

Către: Decanatul Facultății de Automatică și Calculatoare, Universitatea Tehnică din Cluj-Napoca

Subsemnatul: Ardelean Eugen-Richard

Funcția didactică actuală: Șef Lucrări/Lector

Departamentul: Calculatoare

CERERE DE ÎNSCRIERE LA CONCURSUL PENTRU ACORDAREA GRADAȚIEI DE MERIT

Subsemnatul, Ardelean Eugen-Richard, cadru didactic titular în cadrul Departamentului Calculatoare, vă rog să aprobați înscrierea mea la concursul pentru acordarea Gradației de Merit pentru personalul didactic din Universitatea Tehnică din Cluj-Napoca, conform Metodologiei aprobate prin Hotărârea Senatului Universitar Nr. 1644/22.06.2023.

Consider că îndeplinesc condițiile de participare la concurs și că am realizat performanțe deosebite în activitatea didactică, de cercetare științifică și managerială în ultimii 3 ani de raportare.

În sprijinul cererii, depun dosarul de concurs care cuprinde documentele solicitate conform Art. 3 b) din Metodologie:

1. Cererea de înscriere
2. Curriculum Vitae (format Europass)
3. Raportul de autoevaluare asupra activității desfășurate în ultimii 3 ani (întocmit pe baza Criteriilor de acordare a gradațiilor de merit - Anexa 1)
4. Aprecierea sintetică asupra activității desfășurate în ultimii 3 ani (Anexa 2)
5. Formularul cu punctajul SIMAC (Anexa 3), verificat și avizat de către directorul DMCDI

Data: 28.10.2025

Semnătura:

PERSONAL INFORMATION **EUGEN-RICHARD ARDELEAN**

 M03, Baritiu 26-28, Cluj-Napoca, România

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 richard.ardelean@cs.utcluj.ro

Sex M | Date of birth -/-/ | Nationality Romanian

WORK EXPERIENCE

- | | |
|-------------------------|--|
| 01.02.2025 – Present | Lecturer
Technical University of Cluj-Napoca
<ul style="list-style-type: none"> ▪ Disciplines: Fundamental Algorithms, Logic Programming |
| 01.10.2019 – 01.02.2025 | Teaching Assistant
Technical University of Cluj-Napoca
<ul style="list-style-type: none"> ▪ Disciplines: Fundamental Algorithms, Logic Programming, Software Design ▪ Remake of laboratory support materials, creation of evaluation topics, and co-coordination of theses |
| 15.01.2025 – Present | Data scientist
Stratec Biomedical SRL Cluj Napoca
<ul style="list-style-type: none"> ▪ Data science ▪ Image processing |
| 01.01.2025 – Present | Research Fellow
S.C. Robetech SRL
<ul style="list-style-type: none"> ▪ Data science applied on radio data |
| 01.11.2022 – Present | Associate Researcher
Academia Forțelor Terestre „Nicolae Bălcescu” din Sibiu
<ul style="list-style-type: none"> ▪ Classified research project |
| 01.09.2021 – 01.02.2025 | Research Assistant
Transylvanian Institute of Neuroscience
<ul style="list-style-type: none"> ▪ Development of machine learning algorithms for the study of the brain through the analysis of electrophysiology and electroencephalogram data ▪ Development of experimental environments in Unity |
| 01.07.2019 – 01.08.2021 | Data scientist
Stratec Biomedical SRL Cluj Napoca
<ul style="list-style-type: none"> ▪ Development of new algorithms for Flow Cytometry ▪ Formulation of data requirements and data collection, data cleaning ▪ Tuning and optimization of algorithms, formulation of evaluation metrics |
| 01.07.2019 – 01.08.2019 | Intern
Neusoft EDC
<ul style="list-style-type: none"> ▪ Fullstack web development in Java & React |

