NEMANJA DAMNJANOVIC

Cambridge UK/Belgrade Serbia

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Education

University of Cambridge, Churchill College

Mathematics(MMath)   *October 2021- expected June 2025*

- **Results:** Third year: 2.1, Masters: Ongoing
- **Relevant courses:** Currently following mostly Theoretical Physics courses along with Differential geometry and Analysis of PDEs. have taken Numerical analysis, Statistics and Probability courses, Markov chains, Mathematics of Machine learning

First Belgrade Grammar school

Natural sciences and mathematics program   *September 2017- June 2021*

- **Results:** perfect grades in final year, overall 5.0, including in Mathematics, Physics and Computer Science.

Experience

Hong Kong Applied Science and Technology Institute

Intern- Machine Learning   *July 2024 -August 2024*

- Worked in a team working on Vertical Federated learning models, under mentor focusing on project for traffic prediction near Hong Kong, Shenzen border.
- Implemented Spatio-Temproal graph convolution and Temporal Graph Attention networks and compared their performance between public local and widely researched datasets, work was done with Pytorch.
- Cleaning and manipulating data into usable forms for the team to work with. Reporting on different public datasets.

Mathematical Institute of the Serbian Academy of Sciences and Arts

Research intern-Yang-Baxter matrix equation   *July 2022 -September 2022*

- Lectured on linear analysis and standard methods particularly related to matrices.
- Assigned to read research papers in the area and worked on special cases of the equation.
- Introduced to writing papers and general conventions in academia.

Mathematics and Physics Tutor

Tutor   *October 2021-present*

- Preparing students for university entrance exams in physics and mathematics.
- Have helped prepare students in: Cambridge STEP exam and Serbian University entrance exams, as well as Undergraduate exams for different Serbian Universities.

Personal Projects

Machine learning, Modeling - Python: *Some of which can be found on my Github which is linked at top of the page*

- **Mathematical Finance: Options pricing**, University project, Analysing Black-Scholes price dependence on varying Greeks, numerically approximating prices with Bernoulli, Interpolation and Binomial approximations and when possible comparing with real value,
- **Neural networks**: Building basic fully connected neural networks from scratch to train on MNIST database. Using Pytorch for animal classification using CNNs.
- **Regressions:** Using Linear regression for particular problems of home pricing, 'Ames Iowa home' database, also implemented to a similar problem a random forest regression approach. Used 'sklearn' and 'pandas'. trained on 'Ames Iowa home' database

Projects - Matlab

- Statistics project on generating samples from Probability distributions.
- Multiple numerical projects including comparing methods for finding minima of functions, Numerical PDE analysis of real world phenomena, such as Diffusion and Smoke rings.

Additional Skills

Programming languages: *Python*: Pytorch, Pandas Numpy, Matplotlib and Sckit-learn packages. *Matlab*
Languages: English (fluent 116/120 on TOEFL), Serbian (native)
Other:: LaTeX, Powerpoint and Excel

EXTRACURRICULARS

Churchill College Basketball - Captain. In charge of court booking, team finances and recruiting players.
Cambridge Serbian Society:: Active member, helped organise multiple events.