the FSB in 1987, in the field Technology in Mechanical Engineering. He conducted research as part of his doctoral dissertation in 1989 as a Florida State University Fellow at the Department of Industrial Engineering. He defended his dissertation entitled "Interpretation of CAD model geometry in the design of automatic assembly by an expert system" at the FSB in 1993.

After graduating in 1984, he got a position at the FSB, where he worked at the Department of Technology, first as an intern and then as a professional associate until 1986 when he was elected assistant. He was elected as a research assistant in 1988. He acquired the title of assistant professor in 1995, associate professor in 2000, and full professor in 2005. He was elected as a full professor in 2009. From 1993 to 2006 he was the head of the Laboratory for the Manufacturing and Assembly Systems Planning. From 2005 to 2008, he was the head of the Department of Robotics and Automation of Production Systems of the FSB. From 2007 to 2020, he was the head of the Chair of Manufacturing and Assembly Systems Planning. In 2021 Prof. Bojan Jerbić founded the Regional Center of Excellence for Robotic Technologies (CRTA), which includes the Laboratory for Autonomous Systems, the Laboratory for Computer Intelligence, the Laboratory for Medical Robotics, the Practicum for Automatic Programming and the Prototype Tool Shop. In the same year, he founded the Department of Autonomous Systems and Computer Intelligence, of which he is also the head.

Prof. Bojan Jerbić participates in the teaching of undergraduate, graduate and postgraduate studies, mainly in the fields of robotics, automation, artificial intelligence and engineering computing. To date, he has introduced more than 20 subjects at the FSB (Artificial Intelligence, Computer Networks, Intelligent Technical Systems, Autonomous Systems, Design of Automatic Assembly Systems, Vision Systems, Computer Aided Engineering, Automation Programming, Computer Design of Mechatronic Systems and others). He participated in the design of the new Study program of Mechatronics and Robotics.

Prof. Bojan Jerbić has been participating in organized scientific research and professional work since 1987. He devoted himself to the development of computer methods in engineering and artificial intelligence methods in industrial robotics. For the last ten years he has been working on research and development of robotic applications in medicine, collaborating with prominent physicians. In doing so, notable results have been achieved in clinical application, recognized internationally. He has been a leader or collaborator on a number of domestic and international scientific and technological development projects. A particularly significant result of his scientific research work is the neurosurgical robot RONNA, which has been operating regularly at the Dubrava Clinical Hospital since 2016. He has published 155 papers, of which 44 papers in journals, 80 papers in conference proceedings, 5 papers as book chapters and 26 papers in other publications

He successfully improves and promotes scientific and professional work through scientific organizations and professional societies. Since 2021, he has been a member of the University Council of the University of Zagreb. He has been a member of the Croatian Academy of Technical Sciences (HATZ) in the Department of Systems and Cybernetics since 2007. He is the Secretary of the Department of Systems and Cybernetics from 2013 to 2017. From 2015 to 2020 he was the president of the Croatian Society for Systems (CROSS) and a member of the International Academy of Engineering (Moscow). He is the editor of Transactions of FAMENA and a member of the editorial board of the International Journal of Simulation Modeling.