Cosmin Marcu

WORK EXPERIENCE

LECTURER – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 01/11/2010 – Current – CLUJ-NAPOCA, ROMANIA

- Teaching activities (courses and projects) at 4th year of study, *Robots Control Systems* course (in Romanian) at Automation and Applied Informatics specialization at the Faculty of Automation and Computer Science
- Research activities within the Robotics field disseminated into 3 book chapters and over 10 peer-reviewed scientific papers.
- Tutored more than 100 students diploma theses in the field of Robotics, Home Automation, Embedded systems.

TEACHING ASSISTANT – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 01/11/2007 – 01/11/2010 – CLUJ-NAPOCA, ROMANIA

- Teaching activities (laboratory) at 1st and 4th year of study of the Automation and Applied Informatics specialization at the Faculty of Automation and Computer Science: *Robot Control Systems* and *Computer Basics* (Linux)
- Research activities within the Robotics field, with main focus on robots' control and embedded systems
- Won a research grant through a national research competition in the Robotics field
- Defended Ph.D. thesis in the Automation field
- Maintained and updated the robotics software and hardware infrastructure of the Robotics laboratory
- Published 18 articles, 2 book chapters and 2 books as first author or co-author.

EMBEDDED SOFTWARE DEVELOPER (EXTERNAL) – AROBS TRANSILVANIA SOFTWARE – 01/05/2014 – 26/09/2025 – CLUJ-NAPOCA, ROMANIA

- Implemented software solutions for Home Automation systems with main focus on RTOS configuration, ZigBee and RFID applications for Cortex M0 and Cortex M3 MCUs.
- Designed and implemented generic software solution for automotive NFC communication, with main focus on SPI communication and NFC protocols implementation for various tag types.
- Implemented safety relevant (ASIL) automotive software solutions for Body Control Module (BCM), with main focus on application layer of ignition terminal control and diagnosis components.
- Designed and implemented embedded software solutions for autonomous vehicle battery switch system, with main focus on current/voltage control and error management.
- Designed and implemented software solutions for automotive transmission systems, both at architecture and development level. Implemented and tested solutions for actuators control of complex automotive transmission systems (automatic gear boxes).
- Conducted through review, testing and debugging all the implemented software solutions, ensuring the standard requirements in terms of process and safety (AutoSAR and PowerSAR).

EDUCATION AND TRAINING

01/11/2003 – 01/11/2010 Cluj-Napoca, Romania
PH.D. Technical University of Cluj-Napoca

Field of study Automation

01/10/2003 – 01/10/2005 Cluj-Napoca, Romania
M.SC. Technical University of Cluj-Napoca

Field of study Applied Informatics and Programming

01/10/1998 – 01/07/2003 Cluj-Napoca, Romania
ENGINEER Technical University of Cluj-Napoca

Field of study Industrial Robots and Flexible Manufacturing Systems

LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

embedded systems | robotics

Programming

C++ | C | 2D/3D Graphics programming with DirectX and OpenGL | PHP | Assembly (Assembly language)

Operating Systems

Linux | Windows

PUBLICATIONS

2006

An OpenGL application for industrial robots simulation

Authors: C. Marcu; Gh. Lazea; R. Robotin | **Journal Name**: 2006 IEEE International Conference on Automation, Quality and Testing, Robotics | **Publisher**: IEEE

2010

3D graphical simulation of an articulated serial manipulator based on kinematic models

Authors: C. Marcu; Gh. Lazea; S. Herle; R. Robotin; L. Tamas | **Journal Name**: 19th International Workshop on Robotics in Alpe-Adria-Danube Region (RAAD 2010) | **Publisher**: IEEE

2012

Video based control of a 6 degrees-of-freedom serial manipulator

Authors: C. Marcu; S. Herle; L. Tamas; Gh. Lazea | **Journal Name**: Proceedings of 2012 IEEE International Conference on Automation, Quality and Testing, Robotics | **Publisher**: IEEE

2020

Navigation of Outdoor Mobile Robots with Extended Grid Algorithms

Authors: Cosmin Marcu; Levente Tamas | **Journal Name**: 2020 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR) | **Publisher**: IEEE

2008

Industrial robot controller using miniature computers

Authors: C. Marcu; Gh. Lazea; R. Robotin; S. Herle; L. Tamas | **Journal Name**: 2008 IEEE International Conference on Automation, Quality and Testing, Robotics | **Publisher**: IEEE

2024

Compression Algorithm for Extended Grid Coordinates used in Mobile Robots Navigation

Authors: Cosmin Marcu; Claudia Tigauan | **Journal Name**: 2024 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR) | **Publisher**: IEEE

PROJECTS

01/01/2007 – 01/01/2008

Experimental stand for industrial robots simulation

01/01/2007 – 31/12/2007
Development of perception multi-sensor and sensor fusion systems for mobile robots

01/01/2007 – 31/12/2010
Methods and technologies based on molecular and cellular medicine used in surgery and treatment for bone cancer, bone metastases and osteo-articular lesions - OSMOCEL

01/01/2006 – 31/12/2007
Intelligent monitoring system for early warning on spread of pandemic viruses, SIMONPAN

22/09/2025 – 31/12/2026
Methods for Improving the Autonomy of Robots' Actions and the Perception of the Surrounding Environment (MONTANA)

CERTIFICATIONS

ANCOM, 01/01/1999
CEPT/HAREC Class 1 Amateur Radio Communication

Mode of learning: Work based

VOLUNTEERING

01/01/2014 – CURRENT Cluj-Napoca
Community emergency response

Member of CERT Transilvania (Community emergency response team)

Cluj-Napoca, 03.02.2026

Cosmin Marcu