Nina Mogan **Mainusch**

Student · M.Sc. Data Science

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Education

École Polytechnique Fédérale de Lausanne — *Lausanne, Switzerland*

M.Sc. in Data Science, GPA: $5.2/6$ — *Sept. 2020 - Aug. 2022*

- Semester project in decentralized machine learning
- Selected classes: Applied data analysis, ANN, Data visualisation, Deep learning, Information security, Machine learning, Optimization for ML

University of Osnabrück — *Osnabrück, Germany*

B.Sc. in Cognitive Science, grade 1.1 with distinction — *Oct. 2016 - April 2020*

- Study of thought, learning and mental organization, drawing on aspects of artificial intelligence, machine learning, computer science, mathematics, computational neuroscience, neuropsychology and philosophy of mind.
- Semester abroad in Portugal at the Universidade Nova de Lisboa, Faculdade de Ciências e Tecnologia from Aug. 2018 - Feb. 2019.
- Thesis: "On Benford's law - Computing a Bayes factor with the Savage-Dickey method to quantify conformance of numerical data to Benford's law", grade 1.0

Experience

PricewaterhouseCoopers International — *Düsseldorf, Germany*

Internship in (Forensic) Technology Solutions & Data Mining — *July 2021 - Sep. 2021*

I worked for PwC in the advisory business line in a team of experienced consultants.

Self-employed — *Online*

Mentor for Statistic related subjects — *Apr. 2020 - Apr.2021*

I tutored students from different universities in introductory or advanced university course or their Bachelor and Master Thesis.

University of Osnabrück — *Osnabrück, Germany*

Teaching assistant for several lectures — *Oct. 2017 - Mar. 2020*

Lecture names: "Machine Learning", "Statistics and Data Analysis", "Neuroinformatics", "Computer Science 1: Algorithms" and "Introduction to Artificial Intelligence and Logic Programming".

Projects

Decentralized ML: Experiments on Topology and Privacy — *Lausanne, Switzerland*

CS-439 - Optimization for Machine Learning — *June 2021*

- Two colleagues and I contributed an empirical evaluation of the impact of topology and differential privacy on model convergence in a decentralized learning system. Our experiments show that sparse graphs perform well while more densely connected graphs learn slower as the number of nodes increases. https://github.com/Devrim-Celik/OptimML

Classification employing weight sharing and auxiliary losses with artificial neural networks — *Lausanne, Switzerland*

EE-559 Deep Learning — *December 2020*

- In a team of three students we tested different ANN architectures with the task to compare two digits from the MNIST dataset. We show the impact of adding an auxiliary loss and weight sharing via implementing networks with a siamese structure, encountering that these siamese networks perform best. https://github.com/xavoliva/dl-projects/tree/main/Proj1

Skills & Achievements

Programming	Python - R - SQL - Excel - LaTeX - Java - Prolog - Matlab - HTML - CSS - Javascript - Spark
Languages	German - English - French (C1) - Spanish (B2) - Portuguese (B1) - Italian (A1) - Ancient Greek - Latin
Scholarships	Studienstiftung des Deutschen Volkes e.V. - DAAD German Academic Exchange Service - e-fellows.net
Awards	High School Excellence Award
Voluntary Work	Sailing Instructor (DHH e.V., since 2014) - Party member (Volt Europa, since 2019)
Interests	Bayesian Data Analysis - Decentralized ML - ANNs - Mathematical Statistics - News - History - Politics
Sports	Sailing - Climbing - Yoga - Ballet - Skiing - Hiking - Biking - Dancing - Chess - Sudoku