Luke Edgecombe

luke.edgecomb2@gmail.com | 07465 433217 | Edinburgh, UK
linkedin.com/in/luke-edgecombe333 | github.com/Luk446

About Me

Robotics and machine learning engineer with a background in biomedical engineering. Currently studying for an **MSc in Robotics with Industrial Application** at Heriot-Watt University (expected 2027), working on end-to-end IoT systems, ML theory, ROS programming and robot kinematics. My undergraduate thesis focused on **automatic hyperparameter optimisation for an MLP regressor for prototype soft medical robotics**. I am looking for a 6-month industry placement where I can apply ML/controls skills on real robotic systems.

Education

MSc Robotics with Industrial Application **2025–2027 (expected)**
Heriot-Watt University, Edinburgh, UK

- Current subjects: end-to-end IoT systems for robotics, ML theory, ROS programming, robot kinematic mathematics.
- Developing skills in applied robotics software stacks and industrial-focused automation.

BEng Biomedical Engineering (First Class Honours) **2019–2023**
University of Dundee, Dundee, UK

- Key modules: Software Applications for Biomedical Engineering, Medical Instrumentation, Electronics and Instrumentation, Biomechanics and Biomaterials.
- **Final year thesis (main project):** Designed and implemented automatic hyperparameter optimisation for an MLP regressor to control a prototype soft medical robotic system.
- Other undergraduate projects (not all final year):
  - **Össur industry-led project:** mechanical and user-application contribution to upper-limb prosthesis.
  - **Automated endo-robotic solution:** team project on an automated platform for endoscopic/minimally invasive tasks.
  - **3D-printed EMG prosthetic hand:** design and build of a functional prosthetic with limited materials.
  - **Laparoscopic training tool:** interactive system providing user feedback.
- **Award:** Open Prize for Biomedical Engineering (2022) *(also issued as School of Science and Engineering Certificate of Recognition)*.

Selected Projects

Automatic HPO for MLP Regressor in Soft Medical Robotics *Degree Thesis*

- Built an MLPR to map position inputs to actuation outputs for a soft medical robotics prototype.
- Designed an automatic hyperparameter optimisation pipeline to improve accuracy and training efficiency.
- Worked with real robotic constraints (limited data, non-linear kinematics).

Össur Upper-Limb Prosthesis (Industry-linked) *Undergraduate project*

- Contributed to mechanical design and user-facing/application aspects for an upper-limb prosthesis.
- Aim was to make the mechatronic development process and patient interaction more streamlined.

Automated Endo-Robotic Solution *Undergraduate team project*

- Helped develop an automated robotic solution for internal/minimally invasive tasks.
- Responsible for mechanical design decisions, calibration, and integration of sensing.

3D-Printed EMG Prosthetic Hand

- Designed and manufactured a low-cost prosthetic hand controlled via EMG.
- Demonstrated practical application of biomedical engineering principles.

Technical Skills

Programming:	Python, C++, MATLAB
ML / Data:	PyTorch, scikit-learn, hyperparameter optimisation, data processing
Robotics:	ROS (programming), kinematics, control systems (PID), IoT for robotics
Design & CAD:	SolidWorks (CSWA), Autodesk Inventor, 3D printing
Other Tools:	Git, Linux, LaTeX, VS Code

Experience

Class Representative – University of Dundee 2022–2023

- Liaised between students and faculty to improve delivery of engineering modules.
- Communicated feedback and helped resolve course-related issues.

Hospitality & Events – Edinburgh Fringe (Underbelly, Assembly) 2018–2023

- Worked in box office and bar roles in high-pressure, time-sensitive environments.
- Built strong teamwork, communication, and reliability.

Volunteering & Activities

Retail Volunteer – Oxfam Shop 1 year (during school)

- Assisted with stock, customer service, and day-to-day shop operations.
- Developed early teamwork and responsibility skills.

STEM Ambassador – University of Dundee Ingenious Project

- Created outreach material to promote engineering pathways in schools.

Mountaineering & Outdoor Clubs

- Member of mountaineering and mountain biking societies.
- Led/participated in trips, emphasising safety, planning and communication.

Certificates & Awards

- Open Prize for Biomedical Engineering, University of Dundee (2022) *(also issued as School of Science and Engineering Certificate of Recognition)*
- CSWA – Certified SolidWorks Associate (2023)
- First Aid at Work (Ofqual Level 3)

Interests

Mountain biking, bouldering, hiking, mechanical prototyping, robotics/AI for medical applications.