

Otniel-Bogdan Mercea, Ph.D.(current)

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EDUCATION

- **International Max Planck Research School for Intelligent Systems (IMPRS-IS)** Tübingen, Germany
PhD in Computer Science
May 2021 - Current
 - **Supervisors:** Prof. Zeynep Akata and Prof. Andreas Geiger.
 - **PhD Topics:** multi-modal learning, zero/few-shot learning, explainability and interpretability, foundation models.
 - **Teaching Assistant** for the course "Introduction to Machine Learning (INF 3151)" at University of Tübingen.
 - **Other Responsibilities:** Maintaining and improving the [EML group website](#) and co-supervising MSc theses.
- **The University of Edinburgh** Edinburgh, Scotland
Master of Science in Artificial Intelligence; Distinction (Overall 76%)
Sept. 2019 - Aug. 2020
 - **MSc thesis:** "What Neural Networks can not learn?". **Supervisor:** Amos Storkey. Grade: 77% (Distinction)
 - **Relevant Courses:** Algorithmic Game Theory, Machine Learning, Reinforcement Learning, Natural Language Processing.
- **Politehnica University of Timisoara** Timisoara, Romania
Bachelor of Engineering in Computers and Information Technology; Top 3% (Overall 9.70/10)
Oct. 2015 - June 2019
 - **BEng Thesis:** "Hybrid Alpha-Reinforcement Learning on Resource-Constrained Systems". **Supervisor:** Calin-Adrian Popa. Grade: 10/10
 - **Relevant Courses:** Data Structures and Algorithms, Linear Algebra, Probabilities, Statistics, Software engineering.






EXPERIENCE

- **Google Research** Grenoble, France
Research Intern
July 2023 - Current
 - Working on efficient adaptation of foundation models.
 - Part of the Perception team, supervised by Anurag Arnab, Alexey Gritsenko and Cordelia Schmid.
- **Everseen** Timisoara, Romania
Middle Machine Learning Researcher
Nov 2020 - Apr 2021
 - Secured two patents for advancements in real-time multi-camera tracking systems.
 - Researched ways of improving tracking systems through self-supervised depth estimation.
 - Successfully implemented the first iteration of our real-time multi-camera tracking system.
- **Presslabs** Timisoara, Romania
Junior Software Engineer
July 2018 - Sept. 2018
 - Successfully contributed to the development of the open-source MySQL operator 📦 for Kubernetes, including the implementation of new functionalities, bug fixing, and testing.
- **3Pillar Global** Timisoara, Romania
Junior Software Engineer
June 2017- Sept. 2017
 - Successfully refactored and optimized key components of the software, while also identifying and resolving bugs to improve overall performance. This led to a more readable and easier to maintain codebase. Worked in the Decision Lens team.
- **"DSPLabs" research group at Politehnica University of Timisoara** Timisoara, Romania
Undergraduate Research Assistant
Feb. 2017 - June 2018
 - I was selected to develop an interface for the [FENP algorithm](#), a real-time scheduling algorithm, and part of my work was featured in a tutorial on the [official Litmus-RT page](#). Additionally, I worked on benchmarking the energy consumption of different algorithms on different hardware and software configurations.

PATENTS

- **US 20230200569-A1:** "System and method for adjusting a position of an order taking device". Ana Cristina Todoran, Otniel-Bogdan Mercea, Razvan-Dorel Cioarga.
- **US 20230206466-A1:** "System and method for tracking and identifying moving objects". Ana Cristina Todoran, Otniel-Bogdan Mercea.

