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WORK EXPERIENCE

 **TECHNICAL UNIVERSITY OF CLUJ-NAPOCA** – CLUJ-NAPOCA, ROMANIA

ASSOC.PROF. – 01/10/2022 – CURRENT

Teaching

Responsible for the *Optoelectronics* discipline for the 3rd year undergraduate students of the Faculty of Electronics, Telecommunications, and Information Technology. I deliver *Optoelectronic* lectures and labs in Romanian and English. Supervisor of 70 graduation diploma works (bachelor's/master's) from 2009 to 2025.

 **TECHNICAL UNIVERSITY OF CLUJ-NAPOCA** – CLUJ-NAPOCA, ROMANIA

LECTURER – 01/10/2013 – 01/10/2022

 **TECHNICAL UNIVERSITY OF CLUJ-NAPOCA** – CLUJ-NAPOCA, ROMANIA

ASSIS.PROF. – 01/03/2009 – 01/10/2013

RESEARCH

Research field

Main research activities are closely related to optoelectronic sensors with biomedical and industrial applications, photovoltaic energy, and electronic circuit design. Among the optoelectronic sensors are those based on polymer optical fiber, such as: humidity sensors, weight sensors, temperature sensors, security sensors, and safety sensors.

Research Identifier

- ResearcherID: [AAC-4482-2021](#)
- Scopus Author ID: [24829670700](#)
- ORCID: [0000-0002-9342-7403](#)

Research projects

1. Project manager for UTCN in the national project "Smart power supplies based on the use of green and renewable energy sources for "on-body" sensors and portable devices", Project Code: PN-III-P2-2.1-PED-2019-2601, (2020-2022).
2. Project manager of the research-development-innovation project "Development and realization of a prototype of Waveselector/Optical Spectrometer integrable in reconfigurable optical networks, with grating element (Conventional & PMP/PZL) operable for Vis spectral measurements (400-700nm), spectral resolution 10nm", having UTCN as executor and S.C. SITEX 45 SRL as beneficiary, UTCN Nr. 10755/12.04.2022, (2022-2023).
3. Member of the national project "Single-component active materials for organic solar cells based on self-assembled pi-conjugate compounds (SMOSCs)", Project funded by the Competitiveness Operational Programme (POC) 2014-2020, Project ID: P_37_220, (2017-2020).
4. Member of the national project "Intelligent Dam Behavior Monitoring System through Information Fusion (DAMFU)", PN-III-P2-2.1-PTE-2016-0134, 45PTE/2016, (2016-2018). Responsible for the fiber optic system design and implementation for displacement detection.
5. Member of the national project "Innovative COFs and hybrid metal@COF materials for smart applications: heterogeneous catalysis and Single Material Organic Solar Cells (SMOSCs)", Acronym: ICOFCOSC, Project PN-III-P4-PCE-2021-1812, (2022-2024).

● EDUCATION AND TRAINING

19/12/2012

PHD DEGREE Technical University of Cluj-Napoca

2008

MASTER'S DEGREE IN MICROELECTRONICS AND ELECTROMAGNETIC COMPATIBILITY Technical University of Cluj-Napoca

2005

TELECOMMUNICATION ENGINEER DEGREE Technical University of Cluj-Napoca

● INTERNSHIPS

Abroad

- March-April 2016, Research internship in the Laboratory of Special Optical Fibers within the XLIM Research Institute of UNILIM University in Limoges (France)
- February-March 2019, Research Internship in the Organic Solar Cell Laboratory at the Moltech Research Institute in Angers (France)

● CONFERENCES AND SEMINARS

Technical Committee Member

- REEE 2021 (The 4th International Conference on Renewable Energy and Environment Engineering)
- CIEES 2021 (The International Conference Communications, Information, Electronic and Energy Systems)
- CEES 2022 (The 4th International Conference on Clean Energy and Electrical Systems)
- EEPES 2022 (The International Conference on Electronics, Engineering Physics and Earth Science)
- ICPET 2022 (The 4th International Conference on Power and Energy Technology)
- CPESE 2022 (9th International Conference on Power and Energy Systems Engineering)
- ICPRE 2022 (The 7th International Conference on Power and Renewable Energy)
- REPE 2022 (The 5th International Conference on Renewable Energy and Power Engineering)
- CIEES 2022 (International Conference on Communications, Information, Electronic and Energy Systems)
- ICPEE 2022 (The 3rd International Conference on Power and Electrical Engineering)
- CEES 2023 (The 5th International Conference on Clean Energy and Electrical Systems)
- ICEEE 2023 (10th International Conference On Electrical And Electronics Engineering)
- EREE 2023 (5th International Conference on Environment, Resources and Energy Engineering)
- EEPES 2023 (International Conference on Electronics, Engineering Physics and Earth Science)
- ICPEE 2023 (The 4th International Conference on Power and Electrical Engineering)
- CIEES 2023 (The 4th International Scientific Conference of Communications, Information, Electronic and Energy Systems)
- EEPES 2024 (International Conference on Electronics, Engineering Physics and Earth Science)
- EREE 2024 (6th International Conference on Environment, Resources and Energy Engineering)
- ICPET 2024 (The 6th International Conference on Power and Energy Technology)
- EEPES 2025 (International Conference on Electronics, Engineering Physics and Earth Science)
- ICPET 2025 (The 7th International Conference on Power and Energy Technology)

