# Szilvia **Ujvary**

MATHEMATICS GRADUATE · MACHINE LEARNING STUDENT

sru23@cam.ac.uk | szilviaujvary | szilviaujvary


*Machine Learning PhD Student @ Cambridge with strong mathematical background.*
*Interested in applying machine learning research to real-world problems.*

## Education

### University of Cambridge — *Cambridge, UK*

PHD IN MACHINE LEARNING — *Sept 2023 - Aug 2026 (expected)*

- Supervised by Ferenc Huszár

### University of Cambridge — *Cambridge, UK*

MPHIL MACHINE LEARNING AND MACHINE INTELLIGENCE — *Sept 2022 - Aug 2023*

- Result: **Distinction** (top 10%)
- Full scholarship from Emmanuel College, Cambridge
- Modules include: Computer Vision, Deep Learning, Probabilistic Machine Learning, Information Theory and Reinforcement Learning
- Dissertation: Estimating optimal PAC-Bayes bounds with Hamiltonian Monte Carlo, submitted to a NeurIPS 2023 Workshop.

### Imperial College London — *London, UK*

BSC MATHEMATICS — *Sept 2019 - July 2022*

- Result: First class honours (87%), **top 5-10 %**, **Dean's list** in all years
- Modules include: Python, Data Science, Statistics, Stochastic Simulation, Time Series, R, Network Science, Probability
- Awards: **G-Research Prize** (2021), **Marjorie McDermott Scholarship** (2020-2022), **Individual Research Project Prize** 2019/2020
- 3rd year Academic Representative, Undergraduate Teaching Assistant

## Skills

**Programming Languages** Python, git, GitHub, PyTorch, JAX, NumPy, MATLAB, R, Linux, LaTeX
Hungarian (Native), English (C2), Italian (B1), German (B1)

## Experience

### Research in Deep Learning - Flatness and Generalization — *Budapest, Hungary*

RESEARCH STUDENT — *July 2022 - PRESENT*

- Connected the sharpness-aware minimization (SAM) algorithm to mean-field variational inference (MFVI) and developed novel algorithms exploiting the mentioned connection. Characterized the flatness-seeking inducting biases of SAM and MFVI.
- Paper accepted to OPT at NeurIPS 2022, available here: `https://arxiv.org/abs/2210.10452`.

### Research in Statistics - CCA for multi-OMICS data — *Remote*

UNDERGRADUATE RESEARCH STUDENT AT IMPERIAL COLLEGE LONDON — *July 2021 - Sept 2021*

- Examined Canonical Correlation Analysis- based methods for OMICs data integration and feature selection. Conducted simulation studies to evaluate the performance of evolutionary optimization algorithms, such as the genetic algorithm.
- Funded by EPSRC.

### Imperial Education Technology Team — *Remote*

INTERN — *Sept 2020*

- Tested educational software and collaboratively produced content to support the multimodal education in COVID-19 times.

### Research in Statistics - Clustering of scRNA-seq data — *Remote*

UNDERGRADUATE RESEARCH STUDENT AT IMPERIAL COLLEGE LONDON — *July 2020 - Aug 2020*

- Learnt about dimensionality reduction (PCA) and clustering algorithms in Python in the context of single cell RNA-seq data analysis.

## Volunteering & Extracurricular

2019-2021 **KorhazSuli,** Volunteered as a tutor for children with illnesses during the course of the pandemic.
2018 **International Philosophy Olympiad (IPO),** qualification