

PERSONAL INFORMATION

Tarbă Nicolae 0770250028 nicolae.tarba@upb.ro

Gender Male | Date of birth 03/09/1995 | Nationality Romanian

JOB APPLIED FOR

WORK EXPERIENCE

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- | | |
|-------------------|---|
| 02/2019 – Present | Engineer
Politehnica University of Bucharest (Romania)
Physics Department |
| 01/2025 – 12/2026 | Researcher
Recognition of malignant cells from cavity serous fluids: an integrative method combining hyperspectral imaging and machine learning
PED 2024
– Image processing |
| 01/2025 – 12/2026 | Researcher
Composites based on porous silica as versatile labels for highly sensitive lateral flow immunoassay
PED 2024
– Image processing |
| 06/2022 – 06/2024 | Researcher
Advanced medical systems for boron-capture enhanced proton therapy
PED 2021
– Image processing |
| 06/2022 – 06/2024 | Researcher
Improved technology to fabricate holographic marks with encapsulated thermochrome system
PTE 2021
– Image processing |
| 10/2020 – 10/2022 | Researcher
Smart technology based on new nanoparticles for improving photon and hadron therapy
PED 2019
– Image processing |
| 07/2017 – 10/2017 | Programmer (part-time)
Kepler Rominfo, Bucharest (Romania)
– JIRA plugin development |
| 07/2016 – 09/2016 | Intern
Kepler Rominfo, Bucharest (Romania)
– Java web application development |

06/2015 – 08/2015 **Intern**
HTSS, Bucharest (Romania)
– C# web application development

EDUCATION AND TRAINING

2020 – present	PhD Student	ISCED 8
Scientific Coordinator - Pr. Dr. Eng. Costin-Anton Boiangiu Doctoral School of Automatic Control and Computers Politehnica University of Bucharest (Romania)		
2018 – 2020	Master's Degree	ISCED 7
Graphics, Multimedia and Virtual Reality, Politehnica University of Bucharest (Romania)		
2018 – 2020	Psychopedagogy II	
Politehnica University of Bucharest (Romania)		
2014 – 2018	Bachelor's Degree	ISCED 6
Faculty of Applied Sciences, Politehnica University of Bucharest (Romania)		
2014 – 2017	Psychopedagogy I	
Politehnica University of Bucharest (Romania)		
2010 – 2014	Baccalaureate	ISCED 3
Unirea National College, Focșani (Romania)		

PERSONAL SKILLS

Mother tongue Romanian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
French	A1	B1	A2	A2	A2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills – teamwork: I have worked in various types of teams

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Proficient user	Independent user	Proficient user

[Digital competences - Self-assessment grid](#)

Computer skills – proficient in C++, C#, Matlab
 – experience with Java, Python
 – experience with web development (HTML, CSS, JavaScript, JQuery, Ajax, etc.)
 – experience with SQL
 – proficient in $\text{\LaTeX}$
 – competent with Microsoft Office Excel, Word and Powerpoint

Driving licence AM, B, B1

ADDITIONAL INFORMATION

Interests – Algorithmics
 – Virtual Reality
 – Simulations
 – Computer Graphics
 – Image Processing
 – Computer Vision
 – Mathematics
 – Statistics
 – Artificial Intelligence
 – Data Visualization
 – Physics

- Honours and awards
- Excellent paper award [29]
 - Third prize at the C. C. Teodorescu professional Strength of Materials competition, university phase 2016
 - Mention (fourth place) at the C. C. Teodorescu professional Strength of Materials competition, national phase 2016
 - Third prize at the Ion I. Agârbiceanu Physics competition, university phase 2016
 - Third prize at the Traian Lalescu Mathematics competition, university phase 2016
 - Mention (fourth place) in the Scientific Student Communications Sessions Didactic Section 2016
 - Third prize in the Scientific Student Communications Sessions Mathematics Section 2016
 - Second prize in the Scientific Student Communications Sessions Mathematics Section 2015
 - First prize in the Scientific Student Communications Sessions English Section 2015
 - Third prize at the Traian Lalescu Mathematics competition, university phase 2015
 - Participation at the Traian Lalescu Mathematics competition, national phase 2015
 - Third prize at the Ion I Agârbiceanu Physics competition, university phase 2015
 - Participation at the National Olympiad of Informatics, national phase 2014 and 2013
 - First prize at the National Olympiad of Informatics, regional phase 2014 and 2013
 - Participation at the National Olympiad of Mathematics, national phase 2012 and 2009

