Csongor Horváth

PhD Student in Theoretical Machine Learning

I am a dedicated first-year PhD student specializing in large-scale optimization and inference. My research delves into the generalization aspects of learning processes, aiming to enhance the robustness and adaptability of AI models. I am particularly passionate about Bayesian inference, focusing on extracting meaningful insights from simulation-based methods, with a primary emphasis on stochastic chemical kinetics. My work is driven by a commitment to advancing the field and contributing to innovative solutions in complex systems.





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EDUCATION

MSC Computational Science (08/2022-08/2024)

Uppsala University (Uppsala, Sweden) GPA~ 3.83

courses:

- Optimization
- 20 ECTS of numerical methods for PDEs
- Computer Assisted Image AnalysData Engineering
- Computer Assisted Image Analysis
 27.5 ECTS of low-level programming
 - Internet of Things

BSC Mathematics (09/2019-07/2022) with distinction

Eötvös Loránd Tudományegyetem (Budapest, Hungary) **GPA~ 3.94**

courses:

- programing (python, JAVA)
- Algebra I-IV, Analysis I-VI
- Probability I-II, Measure Theory
- Discrete math I-II, Computation Theory
- Operation research I-II, LP modelling
- Geometry I-III

Extracurricular university studies (09/2022-07/2022)

Eötvös József College for Advanced Studies (Budapest, Hungary)

Next to my university studies I visited math lectures and language courses in the College. I also took part in the social life and helped organizing some event.

High School Diploma (09/2013-06/2019)

Szent István Gimnázium (Budapest, Hungary)

I studied in a special math class and graduated with straight A-s at the final exam. Top placement in many national level math and physics competition.

Representing my school at the ISF Cross-Country World Championships in 2016.

WORK EXPERIENCE

PhD candidate - Uppsala University (09/2024-)

PhD in scientific machine learning (Uppsala, Sweden)

The aim of my project is to further efforts on scalable Bayesian inference focusing on applications in stochastics chemical kinetics. Additionally I investigate the optimization process and learning theory in deep learning.

Summer Intern - Mastercard (Jun-Sep 2023)

Associate Consultant Intern (Budapest, Hungary)

During my internship I worked mostly on modelling for financial consulting as well as on the delivery of the found results.

My team won the internal Global Intern Innovation Challenge of Mastercard.

IT Intern - Yettel (Jun-Sep 2024)

IT Intern – full stack developer (Törökbálint, Hungary)

I worked as part of the inner agile web development team.

PERSONAL PROJECTS

- Course Projects at Uppsala University (08/2022-present) https://github.com/horvathcso/Course-Projects-UU
- Chordal Graph Algorithms (04/2022-10/2022)

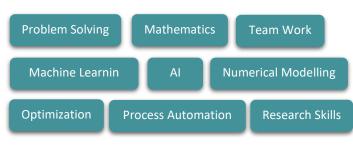
 Algorithms connected to my PSC thesis (not the second on not the second on th

Algorithms connected to my BSC thesis (python – based on networkx) https://github.com/horvathcso/Chordal-garph

Online two players five in a row (06/2020-09/2020)

During the lock down I developed a python console application to be able to play five in a row with my friends

SKILLS



PROGRAMING LANGUAGES

deeper knowledge: **python, MATLAB, latex, C, C++** basic knowledge: JAVA, JavaScript, C# ML tools: **pytorch**, keras, **scikit-learn**, transformers

RESEARCH EXPERIENCE

- PhD research Ongoing https://www.prashantsingh.se/people/
- Master Thesis (45 ECTS) Studying Solution Quality for III-Posed Optimization Problems (supervisior: Prashant Singh) uu.diva-portal.org/smash/record.jsf?pid=diva2:1878299
- BsC Thesis Chordal and leaf power graphs (in Hungarian)
 - + Research on graph reconstruction (supervisior: Zoltán Blázsik)

CERTIFICATES

freeCodeCamp - Scientific Computing with python (08/2022)

https://www.freecodecamp.org/certification/horvathcso/scientific-computing-with-python-v7

VOLUNTEERING

A Gondolkodás Öröme Alapítvány (07/2020 - Present) Organizer

I help organizing the Dürer natural science team contest from 2019. Which includes organizing the event, marking and prior creating the problem sheets, one of which I oversaw for 2 years.

Additionally I was a volunteer at EGMO (European Girls' Mathematical Olympiad) in 2022.

Tipo TKE (01/2022 - 04/2022)

Competition President

Helped organizing the three days long orienteering competition (TIPO cup) for 500 participant as the president of the organizing committee.

LANGUAGES

Hungarian (mother tongue) **English** (Full Professional Proficiency – IELTS 7.0)

HOBBIES

Orienteering

Mathematics

Sports

Board Games