Session Chair

- REEE 2020 (The 4th International Conference on Renewable Energy and Environment Engineering)
- REEE 2021 (The 4th International Conference on Renewable Energy and Environment Engineering)
- EREE 2022 (The 4th International Conference on Environment, Resources and Energy Engineering)
- iEECON 2023 (The 2023 International Electrical Engineering Congress)
- ACDSA 2024 (International Conference on Artificial Intelligence, Computer, Data Sciences and Applications)
- TIME-E 2024 (IEEE International Conference on Technology, Informatics, Management, Engineering and Environment)
- ICECCME 2024 (The 4th International Conference on Electrical, Computer, Communications and Mechatronics Engineering)
- iEECON 2025 (The 2025 International Electrical Engineering Congress)

Invited Speaker

- EREE 2024 (6th International Conference on Environment, Resources and Energy Engineering) - *"Organic Photovoltaic Solar Cells: From Theory to Lab Testing and Manufacturing"*
- AIMS 2025 (International Conference on Artificial Intelligence and Mechatronics Systems) - *"Organic Photovoltaic Solar Cells: From Theory to Lab Testing and Manufacturing"*

Reviewer for Journals

- Sensors-Basel
- Applied Sciences-Basel
- Agriculture-Basel

● ERASMUS COLLABORATIONS

ERASMUS MUNDUS

2018-2023 - Responsible for the Technical University of Cluj-Napoca for the Erasmus Mundus project: **EMIMEO** (Erasmus Master on Innovative Microwave Electronics and Optics)

- 2018-Present and Professor in this Master Mundus for the "Optoelectronics" module
- The organizer of the R&I Week (Research & Industrial Week) in Cluj-Napoca for students enrolled in this master's program.
- <http://www.erasmus-master.emimeo.eu/context-consortium/partners/>

2023-2028 - Responsible for the Technical University of Cluj-Napoca for the Erasmus Mundus project: **EMIMEP** (European Master for Industry in Microwave Electronics and Photonics)

- The organizer of the R&I Week (Research & Industrial Week) in Cluj-Napoca for students enrolled in this master's program.
- <https://www.erasmus-mundus.emimep.eu/context-consortium/industrial-partners/>

ERASMUS K171 Agreements

- 2024-2027 - Montclair State University (MSU), New Jersey, SUA
- 2024-2027 - Prince of Songkla University (PSU), Thailand
- 2024-2027 - University of Seychelles (UNISEY), Seychelles
- 2023-2026 - Quy Nhon University, Vietnam
- 2023-2026 - University of San Carlos (USC), Filipine
- 2023-2026 - Universiti Kebangsaan Malaysia (UKM), Malaysia

ERASMUS Plus Agreements

- Università degli Studi di Brescia, Brescia (Italy)
- University of the Basque Country, Bilbao (Spain)

● SKILLS AND ABILITIES

Skills

- Design of analog and digital integrated circuits and printed circuit boards: Eagle Autodesk, Orcad Cadence, Ltspice;
- Making PCBs using press & peel technique, UV technique and CNC engraving technique;
- Design and printing of 3D models: Fusion Autodesk;
- Designing systems on Arduino and Raspberry Pi platforms;
- Design of integrated optical systems and fiber optic communication systems using: Optiwave;
- Maintenance of fiber optic systems and fiber optic measurements: Fusion Splicer and OTDR;
- Programming languages and software development environments: MATLAB, Arduino IDE, C / C ++;
- Development, maintenance and management of computer networks and related equipment;
- Implementation, testing, analysis and improvement of organic cells using equipment that uses techniques such as: PVD (Physical Vacuum Deposition), spin-coating, UV-Vis analysis, artificial sun, monochromator, profilometer.

