

Harvey South

Updated February 1, 2025

Email: harveysouth@gmail.com

GitHub: HarveySouth

Website: harveysouth.com

LinkedIn: harvey-south

Citizenship: UK, USA

Education

The University of Manchester Manchester, England
MSc Advanced Computer Science: Artificial Intelligence Sep 2023 – Dec 2024
Mentors: Gavin Brown, Sandra Sampaio. *Grade: Distinction*

The University of Manchester Manchester, England
BSc Computer Science with Industrial Experience Sep 2019 – July 2023
Mentors: Mary McGee-Wood, Nhung Nguyen. *Grade: First Class*

Research experience

Analysing Mutational Pathways of Skin in Cancerous Patients
Mentors: Paolo Fortina, Andrew South (Thomas Jefferson University)
Jun 2023 – Present
Pipe-lining sequencing data through multiple analysis software to understand the mutational pathways of non-cancerous, tumor-adjacent samples from cancer patients. Results add bioinformatical support to research hypothesis.

Diversity Enforcement in Ensemble Models
Mentor: Gavin Brown (University of Manchester) Jan 2024 – Sep 2024
Using a new unified theory of ensemble diversity to enforce diversity in model training, generalizing the mathematics behind negative correlation learning to apply to a wider class of loss functions.

Attributing Extremes in Weather
Mentors: Edward Pope, Nathan Creaser (Met Office) Dec 2022 – Jun 2023
Correlating between open source climate indices and ERA5 weather to investigate if a climate index can explain an extreme in weather. Statistics involve geo-spatial considerations including accounting for multiple-testing.

Authorship Attribution Applied to Music
Mentor: R Batista-Navarro (University of Manchester) Mar 2022 – May 2022
Using literature on successful Authorship Attribution applications to explore potential for attributing lyrics to artists and song similarity.

LSTM Architecture Variants for Named Entity Recognition (NER)
Mentor: Nhung Nguyen (University of Manchester) Sep 2021 – May 2022
Investigating LSTM variants in the NER Literature to analyze the impact on model performance. Variants include embedding methodology, conditional random fields, or LSTM hyperparameters.

Industry experience

Thomas Jefferson University, Sidney Kimmel Cancer Center Philadelphia
Research Assistant Jul 2023 - Oct 2023

Giving research support through the creation of bioinformatical pipelines for genomic analysis, choosing appropriate data models for results presentations, and cataloging data for cloud and edge readiness.

The Met Office, Informatics Lab Exeter, England
Data Science Champion Jul 2022 - Jun 2023

Supporting weather and climate scientists through discussions, presentations, tutorials, and walkthrough projects, as well as contributing to AI knowledge in the organisation.

Talks

On The Usage and Challenges of Big Data with ML Pipelines May 2023
Data Science Community of Practice, Met Office.

Skills

Programming

Proficient with Python, Java, LaTeX, Bash, SQL, HTML/CSS, SPARQL
Knowledgeable in a breadth of languages across multiple paradigms: JavaScript, C/Cpp, PHP, ARM Assembly, Solidity, Haskell, Prolog, R, Matlab, Julia, etc.

Scientific Technology

Confidence with a wide range of AI relevant technologies: PyTorch, TensorFlow, Numpy, Pandas, SciPy, Jupyter, Colab, Dask, Xarray, Spacy, NLTK, Ray, OpenCV, Optuna, Model cards.

Research Infrastructure

Developed with multiple different forms of scientific infrastructure, on cloud with AWS and Azure, on HPC with SLURM, GPU programming with CUDA, with deployed Docker containers, and on local compute.

Industry Best Practices

Various experiences in supporting research efforts prompt ability in clean, efficient, and well documented code, as well as expertise in scientific communication through technical and visual presentation/discussion.

Relevant Educational Themes

Advanced Distributed Systems, Artificial Intelligence, Data on the Web, Understanding of Complex Data, Deep Learning, Math and Statistics.

Awards

MSc with Distinction (2024), First Class Honours BSci (2023), AP Scholar with Distinction (2019), 99th Percentile Math SAT (2018), School Sports Champion (2013)