

**Curriculum Vitae** 

#### INFORMAŢII PERSONALE



PROFESSIONAL EXPERIENCE

(01/10/2023 - present)

# Mușuroi Cristian Leonard

Transilvania University of Brasov, Department of Electrical Engineering and Applied Physics, Blvd. Eroilor 29, 500036 Brasov, Romania

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Sex M | Nationality Romanian

#### Assistant Professor

Transilvania University of Brasov, Department of Electrical Engineering and Applied Physics, Blvd. Eroilor 29, 500036 Brasov, Romania

Tel./Fax: 0268 41 57 12

Website: https://www.unitbv.ro/en/

- Teaching/learning activities, student practice, development of teaching and research infrastructure
- Scientific research activities, participation in scientific activities and events (conferences, competitions), participation in scientific research training programmes
- Electrical and magnetic characterisation methods, simulation of 2D and 3D electrical and magnetic circuits, experimental systems with magnetic microsensors, design and development of nanostructured magnetic systems.
- Analytical characterisation methods for advanced sensor systems and magnetic materials.
- Printed electronic systems, Lab-on-a-chip devices.

Type or sector: Higher education, research

#### (01/12/2018 - 31.12.2022)

#### Assistant researcher

Department of Electrical Engineering and Applied Physics, Transilvania University of Brasov, Blvd. Eroilor 29, 500036 Brasov, Romania

Tel./Fax: 0268 41 57 12

Website: https://www.unitbv.ro/en/

Scientific research activities, participation in scientific activities and events (conferences,

competitions), participation in scientific research training programmes

 Electrical and magnetic characterisation methods, simulation of 2D and 3D electrical and magnetic circuits, experimental systems with magnetic microsensors, design and development of nanostructured magnetic systems.

• Analytical characterisation methods for sensor systems. Design of printed circuit boards for advanced sensor systems. Lab-on-a-chip technologies.

Type or sector: Higher education, research

#### EDUCATION AND TRAINING

01/10/2020 - 12.12.2024 Doctorate in Electrical Engineering, Summa Cum Laude EQF LEVEL 8 Transilvania University of Brasov, Department of Electrical Engineering and Applied Physics, Blvd. Eroilor 29, 500036 Brasov, Romania Tel./Fax: 0268 41 57 12 Website: https://www.unitbv.ro/en/ Activities Theory of electromagnetism, materials and technologies used for the construction of magnetic microsensors and advanced technologies for the development of magnetic microsensors Number of ECTS credits: 60 Thesis entitled "Magnetoresistive Microsensors for Non-Contacting Current Measurement and Magnetic Nanoparticles Detection" defended on 6.09.2024. evaluated with Summa Cum Laude merits and PhD in Electrical Engineering confirmed on 12.12.2024. 6/9/2021 - 17/9/2021 Attendance Certificate Universitatea Babes-Bolyai - Cluj-Napoca, Romania/ Société Française de Physique -Conference/European Magnetism Association European School of Magnetism 2021 (ESM2021): www.magnetism.eu/189-2021-school.html

