

PERSONAL INFORMATION

Assoc. Prof. Dr. Eng. Ciprian LĂPUȘAN

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ACADEMIC POSITIONS

2020 – present

Associate Professor

Technical University of Cluj-Napoca - www.utcluj.ro

Department of Mechatronics and Machine Dynamics

Programme Coordinator – English-taught Bachelor's Programme in Mechatronics

Director – Intelligent Mechatronic Systems Laboratory (IMSLab)

Courses taught: Advanced control systems, Digital control of mechatronic systems, Computer Aided Design, Integrated design in precision engineering, Theory of machines and mechanisms

Research Interests: mechatronic systems design and control engineering, with emphasis on modelling and simulation-based design of complex engineering systems and digital control of mechatronic systems, with applications in robotic systems, intelligent automation, and energy-efficient mechatronic technologies

2012 – 2020

Lecturer

Technical University of Cluj-Napoca - www.utcluj.ro

Didactic activities, Scientific research activities, Supervision of bachelor and master theses

2008 – 2012

Assistant professor

Technical University of Cluj-Napoca - www.utcluj.ro

Didactic activities, Scientific research activities

EDUCATION

2015

Postdoctoral studies

Technical University of Cluj-Napoca

Research theme: Advanced mechatronic systems for optimal management and efficiency increase of energy consumption

2010

PhD in Mechanical Engineering

Technical University of Cluj-Napoca

Thesis: Research on the Integrated Design and Interfacing of Mechatronic Systems

2006

Master's Degree - Advanced Methods and Instruments in Quality Assurance Management and Engineering

Technical University of Cluj-Napoca

Dissertation Theme: Research on modeling and simulation of mechatronic systems

2005

Bachelor of Engineering

Technical University of Cluj-Napoca

Principal subjects: Mechatronics

INTERNATIONAL ACADEMIC EXPERIENCE

June –July, 2010

French Institute for Advanced Mechanics (IFMA), Clermont-Ferrand (France)

Visiting researcher

February, 2016

JAMK University of Applied Sciences, Jyväskylä (Finland)

Visiting Professor

November 2019; March 2025;

University of Jaen, Jaen (Spain)

RESEARCH AND INSTITUTIONAL PROJECTS

Project Coordinator / Project Manager

- International Cooperation Framework for Next Generation Engineering Students, project coordinator, No. 2022-1-RO01-KA220-HED-000088365, period: 2022-2025
- *Smart HEI-Business collaboration for skills and competitiveness*, TUCN coordinator, Prj. index: 575660-EPP-1-2016-1-FI-EPPKA2-KA, period: 2017-2019
- Research regarding the integration and interfacing process in mechatronics – project type TD Nr. 533/2006 CNCSIS, project manager, period 2007-2008.

Research Fellowships and Scholarships

- Scholarship for excellence: Grant type BD 55/ 2006, given by Ministry of Education and Scientific Research;
- Postdoctoral scholarship, project theme: Advanced mechatronic systems for optimum management and efficiency increase of energy consumption (eSMART), period 2014-2015.

International research projects

- FP7 Project: The Digital Environmental Home Energy Management System (DEHEMS), member in the project research team, period 2008-2011

National research project

- Member in more than 11 research project teams (selection):
- Project: Development of Sustainable Structural Elements through 3D Printing of Fiber-Reinforced Ultra-High-Performance Concrete, grant 100PED/2025, research team member, period 2025-2027
 - Project: Continuous robotic arm for automated harvesting and inspection with applications in vertical farming PYTHON, grant 303 PED/2020, research team member, period 2020-2022
 - Project: Autonomous robotic systems for waste management in the context of the smart city, grant PN-III-P1-1.2-PCCDI-2017-0086 / 22/2018, research team member, period 2018-2020
 - Project: Design, manufacturing and testing of a mechatronic system for multispectral surveillance of crops vegetation status, grant PN-II-PT-PCCA-2013-4-1629, research team member, period 2014-2017
 - Project: Research regarding advance control with application in mechatronics, *PNII, Program „Idei” no. 1072 / 2007*, research team member, period 2007-2010
 - Project: Multifunctional regional mechatronic laboratory, grant PN II Program Capacități No. 111/ CP/I, research team member, period 2007-2009
 - Project: Modeling, simulation and control laboratory with application in mechatronics, grant CEEEX/112 2006, research team member, period 2006-2008

