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 – Bachelor's Programme in Mechatronics (taught in English)

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

Teaching activities, Scientific research activities, Supervision of bachelor's and master's theses

2008 – 2012

Assistant professor

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

Teaching 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, Jyvaskyla (Finland)

Visiting Professor

November 2019; March 2025; March 2026

University of Jaen, Jaen (Spain)

Visiting researcher; Visiting Professor

RESEARCH AND INSTITUTIONAL PROJECTS

Project Coordinator / Project Manager

- Proof of Concept for a European Degree in Engineering (PROCEED), Erasmus+ project No. 101335621, Project Manager at TUCN partner level, period: 2026–2028.
- 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 No. 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, 2007;
- 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 Projects

Research team member in more than 11 national research projects (selection):

- Development of Sustainable Structural Elements through 3D Printing of Fiber-Reinforced Ultra-High-Performance Concrete, grant No. 100PED/2025, period: 2025–2027;
- Continuous Robotic Arm for Automated Harvesting and Inspection with Applications in Vertical Farming (PYTHON), grant No. 303PED/2020, period: 2020–2022;
- Autonomous Robotic Systems for Waste Management in the Context of the Smart City, grant No. PN-III-P1-1.2-PCCDI-2017-0086/22/2018, period: 2018–2020;
- Research on Advanced Control with Applications in Mechatronics, PN II – IDEAS Programme, grant No. 1072/2007, period: 2007–2010;
- Multifunctional Regional Mechatronics Laboratory, PN II – Capacities Programme, grant No. 111/CP/I, period: 2007–2009;
- Modelling, Simulation and Control Laboratory with Applications in Mechatronics, grant No. CEEX/112/2006, period: 2006–2008.

International Institutional Projects

Participated in 9 international institutional projects, including project and work package coordination roles (selection):

- European University of Technology (EUt+ Accelerate) – TUCN Coordinator of Task 3.1 – Transition towards European Curricula, with responsibilities for curriculum convergence and the development of joint European study programmes, period: 2024–2027;
- European University of Technology (EUt+) – Coordinator of Task 3.1 – Vocational Curricula at European consortium level, period: 2022–2024;
- Processing Complexity with Emotional, Sensorial and Spiritual Capacities (ProCESS), Erasmus+ Knowledge Alliances project No. 621398-EPP-1-2020-1-FR-EPPKA2-KA, WP7 – Dissemination and Exploitation Coordinator at consortium level, period: 2021–2024;
- Joint MSc in Electrical Engineering (JMEE), TEMPUS project No. 544644-TEMPUS-1-2013-1-UK-TEMPUS-JPCR, period: 2014–2017;
- Advancing University Education in Biomedical Engineering and Health Management in Kyrgyzstan (KyrMedu), Erasmus+ CBHE project No. 561894-EPP-1-2015-1-DE-EPPKA2-CBHE-JP, period: 2015–2019;
- Reshaped Partnerships for Competitiveness and Innovation Potential in Mechanical Engineering, Erasmus project No. 540425-LLP-1-2013-1-FI-ERASMUS-EKA, period: 2013–2015.

PUBLICATIONS

Publications Summary

- 3 books and 7 book chapters;
- More than 45 scientific publications, including 15 articles published in Web of Science-indexed journals and 25 papers published in Web of Science-indexed international conference proceedings;
- H-index: 6 (Web of Science); 8 (Google Scholar).

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

Books (selection)

- 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

Patents

- Romanian Patent No. 103548 from 28.01.2009, title: Portable laboratory for mechatronic education, patent holders: Mătieş, V., Bălan, R., Rusu, C., Hancu, O., Lăpuşan, C., Besoiu, S.

ADDITIONAL INFORMATION

Academic Leadership

- Founder and Director of the Intelligent Mechatronic Systems Laboratory (IMSLab), established in 2024;
- Programme Coordinator – Bachelor's Programme in Mechatronics (taught in English);
- Erasmus+ Coordinator at the Faculty of Automotive Engineering, Mechatronics and Mechanical Engineering (2023–2025);
- Principal Investigator of two research grants and coordinator of international institutional projects and work packages within European consortia;
- 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 and workshops.

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)

Editorial and Scientific Evaluation Activities

- Member of the Topical Advisory Panel for the journal Sustainability (MDPI);
- Research project evaluator for PN-IV – PTE, GNaC ARUT (2023), and Fondazione Cariplo – Young Researchers (2023) funding programmes;
- Reviewer for international scientific journals: Robotics and Autonomous Systems; Journal of Control, Automation and Electrical Systems; Sensors; Actuators; Applied Sciences; Biomimetics; Machines; Agriculture;
- Reviewer for international scientific conferences: CIRA07; IECON08; HSI09; MSC09; ICIE'20; MediTech26.

Professional Memberships

- Member of IFToMM - International Federation for the Promotion of Mechanism and Machine Science
- Member of IAENG - International Association of Engineers
- Member of ARoTMMM - Romanian Association for Mechanisms and Machines Science

Language(s)

- Romanian – native language;
- English - C1

Date,
October 2026

Assoc. Prof. Dr. Eng. Ciprian Lapusan