1/10/2018 – 07/2020	Master's Degree in Advanced Electrical Systems, Summa EQF LEVEL 7 Cum Laude				
	<ul> <li>Transilvania University of Brasov, Department of Electrical Engineering and Applied Physics, , Blvd.</li> <li>Eroilor 29, 500036 Brasov, Romania</li> <li>Tel./Fax: 0268 41 57 12</li> <li>Website: https://www.unitbv.ro/en/</li> <li>Programme of study: Advanced Electrical Systems (English).</li> <li>Major topics covered: Characterisation, simulation of complex electrical equipment including converters, renewable energy sources, microgrids etc.</li> <li>Number of ECTS credits: 120</li> </ul>				
	• Study years average: 9.87; Final diploma: 10				
1/10/2018 - 09/2020	Diploma thesis: Magnetoresistive Sensors and Nanoparticles Detection for Biomedical Diagnosis     Certificate of graduation of Psycho-Pedagogic studies level II     Transilvania University of Brasov, Department of Electrical Engineering and Applied Physics, Blvd.     Faciliar 20, 500026 Brasov, Department of Electrical Engineering and Applied Physics, Blvd.				
	Erolior 29, 500036 Brasov, Romania, https://didactic.unitby.ro/departamentul-pentru-pregatirea-personalului-didactic				
1/10/2015 – 9/2018	Certificate of graduation of Psycho-Pedagogic studies level I Transilvania University of Brasov, Department of Electrical Engineering and Applied Physics, Blvd. Eroilor 29, 500036 Brasov, Romania,				
4/40/0045 0/0040	https://didactic.unitbv.ro/departamentul-pentru-pregatirea-personalului-didactic				
1/10/2015 – 9/2018	Diplomă de Inginer, Magna cum Laude EQF LEVEL 6				
	Iransilvania University of Brasov, Department of Electrical Engineering and Applied Physics, Blvd. Eroilor 29, 500036 Brasov, Romania https://iesc.unitby.ro/en/				
	<ul> <li>Study Programme: Electrical and Computer Engineering (English)</li> </ul>				
	<ul> <li>Major Subjects Covered: Mathematics, Physics, Circuit Theory, Materials Science, Analogue/Digita Electronics, Programming (C, C++, Java, HTML, Javascript, LabVIEW, MATLAB etc.), Electrical Machines, Microprocessors etc.</li> </ul>	al			
	<ul> <li>Number of ECTS credits: 240</li> <li>Study years average: 9.20; Final diploma: 9.93; Bachelor Thesis: Electric Current Monitoring System based on GMR sensors</li> </ul>				
25/11/2017 – 24/3/2018	Attendance Certificate EQF LEVEL 3				
	Continental Automotive Systems Sibiu, Romania/ Transilvania University of Brasov MODEL BASED SOFTWARE APPLICATION DESIGN COURSE Professional competences: using efficient programming and simulation techniques (LabV/JEW)				
25/11/2016 – 24/3/2017	Attendance Certificate EQF LEVEL 3				
	Continental Automotive Systems Sibiu, România/ Transilvania University of Brasov MICROCONTROLLERS IN AUTOMOTIVE				
1/07/2016 - 1/9/2016	Freemust Traincoschin Contificate				
1012010 1102010	Erasmus+ Traineesnip Certificate EQF LEVEL 4 Technische universität Ilmenau, https://www.tu-ilmenau.de/ Simulating Electrical Contacts using "FirstContact" Software from TE Connectivity				
15/09/2010 – 15/9/2014	Baccalaureate Diploma "Dr. Ioan Meșotă" National College, Brasov, Romania, https://mesota.ro/nou/index.php				
1/10/201/	<ul> <li>Major subjects covered: English, Mathematics, Physics, Chemistry, Biology, Infomatics, etc.</li> <li>Trapelator with Secondary Education (English Language)</li> </ul>				
1/10/2014	"Dr. Ioan Mesotă" National College, Brasov, România, https://mesota.ro/nou/index.php				
15/09/2004 - 1/7/2013	Certificate in Classical and Modern Ballet				
	Popular School of Arts and Crafts, "Tiberiu Brediceanu", Brasov, Romania, https://www.artebrasov.ro/				
15/09/2007 – 1/7/2013	Certificate in Classical Guitar Popular School of Arts and Crafts, "Tiberiu Brediceanu", Brasov, Romania, https://www.artebrasov.ro/				
Demonal al-ille					
reisonai skilis					

# Mother tongue Other language(s) Romanian UNDERSTANDING SPEALING WRITING Listening Reading Spoken production Spoken interaction



Engleză	C2	C2	C2	C1	C2
Franceză	B1	B2	A2	A2	B1

Levels: A1/2: Elementary user - B1/2: Independent user - C1/2: Experienced user Common European Framework of Reference for Languages

Communication skills

- · Very good communication skills developed through teaching, research and other activities.
- Management skills through coordination of student groups, working groups, etc.
  Ability to deliver a speech on advanced topics in front of an audience.



