








# Armand Nicolicioiu



 <https://armandnicolicioiu.github.io/>

 armand.nicolicioiu@gmail.com  +40746900388




## Education

- 2020 – 2022  **M.Sc. in Artificial Intelligence**  
*University of Bucharest, Romania*
-  **Thesis:** Research in out-of-distribution generalization by diversifying Attention heads in Vision Transformers.
- 2015 – 2020  **B.Sc. in Computer Science and Engineering**  
*Politehnica University of Bucharest, Romania*
-  **Thesis:** Research in meta-learning and few-shot classification using Graph Neural Networks and Attention mechanisms.

## Work Experience

- 03/2024 – Present  **Research Intern**  
*Institute of Science and Technology Austria (ISTA)*
- Working on **compressed LLMs** in the Distributed Algorithms and Systems Lab led by Dan Alistarh, developing a  **writing assistant** running entirely on-device.
- 10/2023 – 01/2024  **Research Intern**  
*ETH Zürich, Switzerland*
- Research on **semi-supervised learning** in the Statistical Machine Learning group led by Fanny Yang.
- 05/2023 – 09/2023  **Research Intern**  
*Idiap Research Institute, Martigny, Switzerland*
- Research on the **robustness** of **diversified** model ensembles and on the **generalization** properties of neural networks. Supervisor: Damien Teney.
- 11/2022 – 03/2023  **Software Development Engineering Intern**  
*Amazon, Tübingen, Germany*
- Improved an evaluation  **framework** for assaying **out-of-distribution generalization** in the Causal Representation Learning team.
- 06/2022 – 09/2023  **Software Engineering Intern**  
*Google, Zürich, Switzerland*
- Used **large language models** for entity linking in YouTube videos.
  - Generated **realistic synthetic data** to complement existing training sets.
- 10/2020 – 11/2021  **Machine Learning Researcher**  
*dotLumen, Cluj-Napoca, Romania*
- Prototyped a headset to **help blind persons** be more independent.
  - Multi-modal **environment understanding** using Computer Vision.
- 07/2019 – 09/2019  **Software Engineering Intern**  
*Microsoft, Redmond, WA, USA*
- Designed and built a fast **generic trending system** for **large scale data**.
  - **Microservices pipeline** for ingestion, processing, storing and retrieval.

## Work Experience (continued)

- 07/2018 –  **Software Engineering Intern**  
09/2018 *Microsoft, Redmond, WA, USA*
- Improved Azure's **real-time telemetry** monitoring system by generating **recommendations** that lead to a **faster resolution of alerts**.
- 01/2017 –  **Machine Learning and Computer Vision Junior Researcher**  
11/2017 *Arnia Software, Bucharest, Romania*
- Developed algorithms for **improving the HDR camera mode** of phones.
- 07/2016 –  **Machine Learning Engineer Intern**  
10/2016 *Sparktech Software, Bucharest, Romania*
- Built a **recommender system** for a coupon site from scratch.

## Research Publications

- 1 D. Teney, **A. M. Nicolicioiu**, V. Hartmann, and E. Abbasnejad, “Neural redshift: Random networks are not random functions,” *CVPR*, 2024.
- 2 **A. M. Nicolicioiu**, A. L. Nicolicioiu, B. Alexe, and D. Teney, “Learning diverse features in vision transformers for improved generalization,” *ICML Workshop on Spurious Correlations, Invariance, and Stability (SCIS)*, 2023.
- 3 L. Scimeca, A. Rubinstein, **A. M. Nicolicioiu**, D. Teney, and Y. Bengio, “Leveraging diffusion disentangled representations to mitigate shortcuts in underspecified visual tasks,” *NeurIPS Workshop on Diffusion Models*, 2023.
- 4 L. Scimeca, A. Rubinstein, D. Teney, S. J. Oh, **A. M. Nicolicioiu**, and Y. Bengio, “Shortcut bias mitigation via ensemble diversity using diffusion probabilistic models,” *Under submission*, 2024.
- 5 N. Miolane, M. Caorsi, U. Lupo, *et al.*, “Iclr 2021 challenge for computational geometry & topology: Design and results,” *arXiv preprint arXiv:2108.09810*, 2021.

## Awards and Achievements

- 2023 • **Poster Award & Scholarship** at Synapse AI Symposium by Bending Spoons in Milan for my research project on model diversity.
- 2022 • **Best Poster Award** at Romanian AI Days conference for presenting my Master's thesis on *Diversifying Vision Transformers for Out-of-Distribution Generalization*.
- **Travel Scholarship** at Synapse AI Symposium by Bending Spoons in Milan.
- 2021 • **1st place** at the Computational Geometry & Topology Challenge at ICLR for our study on Topological Noise Invariant Features.
- 2020 • **Best Poster Award** at Eastern European Machine Learning Summer School (EEML) for presenting my Bachelor's thesis on *Few shot learning by features adaptation with Graph Neural Networks*.
- 2019 • **1st place** at Catalyst Coding Contest (algorithms contest).
- 2018 • **1st place** at Textract (ML Hackathon).
- 2017 • **1st place** ITFest (algorithms contest).
- 2016 • Qualified for the **ACM-ICPC** Southeastern European Regional Contest (SEERC).

## Awards and Achievements (continued)

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- **Best Research Idea** at AI-MAS Summer School at UPB.
- 2013, 2015 • **Bronze Medal** at the Romanian National Olympiad in Informatics.
- 2012 • **Bronze Medal** at the Romanian National Olympiad in Physics.
- 2009 – 2015 • **Finalist** in National Olympiad in Mathematics (2009, 2012), Physics (2010-2012), Informatics (2012-2015).

## Teaching Experience

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2016 – 2021



**Undergraduate Teaching Assistant**  
*Politehnica University of Bucharest*

- Teaching assistant for **Data Structures** and **Computer Programming** classes.
- I **taught laboratory classes** and helped students solve the exercises.
- Prepared complex assignments for the entire class (150+ students).
- Proposed questions for the final exam and helped evaluate and grade.