Aavash Subedi

Reading, UK | aavashsubedi1@gmail.com | github.com/aavashsubedi | linkedin.com/in/aavash-subedi/

Education:

University of Manchester Manchester, UK

MPhys (Integrated Masters): Physics 2020 – 2024

- Expected first-class with an 84% cumulative GPA.
- Awarded the Richard Davis Prize for highest performing student in the second-year laboratory.
- Selected to represent the University as part of the Global Graduates Programme.
- Master's thesis titled: Combinatorial optimization on graphs for radio astronomy using machine learning.
- Relevant courses: Multivariate Statistics and Machine Learning (80), Programming for Physicists (94), O.O.P. in C++ (93), Statistical Methods (71), Statistical Computing (TBD), Advanced Statistical Mechanics (TBD), MCMC (TBD)

Work Experience:

Signal Processing Laboratory (LTS4), EPFL Lausanne, CH

Summer Fellow, Summer@EPFL June 2023 – September 2023

- Research Intern, supervised by Dr Dorina Thanou, working on digital pathology for immunotherapy response prediction.
- Implemented, trained and iterated over GNN architectures using PyTorch & PyTorch Geometric.
- Identified and characterised biologically relevant subgraphs responsible for different medical outcomes using Multiple Instance Learning, Attention and semi-supervised learning.
- Summarised and published motivations, experimental results and ablation studies in a technical report.

Computational Statistics & Machine Learning Group, University of Oxford Oxford, UK

UNIQ+ DeepMind Intern July 2022 – September 2022

- Visiting student, supervised by Prof. Yee Whye Teh, working to advance the start of the art in protein/ligand binding affinity predictions for early-stage drug discovery screening.
- Implemented, trained and iterated over roto-translation equivariant E(3) architectures using JAX/Haiku.
- Designed and implemented a robust data processing pipeline to extract and featurise atomic locations and spatial variances to produce a voxelised electron density map from complexes found on the PDBind dataset.
- Presented findings in a technical report and to a live audience of academics and members of industry.

Electrical Engineering Department, University of Manchester Manchester, UK

Student Experience Intern: *https://github.com/aavashsubedi/MagfieldCalcu* June 2021 – August 2021

- Part of the Electromagnetic Sensing Group working towards creating an intelligent metal detector for more accurate, efficient and cost-effective security screening.
- Designed, developed, and published a Python package, allowing users to find the magnetic field around a 2D shape quickly.

Projects:

ClimateHack.AI 2021 London, UK

Hackathon: https://github.com/BuburuzanAlexandru/climatehack January 2022 - March 2022

- Experimented and iterated over machine learning architectures to advance the state-of-art in satellite imagery nowcasting.
- Presented a high-ranking submission representing the University of Manchester in front of an international audience.
- Performed hyperparameter optimisation and tested custom loss functions to boost MS-SSIM score of models.
- Worked effectively as a team of 3 to finish 6th internationally and 3rd within the UK.

Voluntary Experience:

Manchester Data Science Society Manchester, UK

Workshop Executive June 2023 - Present

- Planned and due to deliver a workshop on Graph Neural Networks & Geometric Deep Learning to a cohort of 50-100 society members.
- Assisted in delivering many Machine Learning workshops as well as helped organise and run society events.

Skills/Certifications

Technical Skills: Python, Git, PyTorch, PyTorch Geometric, Weights & Biases, JAX, Haiku, TensorFlow, R, C++, Bash, Hydra, SLURM

Certifications: DeepLearning.AI – TensorFlow Developer Professional Certificate, Google Data Analytics Certificate