



Szilárd ENYEDI

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WORK EXPERIENCE

ASSOCIATE PROFESSOR – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 01/10/2009 – Current – CLUJ-NAPOCA, ROMANIA

Address: Memorandumului 28, 400114, Cluj-Napoca, Romania | **Website:** <http://www.utcluj.ro>

Courses taught:

- Reliability and Diagnosis;
- Advanced Internet Technologies;
- User Interface Programming;
- Applications for the WWW;
- Web Technologies;
- Project Management;
- Digital Graphics;
- Computer-Aided Design;
- Distributed Control Systems;
- Process Equipment and Interfaces;
- Computer Programming;
- Advanced Programming;
- Operating Systems and Networks.

WEBSITE ADMINISTRATOR – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 03/2016 – Current – CLUJ-NAPOCA, ROMANIA

- Hardware/software installation, security, CMS system adaptation, back-end/front-end development for the department and research projects;
- Server deployment, optimization and management;
- Site maintenance, staff, announcements, bilingual information.

MOODLE LMS AND ONLINE/OFFLINE QUIZZES MANAGER – UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA – 02/2015 – Current – CLUJ-NAPOCA, ROMANIA

- Hardware/software installation, security and maintenance of Moodle teaching system and modules for online/offline examination;
- Creation and management of teaching material, question banks and quizzes for examination in Moodle;
- Management of topics and printed grids, for scoring and automated analysis of results;
- Trainer for creating and managing teaching material and online/offline quizzes in Moodle.

DEVELOPER FOR CONFERENCE SUBMISSION AND REVIEW SYSTEM, REGISTRATION SYSTEM, ONLINE PAYMENT AND ON-SITE CHECK-IN SOLUTION – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 2012 – Current – CLUJ-NAPOCA, ROMANIA

- Hardware/software installation, solution development and deployment for the IEEE AQTR conference sites (2004-ongoing), IEEE ETS 2015, IEEE DDECS 2019, ICSTCC 2025;
- Improvement, deployment and management of the PCChair paper submission/review system, for AQTR;
- Developing and securing the event participants registration and management system;
- Developing and securing the online payment subsystem, by bank transfer, online payment by card or at the event;
- Developing and securing the check-in subsystem, including a hybrid mobile application, for the multi-desk parallel management of registered guests arriving at the event.

IT TRAINER – CLUJ MINING INFORMATICS CENTER – 07/2014 – 10/2015 – CLUJ-NAPOCA, ROMANIA

- Mobile applications course;
- Multimedia and web applications course.

IT TRAINER – YPSYS S.A. – 05/04/2010 – 10/04/2010 – EYSINS, SWITZERLAND

Address: Route de Crassier 7, 1262, Eysins, Switzerland

- Development training in Visual Studio and .NET.

UNIVERSITY ENGINEERING LECTURER – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 27/02/2007 – 30/09/2009 – CLUJ-NAPOCA, ROMANIA

UNIVERSITY ASSISTANT LECTURER – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 01/03/2005 – 26/02/2007 – CLUJ-NAPOCA, ROMANIA

JUNIOR LECTURER – TECHNICAL UNIVERSITY OF CLUJ-NAPOCA – 01/10/2001 – 28/02/2005 – CLUJ-NAPOCA, ROMANIA

IT TRAINER – IPA S.A., CLUJ-NAPOCA BRANCH – 2002 – CLUJ-NAPOCA, ROMANIA

Address: Zorilor 15, 400335, Cluj-Napoca, Romania

- Internet Basics course

IT TRAINER – CLUJ CHAMBER OF COMMERCE AND INDUSTRY – 2001 – CLUJ-NAPOCA, ROMANIA

Address: Horea 3, 400174, Cluj-Napoca, Romania

- Internet Basics course;
- Course o Basics of programming in Delphi.

● **EDUCATION AND TRAINING**

02/2024 United States

ADVANCED DIGITALIZATION OF INDUSTRIES: FROM INDUSTRIAL IOT TO CLOUD/FOG AUTOMATION
IEEE IoT Technical Community

- Vision of Cloud/Fog Automation
- Software defined wireless for Cloud/Fog Automation
- 5G for Cloud/Fog Automation
- Communication-Computing-Control Co-Design
- Future perspectives

Field of study Inter-disciplinary programmes and qualifications involving Information and Communication Technologies (ICTs)

02/2024

HOW C-V2X IS BOLSTERING AUTOMOTIVE SAFETY IEEE Continuing Education

- Improving ADAS systems with C-V2X
- C-V2X interoperability with global and regional standards
- C-V2X security
- The OmniAir system

