Tavis Shore

PhD Researcher · Artificial Intelligence

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Highly motivated and focused AI researcher currently investigating AI for robotics - reducing the impact of occlusions on GPS localisation. Strong experience solving problems mathematically and programmatically with an entrepreneurial attitude, performing well individually and within multi-disciplinary teams. Ready to apply and further develop my proficiency in machine learning, programming, and mathematics to address challenges within AI research.

Skills Include

Programming Machine Learning, Python (PyTorch, NumPy, SciPy, PyG, etc.), SQL, R(ggplot2), C/C++

Technical Numerical Analysis, Statistics, Git, AWS, Linux, Bash, LaTeX, MATLAB, GCP, Data Visualisation

Transferable Critical Thinking, Problem-Solving, Learning Agility, Effective Communication, Time Management, Teamwork

Education

University of Surrey *Guildford, UK*

Ph.D. Computer Vision (Electronic Engineering) *July 2022 - Dec 2025*

- Conceiving and developing novel image localisation techniques, overcoming GPS limitations within urban regions.
- Applying original methods to better represent streetview images to satellite images. Improving spatial context between such representations with GNNs.

University of Surrey *Guildford, UK*

M.Sc. Data Science *Sept 2019 - Nov 2021*

- Dissertation published in international engineering conference.
- Modules include: Statistics, Computational Intelligence, Machine Learning, Image Processing and Deep Learning.

University of York *York, UK*

B.Eng. Electronic Engineering *Sept 2016 - July 2019*

- Modules include: Calculus, Numerical Methods, Programming, Digital Circuits, Principles of Digital Signal Processing.

Employment Experience

University of Surrey *Guildford, UK*

Post Graduate Researcher & Teaching Assistant *Oct 2022 - Present*

- Teach undergraduate electronics labs, Mentor under and postgraduates - assisting with writing/learning skills, grading undergraduate mathematics coursework.
- Lead the University's F1Tenth team - working with fellow AI PhD researchers to develop an autonomous racing vehicle, aiming to compete at international conferences.

Vysion Technologies Ltd *Wivenhoe, UK*

Co-founder & Electronics Engineer *Oct 2020 - Mar 2022*

- Co-founded a Machine Learning IoT startup, detecting and predicting water pipe failures using proprietary hardware and deep learning to distinguish pipeline anomalies. Aiming to reduce annual water loss from pipe leaks.
- Developed the cloud architecture and web application, allowing for secure data analysis and observation, along with creating any required alerts. Awarded multiple national research council grants for innovative work.

QinetiQ *Malvern, UK*

Graduate Data Scientist *Sept 2020 - Apr 2021*

- Developed computer vision solutions for high-risk object detection in robotics within a multi-disciplinary team.
- Researched societal trends relating to AI and data provenance, leading to highly-detailed governmental reports.

National Physical Laboratory *Teddington, London*

Electronic Engineering Intern *June 2018 - Sept 2018*

- Created embedded software for highly accurate optical thermometers with PID control to maintain precision.

Publications

GraphGL: Graph Cross-View Geo-Localisation *under review ECCV 2024*

Tavis Shore, Oscar Mendez, Simon Hadfield *pending arXiv*

BEV-CV: Birds-Eye-View Transform for Cross-View Geo-Localisation *under review IROS 2024*

Tavis Shore, Simon Hadfield, Oscar Mendez *arXiv*

Constrained Machine Learning for LoRa Gateway Location Optimisation *AINTEC 2022*

Tavis Shore, Simon Hadfield, Oscar Mendez *DOI*