● ORGANISATIONAL SKILLS

Events

Organizing the "R & I (Research and Industrial) Week" within the Erasmus Mundus EMIMEO Master (Erasmus Master on Innovative Microwave Electronics and Optics):

<http://www.erasmus-master.emimeo.eu/>

- elaborate of the agenda of events by days and time intervals
- gathering prestigious guests during the event
- organizing visits to companies
- organizing social events
- accommodation, transport and meals for a group of 30 people from abroad

Organizing the SSET student symposium (Student Symposium of the Faculty of Electronics, Telecommunications and Information Technology):

<https://etti.utcluj.ro/conferinte-studentesti.html>

- communicate with the sponsoring companies of the event
- informing students through online media
- checking the submitted works
- elaborate of the event agenda
- communicate with the members of the works evaluation commissions
- awarding of prizes

● LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN** | **HUNGARIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	B2	B2	B2

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

Publications (2006-2025)

Books and Book Chapters

1. L. Festila, M. Gordan, M. Cirlugea, G. Oltean, S. Hintea, G. Csipkes, C. Rus, R. Groza, **L. Szolga** "Circuite Analogice pentru Clasificatoare Masini cu Vectori Suport", 2007, ISBN 978-973-133-107-2, Casa Cartii de Stiinta Cluj-Napoca
2. **L. Szolga**, A. Strugaru "Emergency Siren Detection System for Hearing Impaired People", 2021, ISBN 978-606-062-305-2, Napoca Star
3. **L. Szolga**, C. Chirila "Development of a Thermal Imaging Camera Using an Infrared Thermopile Array Sensor", 2021, ISBN 978-606-062-381-6, Napoca Star
4. **L. Szolga** "Optoelectronics: basic optics, devices, and circuits", 2022, ISBN 978-606-062-462-2, Napoca Star
5. **L. Szolga**, R. Gălătuș, E. Voiculescu "Optoelectronică – Îndrumător de laborator", 2013, ISBN 978-973-662-858-0, U.T.Press Cluj-Napoca
6. **L. Szolga**, R. Gălătuș, E. Voiculescu "Optoelectronics - Laboratory Guide", 2013, ISBN 978-973-662-859-7, U.T.Press Cluj-Napoca

Articles in Q1/Q2 indexed journals

1. Covaci, M.-A.; Gălătuș, R.V.; **Szolga, L.A.** „Transient Performance Improvement for Sustainability and Robustness Coverage in Hybrid Battery Management System ASIC Integration for Solar Energy Conversion”, Technologies, **2025**, 13, 430. DOI: 10.3390/technologies13100430, **Q1**
2. Covaci, M.-A.; Gălătuș, R.V.; **Szolga, L.A.** „Graphics Processing Unit Resource Optimization for Orbital Alt-Azimuth Targeting Calibration in Alternative Laser Transmission Energetic Infrastructures”, Technologies, **2025**, 13, 429. DOI: 10.3390/technologies13100429, **Q1**
3. Majumdar, S.; Awasthi, A.; **Szolga, L.A.** „Spatiotemporal Risk-Aware Patrol Planning Using Value-Based Policy Optimization and Sensor-Integrated Graph Navigation in Urban Environments”, Appl. Sci., **2025**, 15, 8565. DOI: 10.3390/app1515856, **Q1**
4. T. Iliev, L. A. Szolga, G. Sergazin, Editorial for the Special Issue on “Application of Artificial Intelligence in the New Era of Communication Networks”, Electronics, Vol.14(7), AN 1315, **2025**, DOI: 10.3390/electronics14071315, **Q2**
5. Covaci, MA; Galatus, RV; **Szolga, LA***, "Stability improvement of high-power semiconductor laser diode regulators used in infrared solid-state laser applications", Optical and Quantum Electronics, Springer, **2024**, Vol.56(5), AN 776, DOI: 10.1007/s11082-024-06457-w, **Q1**
6. Covaci, MA; Galatus, RV; Petreus, DM; **Szolga, LA***, "Renewability and Robustness Analysis and Review for Sustainable-Technology Propulsion Systems in Modern Transportation Infrastructure Administration", Appl. Sci., **2023**, 13(24), AN 13026, DOI: 10.3390/app132413026, **Q1**
7. Potarniche, IA; Sarosi, C; Terebes, RM; **Szolga, L**; Galatus, R, "Classification of Food Additives Using UV Spectroscopy and One-Dimensional Convolutional Neural Network", Sensors, **2023**, Vol.23(17), AN 7517, DOI: 10.3390/s23177517, **Q2**
8. Băti, G; Csókás, D; Giurgi, GI; Zhou, JS; **Szolga, LA**; Webster, RD; Stuparu, MC, "Non-Fullerene Electron Acceptors Based on Hybridisation of Corannulene and Thiophene-S,S-Dioxide Motifs", Chemistry A-European Journal, **2023**, Vol.29(18), DOI: 10.1002/chem.202203856, **Q2**
9. **Szolga, LA***; Bozga, DA; Florea, C, "End-User Skin Analysis (Moles) through Image Acquisition and Processing System", Sensors, **2022**, Vol.22(3), AN 1123, DOI: 10.3390/S22031123, **Q2**
10. R. Kovacs, J. Kovacs, **L. Szolga***, "Device for Identifying the UV Emission Spectrum", Sensors, Vol.22(13), **2022**, AN 4852, DOI: 10.3390/s22134852, **Q2**
11. Giurgi, GI; **Szolga, LA***; Giurgi, DV, "Benefits of Fuzzy Logic on MPPT and PI Controllers in the Chain of Photovoltaic Control Systems", Appl. Sci., **2022**, Vol.12(5), AN 2318, DOI: 10.3390/app12052318, **Q2**
12. Covaci, MA; **Szolga, LA***, "Low-Voltage Plasma Generator Based on Standing Wave Voltage Magnification", Sustainability, **2022**, Vol.14(5), AN 2890, DOI: 10.3390/SU14052890, **Q2**

