KIERAN PEREIRA

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Kieran Pereira's Zoom MeetingEDUCATION

University of California, Berkeley, USA **August 2024 – May 2025**

MEng Mechanical Engineering, Concentration in Control and Robotic Systems

Relevant Coursework: Dynamics & Control of Autonomous Systems, Robotic Locomotion, Design of Microprocessor Systems.

Capstone Project: *Developing control systems for robotic ocean units for swarm coordination*.

- Designed and implemented real-time control algorithms at scale for a fleet of 100+ autonomous robotic units.
- Evaluated several closed-loop control strategies (PID, LQR) achieving a 15% improvement in steady state performance.
- Conducted ocean field testing with 18 units, validating mesh network communication, autonomous control strategies, and hardware performance for robust real-world operation.
- Integrated sensor fusion algorithms to combine data from various sensors, additionally optimizing actuation control and global path planning to enhance swarm coordination efficiency by 30% during validation tests.

University College London (UCL), London, UK **September 2020 – 2024**

BEng Mechanical Engineering with Control for Intelligent Systems – First Class Honors (4.0 GPA)

- Capstone Project (4.0 GPA): Created an integrated car dashboard system that recognized and narrated the meaning of traffic signs for inexperienced drivers. Leveraged a custom neural network and refined training processes on 100,000 images using PyTorch. Achieved state-of-the-art precision, outperforming Meta's benchmark model.

PROFESSIONAL EXPERIENCE

Lockheed Martin, Software & Systems Engineer, UK **June 2023 – June 2024**

- Delivered quality code in a safety-critical embedded environment, reviewed production code to quality standards.
- Led a self-proposed test automation computer vision project, improving QA processes and collaborated with international stakeholders. Presented plans to executives to secure $120,000 for a pilot, implemented to completion.
- Collaborated directly with customers to formulate customer requirements and user features for safety-critical systems, architecting these into 600+ design requirements for engineering teams.
- Performed system integration and testing, calibration, and real-time data acquisition for safety-critical applications.

HSBC, Digital Product Analyst, London UK **June – August 2024**

- Led the integration of global GenAI projects to reduce digital product time-to-market by 11%.
- Performed detailed statistical analyses that uncovered $300K in savings through a restructuring of workforce allocation.
- Partnered with customers to capture over 40 design requirements, documenting and relaying them to technical teams.

University College London, Machine Learning Researcher, London, UK **June – September 2022**

- Developed real-time computer vision for skin disease diagnostics, achieving 90% accuracy using a phone camera.
- Collaborated closely with clinicians in the NHS to access private clinical datasets, implementing preprocessing steps to improve performance by 23%.
- Implemented and tested optimization algorithms (SGD, Adam), achieving a 10% improvement in detection accuracy.
- Implemented signal processing and feature extraction techniques to improve model performance by 15%.

LEADERSHIP EXPERIENCE

Obsidian Performance Gear- Full Motion Tracking Wearables, CTO, Berkeley, USA **August 2024 – May 2025**

- Founded and led an interdisciplinary team of 7 to design and develop a connected wearable system that enhances athletic performance across multiple sports through real-time motion tracking and personalized feedback.
- Integrated IoT- enabled hardware and sensors, a machine learning recommendation system and sensor fusion algorithms (Kalman Filters) achieving 95% precision to actual movement.
- Implemented real-time precision state estimation algorithms through sensor readings (IMU, Strain gauges, barometer).

Berkeley Robotics Lab- Robotic Quadrupedal Running, Lead Researcher, Berkeley, USA **August 2024 – February 2025**

- Developed and tested control algorithms for a multi-DOF quadruped with running blades for high-speed locomotion.
- Implemented reinforcement learning controller using convex optimization techniques for stability and maneuverability.
- Achieved a top running speed of 8 km/h, a 47% improvement over Boston Dynamic's Spot.

Lead Controls Engineer, IMechE UAV Challenge, London– 4th / 32 **September 2022 – May 2023**

- Led a team in the design and implementation of an image recognition guidance system for an autonomous helicopter, architecting robotic perception and motion planning algorithms in C++.
- Coordinated cross-functional collaboration across 6 teams (42 engineers), ensuring we met 256 design requirements.

RELEVANT SKILLS & INTERESTS

Programming: *C++, Linux, Embedded Firmware, RTOS, ROS2, Python, Git, I2C, CI/CD, MATLAB, Simulink*

Robotics: *Sensor Design & Fusion, Controls, Precision State Estimation, Kalman Filters, Verification & Testing*

Computer Vision: *OpenCV, PyTorch, Keras, YOLOv6, Matplotlib, Image Processing*

Non-Technical: *Technical Communication, Stakeholder Management, Agile, Data Analysis, Product Management, Mentorship*