LINKS

Annexes <https://1drv.ms/f/s!AiQLzTe3I8x5guscRYMh-GcRKciS2Q>

Google Scholar <https://scholar.google.com/citations?user=P3w6vLUAAAAJ>

PUBLICATIONS

- [1] **N. Tarbă**, C. A. Boiangiu, and M. L. Voncilă. "From Classic to Cutting-Edge: A Near-Perfect Global Thresholding Approach with Machine Learning". In: *Applied Sciences* 15.14 (July 2025).
- [2] **N. Tarbă**, C.-A. Boiangiu, and M.-L. Voncilă. "State-of-the-Art Document Image Binarization Using a Decision Tree Ensemble Trained on Classic Local Binarization Algorithms and Image Statistics". In: *Applied Sciences* 15.15 (July 2025).
- [3] C. A. Boiangiu, G. V. Vlăsceanu, C. E. Stăniloiu, **N. Tarbă**, and M. L. Voncilă. "A Novel Connected-Components Algorithm for 2D Binarized Images". In: *Algorithms* 18.6 (June 2025).
- [4] M. L. Voncilă, **N. Tarbă**, C. D. Oprea, C. A. Boiangiu, and N. Goga. "Pixel-Wise Method for Enhanced Tesseract OCR Accuracy Using Colour and Spatial Distances". In: *BRAIN-Broad Research in Artificial Intelligence and Neuroscience* 16.2 (June 2025), pp. 409–417.
- [5] **N. Tarbă**, I. N. Irimescu, A. M. Pleavă, E. N. Scarlat, and M. Mihăilescu. "Distance Between Species By Confusion Operators Of Multi-Class Classifiers". In: *University Politehnica of Bucharest Scientific Bulletin-Series A-Applied Mathematics and Physics* 87.1 (2025), pp. 171–182.
- [6] G. V. Vlăsceanu, **N. Tarbă**, M. L. Voncilă, and C. A. Boiangiu. "Selecting the Right Metric: A Detailed Study on Image Segmentation Evaluation". In: *BRAIN-Broad Research in Artificial Intelligence and Neuroscience* 15.4 (Dec. 2024), pp. 295–318.
- [7] M. Tudor, R. C. Popescu, I. N. Irimescu, A. Rzyanina, **N. Tarbă**, A. Dinischiotu, L. Crăciun, T. R. Esanu, E. Vasile, A. T. Hotnog, M. Radu, G. Mytsin, M. Mihăilescu, and D. I. Savu. "Enhancing Proton Radiosensitivity of Chondrosarcoma Using Nanoparticle-Based Drug Delivery Approaches: A Comparative Study of High- and Low-Energy Protons". In: *International Journal Of Molecular Sciences* 25.21 (Nov. 2024).
- [8] S. Ioniță, R. C. Popescu, I. N. Irimescu, M. Deaconu, **N. Tarbă**, C. Matei, M. Mihăilescu, D. I. Savu, and D. Berger. "Role of mesoporous silica functionalized with boronic acid derivative in targeted delivery of doxorubicin and co-delivery of doxorubicin and resveratrol". In: *Microporous And Mesoporous Materials* 375 (July 2024).
- [9] V. L. Călin, M. Mihăilescu, G. E. D. Petrescu, M. G. Lisievici, **N. Tarbă**, D. Călin, V. G. Ungureanu, D. Pasov, F. M. Brehar, R. M. Gorgan, M. G. Moisescu, and T. Savopol. "Grading of glioma tumors using digital holographic microscopy". In: *Heliyon* 10.9 (May 2024).
- [10] M. Prodan, G. Dorobanțu, N. Ioniță, M. L. Voncilă, **N. Tarbă**, C. A. Boiangiu, and N. Goga. "Traffic-Sign Recognition." In: *Journal of Information Systems & Operations Management* 18.1 (May 2024).
- [11] I. N. Irimescu, M. Deaconu, D. Berger, **N. Tarbă**, C. C. Mustăciosu, D. I. Savu, R. C. Popescu, E. N. Scarlat, M. Mihăilescu, S. Ioniță, and A. M. Pleavă. "Extended tool for nanoparticles incorporation evaluation from hyperspectral images of cultured cells". In: 47th International Semiconductor Conference (CAS), Sinaia, Romania, 09-11 October. 2024, pp. 271–274.
- [12] M. L. Voncilă, **N. Tarbă**, Ș. Oblesniuc, C. A. Boiangiu, and V. Niminet. "Classification of Breast Cancer Tumors from Histopathological Images through a Modified ResNet-50 Architecture". In: *BRAIN-Broad Research in Artificial Intelligence and Neuroscience* 15.3 (2024), pp. 197–207.
- [13] C. Avătavului, I. O. Sandu, N. C. Ioviță, B. Vasile, C. Duță, C. A. Boiangiu, M. L. Voncilă, and **N. Tarbă**. "Indie vs AAAs: A fair comparison". In: *Journal of Information Systems & Operations Management (JISOM)* 17.2 (Dec. 2023), pp. 23–44.
- [14] M. Mihăilescu, L. C. Miclea, A. M. Pleavă, **N. Tarbă**, E. N. Scarlat, R. D. Negoită, M. G. Moisescu, and T. Savopol. "Method for nanoparticles uptake evaluation based on double labeled fluorescent cells scanned in enhanced darkfield microscopy". In: *Biomedical Optics Express* 14.6 (June 2023), pp. 2796–2810.

