Bálint Mucsányi

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Machine Learning master's student at the University of Tübingen.
Excited about Trustworthy Machine Learning, Uncertainty Quantification, and Probabilistic Machine Learning.

Education

M.Sc. in Machine Learning

University of Tübingen   *10/2021 - Exp. 01/2024*

- **Grade**: 1.0/1.0 (ABD)
- **Thesis**: Demystifying the Hidden Role of Model Bias in Uncertainty Quantification (ongoing)

B.Sc. in Computer Science

Eötvös Loránd University (ELTE)   *09/2018 - 07/2021*

- **Grade**: Outstanding (1.0/1.0, top 1% of class)
- **Thesis**: Efficient Example-Based Program Synthesis on a Tree-Structured Grammar
- Graduated with the **Best Thesis** and **Outstanding Student of the Faculty** (top 0.3% of class) awards

Honors & Awards

08/2023	**2nd Place**, Reinforcement Learning Tournament, Autonomous Learning Group	*University of Tübingen*
01/2023	**1st Place**, Self-Driving Cars Challenge, *Modular Pipeline*, Autonomous Vision Group	*University of Tübingen*
12/2022	**1st Place**, Self-Driving Cars Challenge, *Reinforcement Learning*, Autonomous Vision Group	*University of Tübingen*
10/2022	**1st Place**, Self-Driving Cars Challenge, *Imitation Learning*, Autonomous Vision Group	*University of Tübingen*
04/2022	**DAAD Scholarship**, German Academic Exchange Service	*University of Tübingen*
04/2022	**Deutschlandstipendium**, Federal Ministry of Education	*University of Tübingen*
01/2022	**1st Place**, Deep Learning Competition, Denoising Autoencoders, Cognitive Systems Group	*University of Tübingen*
07/2021	**Outstanding Student of the Faculty Award**, Faculty of Informatics	*Eötvös Loránd University*
07/2021	**Best Thesis Award**, Faculty of Informatics	*Eötvös Loránd University*
03/2021	**2nd Place**, National Conference of Scientific Students' Associations	*Eötvös Loránd University*
12/2020	**1st Place**, Conference of Scientific Students' Associations	*Eötvös Loránd University*
08/2020	**National Higher Education Scholarship**, Ministry of Innovation and Technology	*Eötvös Loránd University*
2019	**7th Place**, Ericcson Programming Championship, National Finals (open to seniors as well)	*Ericsson Hungary*

Projects & Internships

Student Researcher in the STAI Group   *Tübingen*

University of Tübingen   *03/2023 - Present*

- **Topic**: Uncertainty Disentanglement in Deep Neural Networks, Benchmarks for Uncertainty-aware Representation Learning
- My ongoing master's thesis is supervised by Michael Kirchhof and Seong Joon Oh

Research Intern at the Mackelab   *Tübingen*

University of Tübingen   *10/2022 - 01/2023*

- **Topic**: Active Learning for Amortized Bayesian Inference
- I worked on methods for active learning using simulation-based inference
- I proposed a novel sequential neural posterior estimation (SNPE) method

Mentee in the Amazon Mentorship Program   *Online/Munich*

Mentor: Fabio Madge   *04/2022 - Present*

- I take part in bi-weekly discussions with my mentor about career opportunities and projects

Member of the John von Neumann Talent Development Student Group   *Budapest*

Eötvös Loránd University (ELTE)   *02/2020 - 07/2021*

- The group discussed advanced materials and provided additional research opportunities
- Applications to the group were judged on the basis of academic and scientific results

Student Researcher in the Machine Learning for Software Engineering Group

EÖTVÖS LORÁND UNIVERSITY (ELTE)

Budapest

03/2019 - 04/2022

- **Topic**: Example-based neural program synthesis
- During my membership, I was also fortunate to receive a Research Scholarship

Publications

Trustworthy Machine Learning

arXiv 2023

Bálint Mucsányi, Michael Kirchhof, Elisa Nguyen, Alexander Rubinstein, Seong Joon Oh

- **Book website**: Trustworthy Machine Learning Book

URL: A Representation Learning Benchmark for Transferable Uncertainty Estimates

NeurIPS 2023

Michael Kirchhof, **Bálint Mucsányi**, Seong Joon Oh, Enkelejda Kasneci

- Also presented orally at the UAI Epistemic AI Workshop 2023, where we received the **Best Student Paper Award**
- I presented the work as a poster at the inaugural event of the Tübingen AI Center

Flexible Example-Based Program Synthesis on Tree-Structured Function Compositions

SNCS 2022

Bálint Mucsányi, Bálint Gyarmathy, Ádám Czapp, Balázs Pintér

Flexcoder: Practical Program Synthesis with Flexible Input Lengths and Expressive Lambda Functions

ICPRAM 2021

Bálint Gyarmathy, **Bálint Mucsányi**, Ádám Czapp, Dávid Szilágyi, Balázs Pintér

- **Best Student Paper Award Finalist**
- I presented the work orally at the conference (slides)

Flexcoder: Practical Program Synthesis with Flexible Input Lengths and Expressive Lambda Functions

TDK/OTDK 2021;
in Hungarian

Bálint Mucsányi, Bálint Gyarmathy, Ádám Czapp

- **2nd Place** at the National Conference of Scientific Students' Associations
- **1st Place** at the (Regional) Conference of Scientific Students' Associations
- I presented the work orally at both conferences (slides in Hungarian, poster in Hungarian)

Work Experience

Teaching Assistant

UNIVERSITY OF TÜBINGEN

Tübingen

10/2022 - Present

- 10/2022 - 04/2023: Teaching Assistant for the Mathematics of Machine Learning graduate course
- 10/2023 - Present: Teaching Assistant for the Trustworthy Machine Learning graduate course

Developer Intern

ANDCODE

Budapest

07/2021 - 10/2021

- I worked on automatic news extraction and collection with advanced web crawling methods using Scrapy

Teaching Assistant

EÖTVÖS LORÁND UNIVERSITY (ELTE)

Budapest

02/2020 - 07/2021

- Teaching Assistant for the Object-Oriented Programming and Event-Driven Programming undergraduate courses (both English and Hungarian)

Qualifications

Programming	Python, Java, C/C++, C#, Haskell, R
Libraries	PyTorch, Tensorflow, NumPy, Pandas, Scrapy
Software	LaTeX, Microsoft Office Suite, Inkscape, TikZ, Git (GitHub, GitLab, BitBucket), SVN
Languages	Hungarian (native), English (C2), German (B1)