11/2023

ADAPTING THE ELECTRICAL GRID FOR GREEN ENERGY IEEE Continuing Education

- Renewable energy
- The latest in storage solutions
- Multi-physics simulation of solutions (fluid, thermal, electrical, magnetic, chemical)

09/2021

BLOCKCHAIN EXPERIENCE IEEE EMEA

- Blockchain in Europe
- Blockchain and IoT
- Blockchain in supply chains
- Fintech and blockchain
- Online voting and blockchain
- Cryptocurrencies
- The electronic health record and blockchain

05/2021

THE IMPORTANCE OF COLLABORATION IN RESEARCH Clarivate Web of Science

- Assessment, identification and openness to collaboration
- Improving visibility
- Unlocking barriers

05/2021

FUNDING OF RESEARCH ACTIVITIES Clarivate Web of Science

- Identifying historical trends
- Alignment of research results with the strategic plan

02/2021

AWS INNOVATE - AI & MACHINE LEARNING Amazon, Inc. & Intel, Inc.

- Creating machine vision models
- Machine learning scaling
- Implementing machine learning models
- Open-source platforms for machine learning

2020

MICROSOFT TEAMS TRAINING Technical University of Cluj-Napoca

05/11/2019 Cluj-Napoca, Romania

TEACHING WITH MATLAB Technical University of Cluj-Napoca

- Installing MATLAB
- Using MATLAB to Increase Student Engagement
- Student engagement with "live scripts"
- Access and run MATLAB files from anywhere with MATLAB Online
- Use MATLAB Drive to share files with collaborators and students
- Incorporating MATLAB educational resources into the teaching process
- Assessing knowledge with MATLAB Grader

National classification Nivelul 7 CEC

06/2018 Cluj-Napoca, Romania

IBM WORKSHOP ON WATSON DEVELOPER CLOUD WITH BLUEMIX Technical University of Cluj-Napoca

- Cloud computing
- Bluemix Services
- SPSS Statistics
- IBM Watson

National classification Nivelul 6 CEC

11/07/2016 – 16/07/2016 Romania

SMART CITIES SUMMER SCHOOL Technical University of Cluj-Napoca, OSUT Cluj-Napoca, Innovation Labs

- Electronics for the Internet of Things
- IoT sensor development and platforms
- Software for the Internet of Things

- Sensors and Peripherals
- Web servers

Level in EQF EQF level 6

19/02/2016 Cluj-Napoca, Romania

CERTIFICATE OF ENGLISH LANGUAGE PROFICIENCY Technical University of Cluj-Napoca

National classification Nivelul 6 CEC

13/05/2013 – 16/05/2013 București, Romania

SERVICE ORIENTED ARCHITECTURES Oracle University

Field of study Software and applications development and analysis | **Level in EQF** EQF level 7

15/10/2011 – 16/10/2011 Bucharest, Romania

ADVANCED USER OF CONCORD AND MOODLE EDUCATIONAL PLATFORMS Politehnica University Bucharest

Address Splaiul Independenței 313, 060042, Bucharest, Romania | **Field of study** Informatică |

National classification Nivelul 7 CEC

01/2010 – 01/2010 Cluj-Napoca, Romania

PROJECT MANAGER CERTIFICATE (R38) National Authority for Qualifications

Address Valter Mărăcineanu 1-3, 010155, Cluj-Napoca, Romania | **Field of study** Comerț și administrație |

Level in EQF EQF level 7

09/06/2008 – 11/06/2008 Cluj-Napoca, Romania

DELTA V IMPLEMENTATION SKILLS CERTIFICATE Emerson Process Management

- Implementation and usage of the DeltaV process management system.

Address P.O. Box 212, AE 2280, Cluj-Napoca, Romania | **Field of study** Inginerie și tehnici înrudite | **Level in EQF** EQF level 6

2000 – 2008 Cluj-Napoca, Romania

DOCTORATE IN ELECTRONIC AND TELECOMMUNICATIONS ENGINEERING Technical University of Cluj-Napoca

- Research and development in distributed systems, Internet and communications technologies.