- [15] G. V. Vlăsceanu, A. Dragut, G. Sandu, **N. Tarbă**, M. L. Voncilă, C. A. Boiangiu, and N. Goga. "Architect: Extracting Building Related Informations And Changing Architectural Style In Ar". In: *University Politehnica of Bucharest Scientific Bulletin Series C-Electrical Engineering and Computer Science* 85.3 (2023), pp. 65–76.
- [16] G. V. Vlăsceanu and **N. Tarbă**. "Harnessing Neural Networks for Enhancing Image Binarization Through Threshold Combination". In: *BRAIN-Broad Research in Artificial Intelligence and Neuroscience* 14.2 (2023), pp. 59–75.
- [17] D. Apostu-Croitoru, M. A. Cadar, I. Stănică, C. A. Boiangiu, **N. Tarbă**, and C. Tudose. "The Influences of Competitive vs. Collaborative Approach on the Performance of Employees and Companies". In: *Journal of Information Systems & Operations Management* 16.2 (Dec. 2022), pp. 283–292.
- [18] B. C. Drăghici, I. Popa, Ș. A. Hoisan, C. A. Boiangiu, M. L. Voncilă, and **N. Tarbă**. "The Investment Field of Companies Within Software Projects." In: *Journal of Information Systems & Operations Management* 16.2 (Dec. 2022).
- [19] V. Ciuntu, T. Chiornită, C. A. Boiangiu, **N. Tarbă**, M. L. Voncilă, and D. Rosner. "Image Enhancement for Facial Landmark Detection". In: *2022 21st RoEduNet Conference: Networking in Education and Research (RoEduNet)*. Sept. 2022, pp. 1–6.
- [20] M. Grădinaru, A. Negru, C. A. Boiangiu, **N. Tarbă**, M. L. Voncilă, and R. A. Deaconescu. "Complete OCR Solution for Image Analysis of World War 2 Documents". In: *2022 21st RoEduNet Conference: Networking in Education and Research (RoEduNet)*. Sept. 2022, pp. 1–8.
- [21] L. C. Miclea, M. Mihăilescu, **N. Tarbă**, A. M. Brezoiu, A. M. Sandu, R. A. Mitran, D. Berger, C. Matei, M. G. Moisescu, and T. Savopol. "Evaluation of intracellular distribution of folate functionalized silica nanoparticles using fluorescence and hyperspectral enhanced dark field microscopy". In: *Nanoscale* 14.35 (Sept. 2022), pp. 12744–12756.
- [22] I. Alexandru, C. Nicula, C. Prodan, R. P. Rotaru, M. L. Voncilă, **N. Tarbă**, and C. A. Boiangiu. "Image Style Transfer via Multi-Style Geometry Warping". In: *Applied Sciences-Basel* 12.12 (June 2022).
