PAUL MARTIN

The University of Edinburgh • Informatics student (MInf)

Pursuing advanced studies in Informatics with a specialization in deep learning, model compression, and distributed neural network training optimizers. Passionate about computational biology, neuroscience, and NLP, and adept at employing analytical and numerical methods to propel domain research. Enjoys photography, hiking, and running outside of the research realm.

CONTACT

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WEBSITE

PaulsBitsAndBytes.com

RESEARCH INTERESTS

Foundational Deep Learning
Comput' Molecular Biology
Computational Neuroscience
Natural Language Processing

OTHER INTERESTS

Photography
Long distance running
Hiking in the Scottish Highlands

LANGUAGES

English (native)
German (native)
Spanish (learning)

EDUCATION

MInf Computer Science
University of Edinburgh (2019 - 2024)

- Specializing in Deep Learning and engaging in research in distributed optimization of neural networks for Master's Thesis
- Achieved an 80% in my Bachelor's Thesis (see below) and 76% overall.

Exchange Year
University of Hong Kong (2021 - 2022)

- Engaged in a diverse set of coursework expanding computational and international perspectives

EXPERIENCE

Teaching Assistant for Machine Learning
The University of Edinburgh (AY 2023/24)

- Facilitating student learning in machine learning through in-person and online assistance, providing clarifications and guidance on practical applications and theoretical concepts in ML techniques.

Research Assistant Intern
With Kartic Subr, The University of Edinburgh (Summer 2023)

- Spearheaded research on using Graph Neural Networks for spectral coarsening of 3D meshes
- Aiming to submit a paper later this year, or early 2024.

Tutor for Machine Learning
The University of Edinburgh (AY 2022/23)

- Led a series of workshops for a Machine Learning course taken by 3rd and 4th-year informatics students to support their studies of ML techniques

ML & Data Science Intern
Migrasia Global Solutions (Sep - Dec 2021)

- Served as an ML Engineer developing analytical tools to aid in combatting forced labour amongst refugees and migrant workers in Hong Kong.

RESEARCH PROJECTS

See my website for more research projects

Master's Thesis: Distributed Optimisation of Deep Neural Networks

Researching optimisers for the distributed training of deep neural networks, contributing to the field of scalable, efficient neural network training

Spectral Coarsening using GNNs

Explored using Graph Neural Networks to significantly accelerate the determination of parameter sets for 3D meshes, enhancing the efficiency of subsequent physics simulations on these meshes.

Bachelor's Thesis: Cross-Architecture Knowledge Distillation for Automatic Speech Recognition

Achieved an **80% mark** developing knowledge distillation techniques for models with mismatched output dimensions, providing insights into effective model compression strategies and the tradeoffs between various architectures.