13. Covaci, MA; **Szolga, LA***, "*Black-Box Mathematical Modeling and Heuristic Optimizing of Hampson-Linde Cycle Based on Joule-Thomson Effect and Ohm's Law for Thermal Circuits*", Appl. Sci., **2022**, Vol.12(12), AN 6047 DOI: 10.3390/app12126047, **Q2**
14. Terenti, N; Giurgi, GI; Crisan, AP; Anghel, C; Bogdan, A; Pop, A; Stroia, I; Terec, A; **Szolga, L***; Grosu, I; Roncali, J "*Structure-properties of small donor-acceptor molecules for homojunction single-material organic solar cells*", Journal of Materials Chemistry C, **2022**, Vol.10(14), pp. 5716-5726, DOI: 10.1039/d2tc00430e, **Q1**
15. Terenti, N; Giurgi, GI; **Szolga, L**; Stroia, I; Terec, A; Grosu, I; Crisan, AP, "*Effect of the Terminal Acceptor Unit on the Performance of Non-Fullerene Indacenodithiophene Acceptors in Organic Solar Cells*", Molecules, **2022**, Vol.27(4), AN 1229, DOI: 10.3390/MOLECULES27041229, **Q2**
16. Pausescu, I; Todea, A; Dreava, DM; Boboescu, T; Patcan, B; Patcan, L; Albulescu, D; Badea, V; Peter, F; Totos, R; Ursu, D; **Szolga, L***; Medeleanu, M, "*Experimental and Computational Studies on Bio-Inspired Flavylum Salts as Sensitizers for Dye-Sensitized Solar Cells*", Materials, **2022**, Vol.15(19), AN 6985, DOI: 10.3390/ma15196985, **Q2**
17. Bogdan, A; **Szolga, L**; Giurgi, GI; Crisan, AP; Bogdan, D; Hadsadee, S; Jungsuttiwong, S; Po, R; Grosu, I; Roncali, J, "*Structure-properties relationships in triarylamine-based push-pull systems-C60 dyads as active material for single-material organic solar cells*", Dyes and Pigments, **2021**, Vol.184, AN 108845, DOI: 10.1016/j.dyepig.2020.108845, **Q1**
18. Nan, M.I., Lakatos, E., Giurgi, G.-I., **Szolga, L.**, Po, R., Terec, A., Jungsuttiwong, S., Grosu, I., Roncali, J "*Mono- and di-substituted pyrene-based donor-pi-acceptor systems with phenyl and thienyl pi-conjugating bridges*", Dyes and Pigments, **2020**, Vol.181, AN 108527, DOI: 10.1016/j.dyepig.2020.108527, **Q1**
19. Diac, AP; **Szolga, L**; Cabanetos, C; Bogdan, A; Terec, A; Grosu, I; Roncali, J, "*C-60-small arylamine push-pull dyads for single-material organic solar cells*", Dyes and Pigments, **2019**, Vol.171, AN 107748, DOI: 10.1016/j.dyepig.2019.107748, **Q1**

58 articles are indexed in international databases (Web of Science, Scopus, IEEE Xplore).
The extended list can be consulted at <https://www.brainmap.ro/lorant-andras-szolga>