# Curriculum Vitae

Management skills	<ul> <li>Leadership and management skills developed through various responsibilities in university research and projects involving a team of 50-60 people or more and through the coordination and organisation of scientific activities.</li> <li>Efficient and productive work techniques developed through time-bound research activity.</li> <li>Organisational skills of a class of students developed through varied teaching activities within the university over an extended period and through completion of Level I and Level II psychopedagogical modules.</li> </ul>
Work related skills	<ul> <li>I am enthusiastic to work with new and advanced technologies, advanced knowledge of computers and information technologies, advanced knowledge of electrical engineering.</li> <li>I have acquired knowledge in design, simulation, instrumentation and practical skills in nanotechnology, material engineering and sensor technologies</li> <li>Multi-disciplinary expertise, materialised by publishing international ISI listed papers, active member in national research projects and conducting PhD studies.</li> </ul>
Software skills	<ul> <li>Advanced knowledge: LabVIEW, COMSOL Multiphysics, OriginPro8, Kicad PCB design, MATLAB &amp; Simulink, AutoCAD, Solidworks, 2D and 3D OOMMF (Object Oriented Micromagnetic Framework), LLG Micromagnetics v4, Office Suite, etc.</li> <li>Intermediate knowledge: C/C++ programming language, HTML etc.</li> </ul>
Other skills	<ul> <li>Teaching music theory/practical courses (guitar).</li> <li>Classical guitar playing - long courses and advanced individual studies</li> <li>Dancing - extensive ballet/modern dance classes.</li> </ul>
Drivers Licence	• B
INFORMATII SUPLIMENTARE	
Publicaţii Prezentări	<ul> <li>Obver 6 articole ISI publicate în reviste ISI, 7 BDI</li> <li>Participarea cu lucrări ştiințifice în cadrul conferințelor internaționale (selecție): <ul> <li>[1] Exchange Biased Structures Used For Magnetic Nanoparticles Detection, TIM 20-21 Physics Conference, November 11th - 13th 2021, Timisoara, Romania, Secțiunea Applied Physics and Interdisciplinarity (API), Invited (API-103), Friday 12th of November 2021, Final Program, Page 6, https://timconference.uvt.ro/API_submissions.php</li> <li>[2] A. Bezergheanu, C.B. Cizmaş, M. Volmer, M. Oproiu, C. Muşuroi, "Magnetic and electric properties of printable perovskite type structures of (La1-xPrx)2/3Ba1/3MnO3 manganites", prezentare Poster, IV.PO.1. la 12th International Conference on Materials Science and Engineering – BraMat 2022, Braşov, România, 9-12 Martie 2022</li> <li>[3] Cristian Muşuroi, Marius Volmer, Elena Helerea, "Electromagnetic Field Modelling of Conductive Traces for a High-Precision Non-contacting GMR Current Sensor", prezentare orală, European Magnetic Sensors and Actuators Conference (EMSA) 5-8 lulie 2022, Madrid, Spania, https://www.emsa2022.com/index.php/programa/scientific-program</li> <li>[4] M. Volmer, L. Prejbeanu, A. Bezergheanu, C. Muşuroi, M. Oproiu, "Micromagnetic Simulations and Experimental Results on Magnetic Sensors and Actuators Conference (EMSA) 5-8 lulie 2022, Madrid, Spania, https://www.emsa2022.com/index.php/programa/scientific-program</li> <li>[5] M. Volmer, M. Oproiu, C. Muşuroi, "Micromagnetic Simulations and Experimental Results on Magnetic Sensors and Actuators Conference (EMSA) 5-8 lulie 2022, Madrid, Spania, Ntps://www.emsa2022.com/index.php/programa/scientific-program</li> <li>[5] M. Volmer, M. Oproiu, C. Muşuroi, "Micromagnetic Simulations and Experimental Results on Magnetic Sensors and Actuators Conference (EMSA) 5-8 lulie 2022, Madrid, Spania, https://www.emsa2022.com/index.php/programa/scientific-program</li> </ul> </li> </ul>
ANNEX	

Annex 1 – List of published works (selection) Annex 2 – List of grants and research projects



## <u>Annex 1</u>

#### List of published works

#### 1. Published articles which were ISI indexed (selection)

 Muşuroi C., Oproiu M., Volmer M., Firastrau, I. (2020). High Sensitivity Differential Giant Magnetoresistance (GMR) Based Sensor for Non-Contacting DC/AC Current Measurement. Sensors, 20(1), 323, <u>https://doi.org/10.3390/s20010323</u>
 Muşuroi, C., Oproiu, M., Volmer, M., Neamtu, J., Avram, M., & Helerea, E. (2021). Low Field Optimization of a Non-Contacting High-Sensitivity GMR-Based DC/AC Current Sensor. Sensors, 21(7), 2564. <u>https://doi.org/10.3390/s21072564</u>
 Mihai Oproiu, Cristian Muşuroi, Marius Volmer, "Low cost and integrable healthcare services using VoIP for remote patient monitoring", Published in: 2020 International Conference on e-Health and Bioengineering (EHB), https://doi.org/10.1109/EHB50910.2020.92802064

