

# Otniel-Bogdan Mercea

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## EDUCATION

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- **Max Planck Institute for Intelligent Systems (MPI-IS) and University of Tübingen** Tübingen, Germany  
*PhD in Computer Science* May 2021 - Current
  - **PhD program:** International Max Planck research school for Intelligent Systems (IMPRS-IS).
  - **Supervisors:** Prof. Zeynep Akata and Prof. Andreas Geiger.
  - **PhD Topics:** multi-modal and zero/few-shot learning, and efficient adaptation of large-scale models.
  - **Teaching Assistant** for the course "Introduction to Machine Learning (INF 3151)" at University of Tübingen.
  - **Responsibilities:** Maintaining the [EML website](#), supervising MSc theses, organising reading groups, interviewing ELLIS candidates.
- **The University of Edinburgh** Edinburgh, Scotland  
*Master of Science in Artificial Intelligence; Distinction (Overall 76%)* Sept. 2019 - Aug. 2020
  - **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
  - **Thesis:** "HybridAlpha-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

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- **Helmholtz Munich** Munich, Germany  
*Guest PhD student* Jan 2024 - Current
  - Conducting research under the supervision of Prof. Zeynep Akata, as part of my PhD project at IMPRS-IS.
- **Google Research** Remote  
*Student Researcher* Dec 2023 - Current
  - Continuing my previous work on efficient adaptation of large-scale models.
  - Part of the Perception team, supervised by Anurag Arnab, Alexey Gritsenko and Cordelia Schmid.
- **Google Research** Grenoble, France  
*Research Intern* July 2023 - Nov. 2023
  - Working on efficient adaptation of large-scale models, supervised by Anurag Arnab, Alexey Gritsenko and Cordelia Schmid.
  - The outcome of my work consisted in a patent filing and a paper submission currently under review.
- **Everseen** Timisoara, Romania  
*Machine Learning Researcher* Nov 2020 - Apr 2021
  - Filled two patents for advancements in real-time multi-camera tracking systems.
  - Researched ways of improving tracking systems through self-supervised depth estimation.
- **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 real-time scheduling algorithm](#), part of my work being featured on [Litmus-RT page](#).






## PATENTS

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- **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

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- **BMVC 2023 (Oral)**: "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

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- **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

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

## SELECTED ACHIEVEMENTS AND AWARDS

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- **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, Timisoara City Council and Association "Orizonturi Universitare" for outstanding achievements. Every year, only a single student from the whole faculty (BSc and MSc) receives this distinction.
- **Grand Prize** awarded at HackTM Sibiu 2018 edition. HackTm is the biggest software and hardware hackathon in South Eastern Europe.
- **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

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- **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.

## SUPERVISION

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- **MSc thesis**: "Audio-Visual Generalized Zero-Shot Learning using Large Pre-Trained Models". **Student**: David Kurzendörfer.

## REVIEWING

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- CVPR 2022-2024, ECCV 2022, ICCV 2023, NeurIPS 2023, TPAMI 2023, ICLR 2024.

## HIGHLY SELECTIVE COURSES AND SUMMER SCHOOLS

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- **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.