EDUCATION AND TRAINING

- 2021 - Present **PhD degree in computer science**
Technical University of Cluj-Napoca
Computational Methods for Brain Signal Analysis during Perception and Behaviour
- Analysis of a new approach in Spike Sorting for feature extraction
 - Analysis of a new feature extraction approach in Spike Sorting
 - Evaluation of the novel feature space for the discrimination of neuronal spikes
 - Development of a new approach that can substitute both feature extraction and clustering
 - Development of a new clustering method
 - Development of a new validation metric
 - Development of a new method for computing distances with applications in clustering and performance evaluation
 - Development of a new method for the detection of bursts
 - Development of a method for the analysis of anaesthesia depth in LFP data
 - Development of an analysis pipeline for EEG data based on Self-Organizing Maps
 - Development of a new method for the detection of brain oscillations in time-frequency representations
 - Development of configurable experimental environments
 - Development of a method for the tracking of movement
- 2019 - 2021 **Master's degree in information technology**
Technical University of Cluj-Napoca
- Master thesis: "Spike Sorting approaches using Autoencoders"
- 2015 - 2019 **Bachelor's degree in computer science**
Technical University of Cluj-Napoca
- Bachelor Thesis: "SBM for 2D Datasets – A Density-Based Method for Spike Sorting"

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
First Certificate in English					

- Job-related skills **AI/Machine Learning**
- Designing/testing of Machine Learning algorithms;
 - Practical experience in using Python frameworks for practical implementation of Machine Learning algorithms;
 - Performing data analysis and applying various machine learning techniques;
- Computer Science**
- Programming skills (Python, C/ C++), image processing;
- Other skills
- Teaching courses, seminars, and laboratory sessions at a university level;
 - Mentoring and leading the research and development of undergraduate projects of university students;

ADDITIONAL INFORMATION

Publications

1. **E.-R. Ardelean**, A.-M. Ichim, M. Dînsoreanu, and R. C. Mureşan, "Improved space breakdown method – A robust clustering technique for spike sorting," *Frontiers in Computational Neuroscience*, vol. 17, 2023, doi: 10.3389/fncom.2023.1019637.
2. **E.-R. Ardelean**, A. Coporîie, A.-M. Ichim, M. Dînsoreanu, and R. C. Mureşan, "A study of autoencoders as a feature extraction technique for spike sorting," *PLOS ONE*, vol. 18, no. 3, p. e0282810, Mar. 2023, doi: 10.1371/journal.pone.0282810.
3. **E.-R. Ardelean**, H. Bârzan, A.-M. Ichim, R. C. Mureşan, and V. V. Moca, "Sharp detection of oscillation packets in rich time-frequency representations of neural signals," *Frontiers in Human Neuroscience*, vol. 17, 2023, doi: 10.3389/fnhum.2023.1112415.
4. **E.-R. Ardelean**, R. L. Portase, R. Potolea, and M. Dînsoreanu, "A path-based distance computation for non-convexity with applications in clustering," *Knowl Inf Syst*, Nov. 2024, doi: 10.1007/s10115-024-02275-4.
5. D. M. Herlea, B. Iancu, and **E.-R. Ardelean**, "A Study of Deep Learning Models for Audio Classification of Infant Crying in a Baby Monitoring System," *Informatics*, vol. 12, no. 2, Art. no. 2, Jun. 2025, doi: 10.3390/informatics12020050.
6. A.-I. Ardelean, **E.-R. Ardelean**, and A. Marginean, "Can YOLO Detect Retinal Pathologies? A Step Towards Automated OCT Analysis," *Diagnostics*, vol. 15, no. 14, Art. no. 14, Jan. 2025, doi: 10.3390/diagnostics15141823.
7. **E.-R. Ardelean** and R. Portase, "A Study of Non-Linear Manifold Feature Extraction in Spike Sorting," *Neuroinform*, vol. 23, no. 4, p. 48, Oct. 2025, doi: 10.1007/s12021-025-09744-3.
8. **E.-R. Ardelean** and R. L. Portase, "A Study of Deep Clustering in Spike Sorting," *Neuroinform*, vol. 23, no. 4, p. 51, Oct. 2025, doi: 10.1007/s12021-025-09751-4.
9. **E. Ardelean**, A. Stanciu, M. Dinsoreanu, R. Potolea, C. Lemnaru and V. V. Moca, "Space Breakdown Method A new approach for density-based clustering," 2019 IEEE 15th International Conference on Intelligent Computer Communication and Processing (ICCP), 2019, pp. 419-425, doi: 10.1109/ICCP48234.2019.8959795.
10. **E.-R. Ardelean**, G. F. Grosu, R. Terebeş, and M. Dînsoreanu, "Exploiting the Self-Organizing Map for Spike Sorting," in 2023 IEEE 19th International Conference on Intelligent Computer Communication and Processing (ICCP), Oct. 2023, pp. 363–369. doi: 10.1109/ICCP60212.2023.10398692.
11. **E.-R. Ardelean**, R.-D. Terec, C.-M. Marieş, V. V. Moca, R. C. Mureşan, and M. Dînsoreanu, "Spike sorting using Superlets: Identifying feature importance through perturbation," in 2023 IEEE 19th International Conference on Intelligent Computer Communication and Processing (ICCP), Oct. 2023, pp. 357–362. doi: 10.1109/ICCP60212.2023.10398655.
12. D. B. Mureşan, R.-D. Ciure, **E. R. Ardelean**, V. V. Moca, R. C. Mureşan, and M. Dînsoreanu, "Spike sorting using Superlets: Evaluation of a novel feature space for the discrimination of neuronal spikes," in 2022 IEEE 18th International Conference on Intelligent Computer Communication and Processing (ICCP), Sep. 2022, pp. 229–235. doi: 10.1109/ICCP56966.2022.10053955.
13. A. Sălăgean, A.-M. Paşc, **E. R. Ardelean**, R. C. Mureşan, V. V. Moca, M. Dînsoreanu, R. Potolea, C. Lemnaru, "Local Field Potential Microstate Analysis," in 2022 IEEE 18th International Conference on Intelligent Computer Communication and Processing (ICCP), Sep. 2022, pp. 221–227. doi: 10.1109/ICCP56966.2022.10053960.
14. O. M. Moisa, I. Pop, **E.-R. Ardelean**, V. V. Moca, R. C. Mureşan, and M. Dînsoreanu, "Symbolic Analysis Based Pipeline for EEG Data," in 2023 IEEE 19th International Conference on Intelligent Computer Communication and Processing (ICCP), Oct. 2023, pp. 371–378. doi: 10.1109/ICCP60212.2023.10398607.
15. A.-I. Ardelean, **E.-R. Ardelean**, V. V. Moca, R. C. Mureşan, and M. Dînsoreanu, "Burst detection in neuronal activity," in 2023 IEEE 19th International Conference on Intelligent Computer Communication and Processing (ICCP), Oct. 2023, pp. 349–356. doi: 10.1109/ICCP60212.2023.10398703.
16. **E.-R. Ardelean** and M. Dînsoreanu, "Drop Ripple Counter: An Innovative Clustering Approach," in 2024 IEEE 20th International Conference on Intelligent Computer Communication and Processing (ICCP), Oct. 2024, pp. 1–6. doi: 10.1109/ICCP63557.2024.10793013.