4. **Mușuroi, C**., Volmer, M., Oproiu, M., Neamtu, J., & Helerea, E. (2022). Designing a Spintronic Based Magnetoresistive Bridge Sensor for Current Measurement and Low Field Sensing. Electronics, 11(23), 3888, <u>https://doi.org/10.3390/electronics112338886</u> 5. Helerea, E., Calin, M. D., & Musuroi, C. (2023). Water Energy Nexus and Energy Transition—A Review. Energies, 16(4), 1879. <u>https://doi.org/10.3390/en16041879</u>

6.Bakhtiaridoost, S., **Musuroi, C.**, Volmer, M., & Florescu, M. (2024). Optoelectronic microfluidic device for point-of-care blood plasma viscosity measurement. Lab on a Chip. <u>https://doi.org/10.1039/d4lc00211c</u>

#### 2. Specialy journals with no ISI indexing (selection)

1. Musuroi, C. L., & Volmer, M. (2018). OOMMF Modelling of Magnetization Dynamics in Micrometer Sized Structures for Sensing Applications. Bulletin of the Transilvania University of Brasov. Series I: Engineering Sciences, 47-54.

2. Muşuroi C., Volmer M., Oproiu M. Optimizing a Non-Contacting High-Sensitivity GMR-based Current Sensor Design for Low Field Applications. In Sensors and Electronic Instrumentation Advances, Proceedings of 6th International Conference on Sensors Engineering and Electronics Instrumentation Advances (SEIA' 2020), pag. 127-131, ISBN: 978-84-09-23483-7, https://www.seia-conference.com/publications.html.

3.Volmer M., Avram M., Oproiu M., Muşuroi C., Firastrau I., Bezergheanu A., "Planar Hall Effect Sensors for Low Field Detection and Lab on a Chip Applications", in Sensors and Electronic Instrumentation Advances, Proceedings of 6th International Conference on Sensors Engineering and Electronics Instrumentation Advances (SEIA' 2020), pag. 132-137, ISBN: 978-84-09-23483-7, Edited by Sergey Y. Yurish.

4.Oproiu M., Neagu A., Cotfas P. A., Cotfas D. T., Muşuroi C., Volmer M. (2021). LoRa Wide-Area Network and Live Objects Used in Renewable Energy Monitoring. In 2021 International Aegean Conference on Electrical Machines and Power Electronics (ACEMP) & 2021 International Conference on Optimization of Electrical and Electronic Equipment (OPTIM) (pp. 505-512). IEEE. https://doi.org/10.1109/OPTIM-ACEMP50812.2021.9590023

5.Volmer M., Mușuroi C., Oproiu M., Avram A., Avram, M., Helerea, E. (2021). On Detection of Magnetic Nanoparticles Using a Commercial GMR Sensor. In 2021 International Aegean Conference on Electrical Machines and Power Electronics (ACEMP) & 2021 International Conference on Optimization of Electrical and Electronic Equipment (OPTIM) (pp. 1-6). IEEE. https://doi.org/10.1109/OPTIM-ACEMP50812.2021.9590055 6.

#### 3. Papers published in the Conference Proceedings (selection)

1. Oproiu M., Neagu A., Cotfas P. A., Cotfas D. T., **Muşuroi C.**, Volmer M. (2021). LoRa Wide-Area Network and Live Objects Used in Renewable Energy Monitoring. In 2021 International Aegean Conference on Electrical Machines and Power Electronics (ACEMP) & 2021 International Conference on Optimization of Electrical and Electronic Equipment (OPTIM) (pp. 505-512). IEEE. https://doi.org/10.1109/OPTIM-ACEMP50812.2021.9590023

2. Volmer M., **Muşuroi C.**, Oproiu M., Avram A., Avram, M., Helerea, E. (2021). On Detection of Magnetic Nanoparticles Using a Commercial GMR Sensor. In 2021 International Aegean Conference on Electrical Machines and Power Electronics (ACEMP) & 2021 International Conference on Optimization of Electrical and Electronic Equipment (OPTIM) (pp. 1-6). IEEE. https://doi.org/10.1109/OPTIM-ACEMP50812.2021.95900554.

