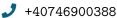
# **Armand Nicolicioiu**

https://armandnicolicioiu.github.io/

☑ armand.nicolicioiu@gmail.com



#### **Education**

2020 - 2022



#### M.Sc. in Artificial Intelligence

University of Bucharest

• @ 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

• Thesis: Research in meta-learning and few-shot classification using Graph Neural Networks and Attention mechanisms.

### **Work Experience**

10/2023 -



### **ETH** Research Intern

Present

ETH Zürich, Switzerland

• Research on semi-supervised learning in the Statistical Machine Learning group led by Fanny Yang.

05/202309/2023



#### 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 of 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.

07/2018 -09/2018



#### Software Engineering Intern

Microsoft, Redmond, WA, USA

• Improved Azure's real-time telemetry monitoring system by generating recommendations that lead to a faster resolution of alerts.

### Work Experience (continued)

01/2017 - 11/2017



Machine Learning and Computer Vision Junior Researcher Arnia Software, Bucharest, Romania

• Developed algorithms for **improving the HDR camera mode** of phones.

07/2016 - 10/2016



### Machine Learning Engineer Intern

Sparktech Software, Bucharest, Romania

• Built a **recommender system** for a coupon site from scratch.

#### Research Publications

- 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.
- **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.
- 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 at CVPR*, 2023.
- D. Teney, A. M. Nicolicioiu, V. Hartmann, and E. Abbasnejad, "Neural redshift: Random networks are not random functions," *Under submission at CVPR*, 2023.
- N. Miolane, M. Caorsi, U. Lupo, et al., "Iclr 2021 challenge for computational geometry & topology: Design and results," arXiv preprint arXiv:2108.09810, 2021.

## Teaching Experience

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.

#### **Awards and Achievements**

- Poster Award & Scholarship at Synapse AI Symposium by Bending Spoons in Milan for my research project on model diversity.
- 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.
- 1st place at the Computational Geometry & Topology Challenge at ICLR for our study on Topological Noise Invariant Features.
- 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).

### Awards and Achievements (continued)

- 2018 1st place at Textract (ML Hackathon).
- 2017 1st place ITFest (algorithms contest).
- Qualified for the **ACM-ICPC** Southeastern European Regional Contest (SEERC).
  - 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).

### **Skills**

### **Programming**

PyTorch, TensorFlow  $\bullet \bullet \bullet \bullet \bullet$  Python, C  $\bullet \bullet \bullet \bullet \bullet$   $\bullet$  C++, C#, Java  $\bullet \bullet \bullet \bullet \bullet$ 

 $\begin{array}{lll} \text{Matlab, OpenCV} & \bullet & \bullet & \bigcirc \bigcirc \\ \text{Haskell, Scala} & \bullet & \bigcirc \bigcirc \bigcirc \bigcirc \end{array}$ 

#### Spoken languages

English: fluent Romanian: native

### References

#### Prof. Damien Teney

Idiap Research Institute, Switzerland 

☐ contact@damienteney.info

#### Prof. Bogdan Alexe

University of Bucharest, Romania 

☑ bogdan.alexe@fmi.unibuc.ro

#### Prof. Traian Rebedea

Politehnica University of Bucharest, Romania

□ traian.rebedea@cs.pub.ro