

# BERRY JAMES

AI / Machine Learning Engineer | Robotics Software Engineer | Computer Vision  
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Right to Work: Graduate Route (PSW) – No Sponsorship Required | Available Immediately | Willing to Relocate

## PROFESSIONAL SUMMARY

MSc Robotics & Artificial Intelligence graduate (Cardiff Metropolitan University) with a Computer Science Engineering background and hands-on experience in deep learning, computer vision, ROS 2 robotics, and Python development. Built and evaluated end-to-end AI systems, including a 94% accurate CNN human-detection model, an autonomous SLAM navigation stack, and an NLP safety layer for human-robot interaction. Currently a Research Intern at the Eureka Robotics Centre, with prior industry experience as a Full-Stack Python Developer Intern. Seeking AI/ML Engineer, Robotics Software Engineer, or Graduate AI Developer roles in the UK.

## TECHNICAL SKILLS

**Machine Learning & AI:** Deep Learning, Computer Vision, CNNs, Transfer Learning (ResNet-18), Object Detection (YOLO / Ultralytics), Model Evaluation (Precision, Recall, F1-Score), NLP, Confidence Scoring, PyTorch, TensorFlow, MATLAB Deep Learning Toolbox

**Robotics:** ROS 2, Gazebo, SLAM, Path Planning (A\*, DWA), Autonomous Navigation, TurtleBot3, NAO Robot, Human-Robot Interaction, Sensor Integration

**Programming:** Python, MATLAB, SQL, C++ (basic), HTML/CSS/JavaScript

**Web & Software Engineering:** Django, Flask, REST APIs, Git/GitHub, Agile, Code Review, Linux, VS Code, Google Colab

**Data:** Data Analysis, Statistical Modelling, Data Augmentation, Dataset Curation

## WORK EXPERIENCE

### Research Intern – Robotics & AI

Jan 2026 – Present

Eureka Robotics Centre, Cardiff Metropolitan University · Cardiff, UK

- Conduct applied AI research under the supervision of the Robotics department head, contributing to active projects in autonomous systems and human-robot interaction.
- Developing a noise-resilient NLP safety layer that uses confidence-score thresholds to prevent robots executing misrecognised or hallucinated commands; work has publication potential.
- Gained hands-on experience in robotics systems integration, deep learning experimentation, and technical documentation in a research lab environment.

### Full-Stack Python Developer Intern

2024 (6 months)

Cameron Folks · Kochi, Kerala, India

- Developed and maintained full-stack web applications using Python (Django/Flask), REST APIs, and SQL databases for client projects.
- Translated client requirements into functional features in collaboration with senior engineers, working within agile workflows, Git version control, and code review processes.

## KEY PROJECTS

### Autonomous Mobile Robot – TurtleBot3 Smart Office Simulation

MSc, 2025

ROS 2 · Gazebo · SLAM · A\* & DWA Path Planning · Computer Vision

- Built a complete autonomous navigation stack integrating SLAM, A\* global planning, and DWA local planning in a simulated smart-office environment.
- Added a real-time object/human detection module for context-aware behaviour; validated mapping, localisation, and obstacle avoidance across multiple Gazebo test scenarios.

### Human Detection for Mobile Robots – Transfer Learning CNN

MSc, 2025

MATLAB · ResNet-18 · Data Augmentation

- Fine-tuned ResNet-18 for binary human/non-human classification, achieving 94.17% test accuracy on a custom dataset expanded with low-light augmentation.

- Evaluated with precision, recall, F1-score, and confusion-matrix analysis; designed for lightweight deployment on resource-constrained robots.

**Noise-Resilient NLP Safety Layer for Robot Interaction**

MSc Dissertation, 2026

*Python · NLP · Confidence Scoring · Robot Safety*

- Designed safety middleware that scores NLP outputs and applies threshold and fallback logic so robots default to a safe state when command confidence is low.
- Contributes to responsible AI deployment in human-robot interaction, with potential for academic publication.

**NAO Robot Physiotherapy Assistant (Group Project)**

MSc, 2025

*NAO Robot · Choregraphe · Motion Planning · Human-Robot Interaction*

- Led motion design, programming clinically informed physiotherapy movement sequences with safe, smooth transitions using NAO's timeline API.
- Integrated motion control with team-built speech and sensor-feedback modules into a coherent assistive robot behaviour.

**EDUCATION**

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**MSc Robotics & Artificial Intelligence**

Jan 2025 – Jul 2026

*Cardiff Metropolitan University · Cardiff, UK*

- Modules: Deep Learning, Advanced AI in Robotics, Mobile Robotics (ROS 2), Social & Service Robots, Data Analytics, Bio-Inspired Robot Design.

**B.Tech Computer Science Engineering**

2020 – 2024

*Mount Zion College of Engineering · Kerala, India*

- Modules: Algorithms & Data Structures, Database Management Systems, Embedded Systems, C Programming, Operating Systems.

**Certificate: Full-Stack Python Web Development**

2024

*Cameron Folks · Kochi, India — 6-month intensive (Django/Flask, REST APIs, SQL, deployment), followed by internship.*

**ADDITIONAL INFORMATION**

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Languages: English (Fluent), Malayalam (Native) | Interests: Robotics Research, Responsible AI, Human-Robot Interaction | References available on request.