Address Memorandumului 28, 400114, Cluj-Napoca, Romania | **Field of study** Electronics and automation |

Final grade Magna Cum Laude | **Level in EQF** EQF level 8

07/2007 – 07/2007 Cluj-Napoca, Romania

TESTSTAND USER CERTIFICATE Konrad GmbH

- Test development and evaluation
- Teststand platform usage

Address Fritz-Reichle-Ring 5, 78315, Cluj-Napoca, Romania | **Field of study** Electronics and automation |

Level in EQF EQF level 6

2000 – 2001 Cluj-Napoca, Romania

MASTER'S IN MODERN TECHNIQUES IN AUTOMATIC CONTROL Technical University of Cluj-Napoca

- Robust control, adaptive control
- Real time systems

- Signal processing
- Modeling and simulation of dynamic processes

Address Memorandumului 28, 400114, Cluj-Napoca, Romania | **Field of study** Inginerie și tehnici înrudite |

Level in EQF EQF level 7

1995 – 2000 Cluj-Napoca, Romania

BACHELOR'S IN AUTOMATION AND INDUSTRIAL INFORMATICS Technical University of Cluj-Napoca

- Data structures and programming techniques
- Database design and use
- Computer architectures and programming
- Data transmission
- Knowledge-based systems
- Electronics and electrotechnics
- Analysis and synthesis of control systems
- Systems theory
- Reliability and diagnosis
- Automation equipment

Address Memorandumului 28, 400114, Cluj-Napoca, Romania | **Field of study** Electronics and automation |

Level in EQF EQF level 6

1997 – 1999 Cluj-Napoca, Romania

PEDAGOGY CERTIFICATE Technical University of Cluj-Napoca

- Teaching methodologies
- Pedagogy

Address Memorandumului 28, 400114, Cluj-Napoca, Romania | **Field of study** Formarea profesorilor și științele educației |

Level in EQF EQF level 6

● LANGUAGE SKILLS

Mother tongue(s): **HUNGARIAN**

Other language(s):

| | UNDERSTANDING | | SPEAKING | | WRITING |
|-----------------|---------------|---------|-------------------|--------------------|---------|
| | Listening | Reading | Spoken production | Spoken interaction | |
| ROMANIAN | C2 | C2 | C2 | C2 | C2 |
| ENGLISH | C1 | C2 | C2 | C1 | C2 |
| ITALIAN | B2 | B1 | B1 | B1 | B1 |
| GERMAN | B2 | B1 | B1 | B1 | B1 |
| FRENCH | B1 | B1 | B1 | B1 | B2 |

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

● PROJECTS

Projects

National grants (selection):

- Sz. Enyedi (member): "Strategic Framework for the Adoption and Utilization of Innovative Technologies in Public Administration 2021-2027 - Solutions for Increasing the Efficiency of Activity", SIPOCA 704, MySMIS 2014+ 129878, 2020.
- Sz. Enyedi (member, education expert): "Entrepreneurial Competences and Research Excellence in Doctoral and Post-Doctoral Study Programs - ANTREDOC", POCU/380/6/13, 2019.
- Sz. Enyedi (member, long-term expert): "Robots and Society: Cognitive Systems for Personal Robots and Autonomous Vehicles - ROBIN", 72PCCDI, 3/2018.

- Sz. Enyedi (member, long-term expert): "Increasing the Competitiveness of Enterprises through Enhancing and Specializing Human Resources in New Technology Fields, in a Knowledge Based Society and for a Durable Development", POSDRU contract 81/3.2/S/53084, 2010 -2013.
- Sz. Enyedi (coordinator): "Contributions to the Design for Testability of Distributed Systems", CNCSIS contract type Td, code 222, no. 33385/2004, 2004-2006.

International grants (selection):

- Sz. Enyedi (member): "Design of self-maintaining, cloud-based cyber-physical systems based on cloud computing - CyCloSe", Romanian-Italian bilateral collaboration project, no. 642/2013
- Sz. Enyedi (member): "Design, Test and Verification of Embedded Systems with Microprocessors and Applications in the Diagnosis of Complex Systems", Romanian-Greek bilateral collaboration project, theme 5, 2003-2005.
- Sz. Enyedi (member): "Development of On-Line BIST Structures for Distributed Systems, in the Context of the Concurrent Engineering Environment", Romanian-Italian bilateral collaboration project, no. 42/2000, 2001-2003.

● **SKILLS ACQUIRED IN THE WORKPLACE**

Skills acquired in the workplace

- Technologies for education
- Automation of administrative tasks
- Advanced Internet technologies
- Internet of Things
- Blockchain and distributed storage
- Big Data
- Machine learning
- Neural Networks in Edge computing
- Mobile and wearable platforms
- e-Health
- Cyber-physical systems
- Communication systems
- Multiagent technologies
- Reliability and diagnosis
- Electrification of transport
- Modeling and simulation
- These were acquired through learning, training, practical experiments and the preparation of teaching material for courses and laboratories.

