

Tavis Shore

PHD RESEARCHER · ARTIFICIAL INTELLIGENCE, COMPUTER VISION, & ROBOTICS

London, United Kingdom

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I am an internationally recognised researcher interested in the fields of Machine Learning, Computer Vision, & Robotics. I have academic and professional experience developing real-time ML pipelines, and producing impactful governmental policy research papers. My work focuses on developing ML techniques to create autonomous agents that can overcome GPS localisation failure. I am highly motivated with a strong entrepreneurial attitude, performing well individually and within multi-disciplinary teams. I am excited to apply and develop my proficiency's to solve challenges within AI research.

Topics Machine Learning, Localisation, Navigation, Autonomous Agents, 3D Reconstruction, Artificial Intelligence

Skills

Programming Python (PyTorch, Multiprocessing, NumPy, SciPy, PyG, etc.), C, C++, SQL, R(ggplot2), OpenCV

Technical Machine Learning, Statistics, Numerical Analysis, Linux, Git, AWS, Bash, \LaTeX , MATLAB, GCP

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

Education

University of Surrey

Guildford, UK

PhD Artificial Intelligence (Computer Vision)

July 2022 - Dec 2025

- Developing novel localisation techniques for GNSS-denied regions - war zones, and urban canyons.
- Cutting-edge machine learning image representations - utilising CNNs, GNNs, Transformers, etc. to replace GPS with onboard monocular cameras, enabling autonomous self-localisation.
- Orally presenting my research internationally at premier computer vision and robotics conferences.
- Published in IROS 2024, WACV 2025, & RA-L 2025.

University of Surrey

Guildford, UK

MSc Data Science

Sept 2019 - Nov 2021

- Dissertation proposed a novel ensemble of KNN and NN to optimise network gateways, published at Asian Internet Engineering Conference (AINTEC 2022).
- Modules included: Machine Learning, Statistics, Computational Intelligence, Image Processing.
- Collaborated with fellow students to apply various ML techniques to real-world business challenges.

University of York

York, UK

BEng Electronic Engineering

Sept 2016 - July 2019

- Dissertation project developing a transmission line simulation with JavaScript.
- Modules included: Calculus, Numerical Methods, Programming, Digital Circuits, Principles of DSP.
- Organised two annual music events for the engineering department, \approx 200 attendees.

Experience

University of Surrey

Guildford, UK

Post Graduate Researcher & Teaching Assistant

Oct 2022 - Present

- Teaching engineering labs, mentoring students with writing/learning skills, grading mathematics coursework.
- Lead F1Tenth team - developing autonomous racing car with fellow PhD students to compete internationally.
- Student panel member assisting in MSc course structuring.

MyTutor

Remote, UK

Mathematics and Physics Tutor

Jan 2022 - September 2022

- Remotely tutored school children from KS3 up to A-levels in Mathematics and Physics.
- Sessions were either focused 1-on-1 or tutoring to a group of students.
- Advanced my ability to communicate relatively complex concepts to less experienced people.

Vysion Technologies Ltd

Wivenhoe, UK

Co-founder & Machine Learning Engineer / Electronics Engineer

Oct 2020 - Mar 2022

- Co-founded AIoT startup, detecting and predicting flow and pressure anomalies, aiming to reduce waste.
- Designed bespoke PCB and embedded software, developed corresponding AWS-hosted web application and backend architecture.
- Awarded multiple national research council grants for innovative work, primarily to aid commercialisation.

QinetiQ

Graduate Data Scientist

Malvern, UK

Sept 2020 - Apr 2021

- Cooperated within a multi-disciplinary team to achieve successful project outcomes.
- Developed machine learning solutions for high-risk object detection in robotics.
- Researched societal trends relating to AI and data provenance, producing governmental reports.

Kodime Ltd

Technical Writer

Guildford, UK

January 2020

- Produced technical user guide for functionality of software platform used by property developers to perform CRM & marketing processes.
- Collaborated with team to improve existing products.

National Physical Laboratory

Software Engineer Intern

London, UK

June 2018 - Sept 2018

- Developed C embedded software for high precision optical thermometers with PID controls.
- Contributed to team discussions on projects directions and decision stages.

Publications

PEng: Pose-Enhanced Geo-Localisation

Tavis Shore, Oscar Mendez, Simon Hadfield

RA-L 2025

Project Page

SpaGBOL: Spatial-Graph-Based Orientated Localisation

Tavis Shore, Oscar Mendez, Simon Hadfield

WACV 2025

Project Page

BEV-CV: Birds-Eye-View Transform for Cross-View Geo-Localisation

Tavis Shore, Simon Hadfield, Oscar Mendez

IROS 2024

Project Page

Constrained Machine Learning for LoRa Gateway Location Optimisation

Tavis Shore*, Abdullahi Abubakar*, Nishanth Sastry

AINTEC 2022

DOI

Grants & Initiatives

ProjectX

ConceptionX

London, UK

March 2025

ICURe Engage

InnovateUK

Remote

January 2025

Quantitative PhD Grant Programme

G-Research

London, UK

October 2024

Precision Drone Artificial Intelligence Systems Development

Brave1 - Government of Ukraine

Remote

August 2024

Young Innovators Programme - Commercialisation Grant

InnovateUK

Remote

June 2021

Miscellaneous

Media & Press

Poster WACV 2025, Oral IROS 2024, Poster PGR Conference 2023

University

Undergraduate and Postgraduate Dissertation Supervising, University of Surrey
Topics have included: Object detection, object tracking, semantic segmentation, etc.
Student Panel Member in Academic Quality Services for MSc Courses

Reviewer

IEEE International Conference on Robotics and Automation (ICRA), ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)

Memberships

2024-Present: Member of British Machine Vision Association (BMVA)
2020-Present: Member of Institute of Electrical and Electronics Engineers (IEEE)
2016-Present: Member of Institute of Engineering and Technology (IET)

Certificates

10-2024: Enhanced Disclosure and Barring Service (DBS) Check
07-2023: Certified Peer-Assisted Learning Scheme (PALS) Mentor - University of Surrey
09-2021: Bloomberg Market Concepts (BMC)