PUBLICATIONS

- **BMVC 2023:** "Video-adverb retrieval with compositional adverb-action embeddings". Thomas Hummel, **Otniel-Bogdan Mercea**, A. Sophia Koepke, Zeynep Akata. /🔗.
- **DAGM GCPR 2023:** "Text-to-feature diffusion for audio-visual few-shot learning". **Otniel-Bogdan Mercea**, Thomas Hummel, A. Sophia Koepke, Zeynep Akata. /🔗.
- **CoRL 2022:** "Learning an Explainable Planner for Autonomous Driving". Katrin Renz, Kashyap Chitta, **Otniel-Bogdan Mercea**, A. Sophia Koepke, Zeynep Akata, Andreas Geiger. /🔗.
- **ECCV 2022:** "Temporal and cross-modal attention for audio-visual zero-shot learning". **Otniel-Bogdan Mercea***, Thomas Hummel*, A. Sophia Koepke, Zeynep Akata. /🔗.
- **CVPR 2022:** "Audio-visual Generalised Zero-shot Learning with Cross-modal Attention and Language". **Otniel-Bogdan Mercea**, Lukas Riesch, A. Sophia Koepke, Zeynep Akata. /🔗.

TECHNOLOGIES USED

- **Fluent in:** Python.
- **Competent in:** Java, C/C++, Shell Scripting, Linux, Android.
- **Some experience in:** Go, Assembly, C#, Kubernetes, TypeScript, JavaScript, HTML, CSS.
- **Libraries used:** React, Redux, NumPy, Pandas, Matplotlib, JAX, PyTorch, TensorFlow, Keras.

TALKS

- **The University of Amsterdam, Video & Image Sense Lab, May 2022:** Title of the talk: "Audio-visual Generalised Zero-shot Learning with Cross-modal Attention and Language".
- **IMPRS-IS symposium, Tübingen Feb. 2021:** Title of the talk: "From explainability and interpretability to 3D computer vision and efficient learning: increasing the performance of autonomous agents" (acceptance rate 14%).

SELECTED ACHIEVEMENTS AND AWARDS

- **1st Prize** in the Kaggle competition "EEML 2019 - Electricity prediction".
- **Best Smart Mobility Project** awarded at UniHack 2019.
- **Honour Student** awarded in 2018 by the Romanian Academy and Timisoara City Council for outstanding achievements in my professional activity. Every year, only a single student from the whole faculty (BSc+MSc) receives this distinction.
- **Grand Prize** awarded at HackTM Sibiu 2018 edition.
- **Second place** awarded at national competition "Java competition for universities 2018" organized by Oracle Academy.
- **Honors Diploma** awarded in 2015 by Sebis Town Hall for exceptional achievements in Informatics/Mathematics competitions and for enhancing the prestige of the high school and town.
- **International Contest of Mathematics and Informatics Caius Iacob.**
 - **Competitive programming section** : **Second place** in 2014 and **Mention** in 2015.
 - **Mathematics section** : **Second Place** in 2015.
- **Informatics Olympiad county phase:** **Mention** in 2014 and **Second place** in 2015.

SELECTED SCHOLARSHIPS

- **IMPRS-IS Scholarship** awarded in 2021 as one of the top 57 successful candidates out of 968 applications (5.8% acceptance rate) for a fully-funded PhD program at the International Max Planck Research School for Intelligent Systems.
- **Performance Scholarships** awarded every term during my undergraduate for excellent academic performance.
- **Special Scholarship** awarded in 2018, recognizing exceptional results in national contests.

REVIEWING

- CVPRw 2022 (L3D-IVU), ECCV 2022, CVPR 2023, ICCV 2023, NeurIPS 2023, TPAMI 2023, ICLR 2024.

HIGHLY SELECTIVE COURSES AND SUMMER SCHOOLS

- **Eastern European Machine Learning Summer School (EEML):** I have been selected as one of only 12 undergraduate students to attend EEML 2019, an event mainly organized by Google DeepMind with a competitive admission rate of just 21%.
- **Bitdefender:** I was selected to attend a highly competitive Cybersecurity course (acceptance rate less than 10%). Learned to debug desktop/mobile applications and malware using Assembly.
- **Microsoft Timisoara:** Demonstrated aptitude for software development by successfully completing a highly selective course with an acceptance rate less than 6.6%. Learned to develop applications in C# using Bing Maps.