

Ali Youssef

✉ ali.youssef.22@ucl.ac.uk 📍 London, United Kingdom
🌐 ayoussf.github.io in linkedin.com/in/ali-youssef1 🐙 github.com/ayoussf

EDUCATION

University College London London, United Kingdom
Master of Science (MSc) in Robotics and Computation (Artificial Intelligence) Sep. 2022 – Sep. 2023
Classification: Distinction.

University of Glasgow Glasgow, United Kingdom
Bachelor of Engineering (BEng) in Mechanical Engineering Sep. 2016 – Jun. 2020
Classification: First-Class Honours, accredited by the UK Institution of Mechanical Engineers (IMechE).

EXPERIENCE

Research Intern – Computer Vision May 2025 – Present
Spatial Intelligence London, United Kingdom

- Mentored three postgraduate students during joint academic-industry dissertations in collaboration with the University of Bristol, providing both theoretical guidance and hands-on implementation support.
- Researched and developed a self-supervised monocular depth estimation framework using a multi-modal Joint Embedding Predictive Architecture (JEPA) for metric depth prediction across diverse settings.
- Employed state-of-the-art object detection and tracking methods for temporally consistent multi-object tracking in dynamic environments.
- Analysed emerging research trends, assessing their applications and alignment with short- and medium-term objectives.

Independent Researcher Nov. 2023 – Jul. 2024
University College London London, United Kingdom

In collaboration with MSc supervisor post-graduation:


- Extended thesis research by developing and adapting various computer vision architectures (feature point detectors and descriptors) to further validate the proposed research methodology.
- Conducted extensive hyperparameter optimisations and experimental evaluations to assess models' accuracy and robustness across multiple benchmarks.
- Leveraged high-performance computing frameworks (JAX) to enhance model performance and computational efficiency.
- Research culminated in a paper published at the ECCV 2024 Map-free Visual Relocalization workshop.

Mechanical Engineer Intern Jun. 2019 – Jul. 2019
Porsche Middle East Cairo, Egypt


- Performed comprehensive vehicle diagnostics and initial inspections under senior engineers' supervision.
- Executed routine maintenance and service tasks in coordination with workshop teams to resolve vehicle faults.
- Verified and documented that all serviced vehicles met strict quality and safety compliance standards.

PUBLICATIONS

CONFERENCE PROCEEDINGS

NeRF-Supervised Feature Point Detection and Description  Sep. 2024
European Conference on Computer Vision (ECCV 2024): Map-free Visual Relocalization Workshop.

PREPRINTS

VMatcher: State-Space Semi-Dense Local Feature Matching  Jul. 2025
arXiv preprint (arXiv:2507.23371).

PROJECTS

Optimising Feature Point Detection and Description Using Novel View Synthesis Mar. 2023 – Sep. 2023
University College London London, United Kingdom

- Utilised Neural Radiance Fields (NeRFs) to generate synthetic multi-view datasets for training feature point detectors and descriptors under realistic camera trajectories and viewpoints.
- Adapted feature point detectors to NeRF-synthesised data through perspective projection geometry for supervision, improving generalisability and reducing convergence time by 44%.
- Achieved competitive performance on geometric vision tasks (pose estimation, point cloud registration, and homography estimation) while requiring 97% less training data.

Data-Centric Wind Power Forecasting via Recurrent Neural Networks

University of Glasgow

Oct. 2019 – Apr. 2020

Glasgow, United Kingdom

- Applied Recurrent Neural Networks (RNNs) for wind turbine power forecasting.
- Evaluated outlier detection algorithms (Isolation Forest, Elliptic Envelope, and DBSCAN) to demonstrate the impact of data preprocessing on regression performance, with Isolation Forest proving most effective.
- Benchmarked Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) architectures, with GRU maintaining high accuracy while reducing computational overhead by 25%.

SKILLS


Programming Languages: Python | C++ | MATLAB

Deep Learning Frameworks: PyTorch | Triton | JAX

Robotics: Robot Operating System (ROS)

Cloud Computing: Amazon Web Services (AWS)

CERTIFICATIONS

AWS Solution Architect - Associate (SAA-C02) 

Aug. 2022 - Aug. 2025

LANGUAGES

English | Arabic