● **RESEARCH**

Research

- ORCID 0000-0002-1526-2666
- Over 70 papers published in journals and conference volumes
- 9 books and 2 book chapters
- 34 ISI citations, 22 other international citations
- Member of 31 research projects, 3 international, director of one
- Co-organizer of several international conferences
- Member of IEEE, IEEE Transportation Electrification Community, IEEE IoT Community and IEEE-TTTC (IEEE Test Technology Technical Council)

● **PUBLICATIONS**

Publications

Books and book chapters (9 books, 2 book chapters), selection:

- I. Stefan, D. Goța, L. Miclea, H. Vălean, and Sz. Enyedi, "Software testing techniques", 2023, Risoprint Publishing, ISBN 978-973-53-3002-6
- O. Stan, M. Misaros, Sz. Enyedi, and L. Miclea, "Introduction to system dependability - vol. 1", 2022, Ed. U.T.Press, ISBN 978-606-737-597-8
- Sz. Enyedi, A. I. Lengyel, L. Miclea, I. Ștefan, O. Stan, H. Vălean, "Development and testing of software applications vol. 1", 2014, Risoprint, ISBN 978-973-53-1319-7
- I. Ștefan, G. Moiş, S. Enyedi, and L. Miclea, "A Load Balancing Algorithm for Multi-agent Systems", in Service Orientation in Holonic and Multi-Agent Manufacturing Control, T. Borangiu, A. Thomas, and D. Trentesaux, Eds., Berlin, Heidelberg: Springer, 2012, pp. 103-114. doi: 10.1007/978-3-642-27449-7_8.
- Sz. Enyedi, L. Miclea, I. Hoka, I. Popa, and A. Gut, "Dezvoltarea aplicațiilor Web cu instrumente Open-Source [Web Applications Development with Open-Source Tools]", Eikon, Cluj-Napoca, 2007, ISBN 978-973-757-054-3, 167 p.

Papers in journals (20, 12 internationally indexed), selection:

- M. Misaroş, O. P. Stan, S. Enyedi, A. Stan, I. Donca, and L. C. Miclea, "A Method for Assessing the Reliability of the Pepper Robot in Handling Office Documents: A Case Study", *Biomimetics*, vol. 9, no. 9, p. 558, Sep. 2024, doi: 10.3390/biomimetics9090558.
- O. P. Stan et al., "Method to Increase Dependability in a Cloud-Fog-Edge Environment", *Sensors*, vol. 21, no. 14, p. 4714, Jul. 2021, doi: 10.3390/s21144714.
- C. Corches, M. Daraban, O. Stan, S. Enyedi, and L. Miclea, "Interconnection of Systems with Cloud-Fog-Edge architectures: Concept and Challenges", *Journal of Control Engineering and Applied Informatics*, vol. 23, no. 1, pp. 60-71, Mar. 2021
- S. Enyedi, L. Miclea, and I. Ştefan, "Increasing systems' availability through agents and reconfigurable systems", *Journal of Automation, Computers, Applied Mathematics (ACAM)*, vol. 17, no. 4, pp. 588-592, 2008.
- L. Miclea, S. Enyedi, P. Prinetto, and A. Benso, "Agent-based test and repair of distributed systems", *Journal of Embedded Computing*, vol. 1, no. 3, pp. 405-414, Aug. 2005, doi: 10.3233/EMC-2005-00042.

Conference papers (44 papers: 8 as first author, 22 indexed in Clarivate Web of Science), selection:

- S. Enyedi, C. Deac, L. Miclea, O.-P. Stan, D. I. Gota, and M. Misaros, "A Reliability and Performance Study of Neural Networks on Resource-Constrained Platforms", in *Electronics, Communications, and Control Engineering*, vol. 1490, H. Yamauchi, K. Wang, and I. Song, Eds., in *Lecture Notes in Electrical Engineering*, vol. 1490, Singapore: Springer Nature Singapore, 2026, pp. 39-50. doi: 10.1007/978-981-95-2820-2_4.
- S. Enyedi, "On the Feasibility of Deep Learning Classification from Raw Signal Data in Radiology, Ultrasonography and Electrophysiology", in *2024 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR)*, Cluj-Napoca, Romania: IEEE, May 2024, pp. 1-6. doi: 10.1109/AQTR61889.2024.10554095.
- S. Enyedi, "Electric cars - Challenges and trends", in *2018 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR)*, May 2018, pp. 1-8. doi: 10.1109/AQTR.2018.8402776.
- S. Folea, S. Enyedi, L. Miclea, and H. Hedesi, "Reconfigurable test platform for modular embedded systems in manufacturing processes", in *2015 10th International Design & Test Symposium (IDT)*, Dec. 2015, pp. 72-77. doi: 10.1109/IDT.2015.7396739.
- L. Miclea, E. Szilard, G. Todorean, A. Benso, and P. Prinetto, "Agent based DBIST/DBISR and its Web/wireless management", in *International Test Conference, 2003. Proceedings. ITC 2003.*, Sep. 2003, pp. 131-139 Vol.2. doi: 10.1109/TEST.2003.1271203., "Award of Excellence".

