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 – June 2020*
  Classification: First-Class Honours.

EXPERIENCE

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

- Contributed to the supervision of four postgraduate research projects as part of an academic-industry collaboration with the University of Bristol.
- Researched self-supervised Monocular Depth Estimation using multi-modal feature representation learning for robust and generalisable absolute depth prediction in real-world settings.
- Explored temporally consistent object detection architectures and learning paradigms for reliable video-based perception and object tracking in dynamic environments.
- Assisted in evaluating short- and medium-term research directions and their potential applications within Spatial Intelligence.

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

  In collaboration with MSc supervisor:

- Extended MSc dissertation by developing pipelines to train feature detection and description models on synthetic multi-view datasets.
- Implemented comprehensive experimental evaluations to validate model performance across multiple benchmarks.
- Leveraged high-performance computing frameworks to enhance computational efficiency and accelerate training.
- Published research paper at ECCV 2024 (Map-free Visual Relocalization workshop).

Mechanical Engineer Intern   June 2019 – July 2019
Porsche Middle East   *Cairo, Egypt*

- Conducted comprehensive vehicle diagnostics and initial inspections across a wide range of vehicles.
- Performed maintenance and repair tasks in coordination with workshop teams to ensure timely repairs.
- Verified all serviced vehicles met strict quality and safety compliance standards.

PUBLICATIONS

VMatcher: State-Space Semi-Dense Local Feature Matching ↗   July 2025
  arXiv

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

PROJECTS

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

- Developed synthetic multi-view datasets using Neural Radiance Fields (NeRFs) to train feature point detection models under realistic camera trajectories and viewpoints.
- Employed perspective projection supervision to adapt models to NeRF-synthesised data, improving generalisability and reducing convergence time by 50%.
- Achieved superior performance on geometric vision tasks (pose estimation, point cloud registration, homography estimation) while requiring 97% less training data.

Data-Centric Wind Power Forecasting via Recurrent Neural Networks Oct. 2019 – Apr. 2020

University of Glasgow *Glasgow, United Kingdom*

- Applied Recurrent Neural Networks (RNNs) for wind turbine power prediction.
- Evaluated anomaly detection algorithms (Isolation Forest, Elliptic Envelope, and DBSCAN) to demonstrate the impact of data preprocessing on regression accuracy and robustness.
- Benchmarked Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) architectures, with GRU maintaining high accuracy while improving computational efficiency by 25%.

SKILLS

Programming Languages: Python, C++, MATLAB **Robotics:** Robot Operating System (ROS)
Deep Learning Frameworks: PyTorch, Triton, JAX **Cloud Computing:** Amazon Web Services (AWS)

CERTIFICATIONS

AWS Solution Architect - Associate (SAA-C02) ↗ Aug. 2022 - Aug. 2025