Projects

1. RO-NO-2019-0504 CIRCUITGENUS, financed by contract No. 20/2020, investigating the treatment of Alzheimer's disease by using gamma waves;
2. H2020 ERC Proof of Concept PhenoTECH, grant agreement ID: 899262, development of a multi-modal screening platform for zebrafish;
3. PN-III-P3-3.6-H2020-2020-0118, financed by contract No. 32/2021, Premiere PhenoTECH: development of neural / behavioral data analysis methods;
4. H2020 TWINNING NEUROTWIN, grant agreement ID: 952096, Twinning type project with ESI

(Frankfurt), IMAGINE (Paris), UCL (London).

5. PN-III-P3-3.6-H2020-2020-0109, financed by contract No. 28B/2021, Premiere NEUROTWIN: neural data analysis;
6. "Sistem inteligent de monitorizare a emisiilor radio" from the sectoral research-development plan of the Ministry of National Defense 2022-2025, Nr. Contract: A2 9038/01.11.2022 / 5PSCD/2022, within the Land Forces Academy „Nicolae Bălcescu” Sibiu
7. „Transilvania Digital Innovation Hub” (TDIH), with electronic registration number MySMIS: 161789, contract number: 1 EDIH/23.11.2023
8. „Platforma Națională pentru Tehnologiile Semiconductorilor” (PNTS) with electronic registration number MySMIS: 304244, contract number: G 2024-85828/390008/27.11.2024

Cărți

1. Rodica Potolea, Camelia Lemnaru, **Eugen-Richard Ardelean**, Raluca Laura Portase, “Programare Logica – Indrumator de Laborator”, UTPRESS Cluj-Napoca, 2024, ISBN: 978-606-737-707-1

Membership

Mensa Romania – member since June 2022