Institutional/Educational Projects

- International project - *Joint MSc in Electrical Engineering* – JMEE, Project index 544644-TEMPUS-1-2013-1-UK-TEMPUS-JPCR, period 2014-2017
- International project - *Reshaped Partnerships for Competitiveness and Innovation Potential in Mechanical Engineering*, Project Index: 540425-LLP-1-2013-1-FI-ERASMUS-EKA, period 2013-2015
- National project - POSDRU - *Flexible professional training on mechatronic platforms* - FlexFORM, POSDRU 87/1.3/S/64069, member in the project management team, period 2011-2013

PUBLICATIONS

Publications summary

- 3 books and 7 book chapters
- 45+ scientific papers, including 15 Web of Science indexed journal papers and 25 ISI conference proceedings
- H-index (WoS): 6
- H-index (Google Scholar): 8

Selected Publications

- Lapusan, C., Negrutiu, C. M., & Sosa, I., Multi-Criteria Decision Framework for Optimal Robotic System Selection in 3D Concrete Printing. *Buildings*, 16(1), 202, 2026
- Lapusan, C., Chiorean, R. S., & Matis, R., Optimal Design of 3D-Printed Flexible Fingers for Robotic Soft Gripping of Agricultural Products, *Actuators*, Vol. 14, No. 10, p. 468, 2025
- Lapusan, C., Hancu, O., & Rad, C., *Shape Sensing of Hyper-Redundant Robots Using an*

- AHRS IMU Sensor Network*, *Sensors*, 22(1), 373, 2022
- Lapusan, C., Hancu, O., Rad, C., Numerical Shape Planning Algorithm for Hyper-Redundant Robots Based on Discrete Bézier Curve Fitting, *Machines*, 10(10), 894, 2022
 - Rad, C., Hancu, O., Lapusan, C., *Data-Driven Kinematic Model of PneuNets Bending Actuators for Soft Grasping Tasks*, *Actuators*, Vol. 11, No. 2, p. 58, 2022
 - Lapusan, C., Proiectare asistata de calculator, Ed. U.T. Press, Romania, 2020, ISBN: 978-606-737-437-7
 - Lapusan, C., Sisteme integrate in ingineria de precizie, Ed. U.T. Press, Romania, 2020, ISBN: 978-606-737-454-4
 - Lapusan, C., Bălan, R., Modelarea și simularea sistemelor mecatronice – Aplicații, Ed. Todesco, Romania, 2012, ISBN: 978-606-595-020-7
 - Romanian Patent No. 103548 from 28.01.2009, title: Portable laboratory for mechatronic education, patent holders: Mătieș, V., Bălan, R., Rusu, C., Hancu, O., Lăpușan, C., Besoiu, S.

ADDITIONAL INFORMATION

- Academic Leadership**
 - Founding Director of the Intelligent Mechatronic Systems Laboratory - IMSLab
 - Programme Coordinator of the Bachelor's Programme in Mechatronics (English-taught programme)
 - Project coordinator/manager for 2 research projects and 2 institutional projects
 - Academic Coordinator and Organizer of the Erasmus+ Blended Intensive Programme (BIP) "Mechatronics in Action: Design of Compliant Grippers for Soft Robotics" (2026).
 - Supervisor of more than 50 bachelor's and master's theses
 - Organizer of 10 national and international conferences, forums, workshops and scientific events
- Professional training**
 - MATLAB/Simulink, dSPACE HIL systems, PLC programming and control system modelling
- Awards**
 - Best paper award, 2014 IEEE International Conference on Automation, Quality and Testing Robotics (AQTR 2014)
- Peer-Review Activities**
 - Reviewer in international scientific conferences: CIRA07, IECON08, HSI09, MSC09 and ISI Journals: Robotics and Autonomous Systems, Journal of Control, Automation and Electrical Systems, Journal of King Saud University - Engineering Sciences
- Professional Memberships**
 - Member of IFToMM - International Federation for the Promotion of Mechanism and Machine Science
 - Member of IAENG - International Association of Engineers
 - Member of RSR – Robotics Society of Romania
 - Member of ARoTMMM - Romanian Association for Mechanisms and Machines Science
- Language(s)**
 - Romanian – mother language
 - English - C1

Date,
June 2026

Assoc. Prof. dr. Eng. Ciprian Lapusan