- [23] **N. Tarbă**, M. L. Voncilă, and C. A. Boiangiu. "On Generalizing Sarle's Bimodality Coefficient as a Path towards a Newly Composite Bimodality Coefficient". In: *Mathematics* 10.7 (Apr. 2022).
- [24] M. A. Andrei, C. A. Boiangiu, **N. Tarbă**, and M. L. Voncilă. "Robust Lane Detection and Tracking Algorithm for Steering Assist Systems". In: *Machines* 10.1 (Jan. 2022).
- [25] C. A. Boiangiu, M. E. Cojoclea, R. C. Bercaru, M. Bran, M. L. Voncilă, **N. Tarbă**, C. Popescu, and G. Culea. "Fast and Reliable Emotions Detection Adapted for Driver Monitoring and Online Psychotherapy Sessions". In: *Control Engineering And Applied Informatics* 24.3 (2022), pp. 86–95.
- [26] M. A. Băluțoiu, D. Sturzu, C. A. Boiangiu, M. L. Voncilă, **N. Tarbă**, and G. V. Vlăsceanu. "On How to Combine Image Segmentation Algorithms Using Entropy". In: *2021 20th RoEduNet Conference: Networking in Education and Research (RoEduNet)*. Nov. 2021, pp. 1–5.
- [27] A. Lăpușteanu, C. A. Boiangiu, **N. Tarbă**, M. L. Voncilă, C. E. Stăniloiu, and G. V. Vlăsceanu. "Improving Upon Photographic Steganography". In: *2021 20th RoEduNet Conference: Networking in Education and Research (RoEduNet)*. Nov. 2021, pp. 1–6.
- [28] V. L. Călin, M. Mihăilescu, **N. Tarbă**, A. M. Sandu, E. N. Scarlat, M. G. Moisescu, and T. Savopol. "Digital holographic microscopy evaluation of dynamic cell response to electroporation". In: *Biomedical Optics Express* 12.4 (Apr. 2021), pp. 2519–2530.
- [29] V. L. Dosan, M. Mihăilescu, **N. Tarbă**, M. A. Ungureanu, and R. Ionicioiu. "Quantum random number generation with down converted photon pairs". In: *Conference on Advanced Topics in Optoelectronics, Microelectronics and Nanotechnologies X*, Constanta, Romania, Aug 20-23, 2020. Dec. 2020.

- [30] **N. Tarbă**, D. Schmidt, A. E. Popovici, E. Stăniloiu, C. Avătavului, and M. Prodan. "On performing skew detection and correction using multiple experts' decision". In: *Journal of Information Systems & Operations Management (JISOM)* 14.2 (Dec. 2020), pp. 187–194.
- [31] **N. Tarbă**. "Human body 3D reconstruction from RGB-D images". MA thesis. Politehnica University of Bucharest, Sept. 2020.
- [32] **N. Tarbă**, M. R. Gorgan, T. Savopol, and M. G. Moisescu. "Differential diagnosis of gliomas using Digital Holographic Microscopy". In: *Neuro-Oncology* 21.Supplement 3 (Sept. 2019), pp. iii32–iii33.