● PATENT

Patent

- L. Miclea, D. Sauciuc, O. Stan, I. Paun, C. Dehelean, Sz. Enyedi, I. Stefan, "Patient's Electronic Health Record at national level and the method of its realization", reg. A/10033/2010, Bucharest, Romania.

● CO-ORGANIZER OF INTERNATIONAL CONFERENCES

Co-organizer of international conferences

- IEEE Automation, Quality and Testing, Robotics AQTR, Cluj-Napoca, Romania, 2002-ongoing, <https://www.aqtr.ro>
- IEEE International Conference on System Theory, Control and Computing 2025, Cluj-Napoca, Romania, <https://icstcc2025.utcluj.ro/>
- Design and Diagnostics of Electronic Circuits and Systems 2019, Cluj-Napoca, Romania, <https://www.lirmm.fr/ddecs2019/>
- ETS 2015, Cluj-Napoca, Romania, 2015, <http://www.ets15.ro>
- ACSC 2009, Cluj-Napoca, Romania, 2009
- IFAC ICPS, Cluj-Napoca, Romania, 2007, <http://conference.utcluj.ro/icps07/>

● AWARDS

Awards

- L. Miclea, D. Sauciuc, O. Stan, C. Dehelean, Sz. Enyedi, I. Stefan, Diploma of Honor for the patent application "Patient's Electronic Health Record and its Creation Method", Inventica 2011, Iasi, Romania, 8-10 June 2011.
- L. Miclea, D. Sauciuc, O. Stan, C. Dehelean, Sz. Enyedi, I. Stefan, Gold Medal for the patent application "Patient's Electronic Health Record and its Creation Method", Euro Invent exhibition, Iasi, Romania, May 2011.
- Enyedi Sz., IEEE Computer Society "Certificate of Appreciation", Santa Cruz, CA, USA, May 2009.
- Enyedi Sz., IEEE-TTTC "Gerald W. Gordon Award", Santa Clara, CA, USA, November 2006.

● REVIEWER

Reviewer

For 17 publications - one ISI indexed journal, 13 ISI indexed conference volumes, 3 other internationally indexed conference volumes, selection:

- IEEE Automation, Quality and Testing, Robotics AQTR, Cluj-Napoca, Romania, 2006-ongoing, <https://www.aqtr.ro>;
- International Conference on System Theory, Control and Computing CSTCC 2017, 2018 and 2019, Sinaia, <http://icstcc2019.cs.upt.ro>;
- European Test Symposium ETS 2009, 2012-2017 and 2019, <http://www.ieee-ets.org>;
- Asian Test Symposium ATS 2016, <http://www.ieee-ats.org>;
- Design & Technology of Integrated Systems in Nanoscale Era DTIS 2014, <http://www.dtis2014.teiath.gr>;
- International Conference on Social Eco-Informatics SOTICS 2013-2014, <https://www.iaia.org/conferences2014/SOTICS14.html>;
- IADIS Web Based Communities WBC 2011-2014, <http://www.webcommunities-conf.org>;
- Journal of Control Engineering and Applied Informatics CEAI, București, Romania, <http://www.ceai.srait.ro>, ISSN 1454-8658, 2010;
- IEEE VLSI Test Symposium 2009, Santa Cruz, California, USA, <http://www.vlssymposium.org/Past/09web/>.

● **ORGANISATIONAL SKILLS**

Organisational skills

Organisational skills, acquired through co-organization of international conferences, research projects and as coordinator/consultant of diploma, dissertation and doctoral theses.

● **COMMUNICATION AND INTERPERSONAL SKILLS**

Communication and interpersonal skills

- Leadership and teamwork skills, acquired through coordination and participation in national and international projects.
- Communication and public presentation skills, acquired through teaching activities and participation in conferences and public events.