3. **Cristian Muşuroi**, Marius Volmer, Mihai Oproiu, "Optimizing a Non-Contacting High-Sensitivity GMR-based Current Sensor Design for Low Field Applications", in Sensors and Electronic Instrumentation Advances, Proceedings of 6th International Conference on Sensors Engineering and Electronics Instrumentation Advances (SEIA' 2020), pag. 127-131, ISBN: 978-84-09-23483-7, Edited by Sergey Y. Yurish

4. Marius Volmer, Marioara Avram, Mihai Oproiu, **Cristian Leonard Muşuroi**, Ioana Firastrau, Adrian Bezergheanu, "Planar Hall Effect Sensors for Low Field Detection and Lab on a Chip Applications", in Sensors and Electronic Instrumentation Advances, Proceedings of 6th International Conference on Sensors Engineering and Electronics Instrumentation Advances (SEIA' 2020), pag. 132-137, ISBN: 978-84-09-23483-7, Edited by Sergey Y. Yurish, Best student poster for M. Oproiu.

5. Rekeraho, A., Balan, T., Cotfas, D. T., Cotfas, P. A., Acheampong, R., & Musuroi, C. (2022, November). Sandbox Integrated Gateway for the Discovery of Cybersecurity Vulnerabilities. In 2022 International Symposium on Electronics and Telecommunications (ISETC) (pp. 1-4). IEEE.



#### 4. Patent requests

1. RO: Marius Volmer, Melinda David, Monica Florescu, Adrian Bezergheanu, **Cristian Muşuroi**, Procedeu pentru controlul anizotropiei magnetice în straturi subțiri feromagnetice moi, cod depunere A/00305 din 10.06.2024.

EN: Marius Volmer, Melinda David, Monica Florescu, Adrian Bezergheanu, **Cristian Muşuroi**, Method for controlling magnetic anisotropy in soft magnetic thin films, Romania, application number A/00305, 10.06.2024.

Data 6.06.2025

Cristian Leonard Muşuroi

### Annex 2

#### List of research contracts

#### Grants and research contracts (selection)

Programul/ Proiectul	Funcția	Perioada
Complex consortium projects CDI (PCCDI) - "Microfluidic platform for the detection of circulating tumor cells (CTC) concentrated by dielectrophoresis-magnetophoresis and analyzed by dielectric and electrochemical impedance spectroscopy - uCellDetect", code CNCSIS ID_3PCCDI/2018, Project director: Prof. Dr. Ing. Marius Andrei Olariu, Transilvania University of Brasov coordinator: Conf. Dr. Phys. Marius Volmer	Research assistant Transilvania Univ. of Brasov	01-03-2018 - 31-12-2020
PED - "Advanced spin-valve sensors for precise non-contact measurements of DC/AC currents DC/AC (SpinCurrentSense),", code CNCSIS ID_PN-III-P2-2.1-PED-2019-1804, 315PED/2020, Director proiect: Dr. Phys. Jenica NEAMTU, Transilvania University of Brasov coordinator: Conf. Dr. Phys. Marius Volmer.	Research assistant Transilvania Univ. of Brasov	03-08-2020 – 29-07-2022
PED - Magnetoresistive Sensors Optimized for On-Chip Magnetic Nanoparticles Detection - MagSensOnChip", cod CNCSIS ID_ <i>PN-III-P2-2.1-PED-2019-3514, 510PED/2020</i> , Project Director: Conf. Dr. Phys. Marius Volmer	Research assistant Transilvania Univ. of Brasov	23-10-2020 - 21-10-2022
PED – Graphene based spintronic structures for sensing applications and signal processing - GrapheneS", code CNCSIS ID_ <i>PN-III-P2-2.1-PED-2021-3112, 597PED/2022</i> , Project director: Conf. Dr. Phys. Marius Volmer	Research assistant Transilvania Univ. of Brasov	21-07-2022 – 21-6-2024

Data 6.06.2025

#### Cristian Leonard Mușuroi