

# Andrew Swarbrick

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## SKILLS

**Languages:** JavaScript, Python, Java, HTML+CSS, Bash

**Frameworks:** Vue.js, React, PyTorch

**Libraries:** Three.js, Numpy, OpenCV

**Tools:** Git, GNU Parallel, Node.js

**Databases:** MongoDB

**Operating Systems:** Linux, Microsoft Windows

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## PROJECTS

### Personal Security System for a Night Time Economy

*Part of Degree - 2nd Year Group Project*

- Led the Android development sub-team for a real-time personal safety app targeting the night-time economy, as part of a larger group of 8.
- Built a secure Android application in Java, integrating Google Maps SDKs for journey tracking and using TLS-secured HTTP APIs for server communication.
- Implemented functionality to monitor user journeys and automatically send SMS alerts to emergency contacts if deviations were detected.
- Achieved a final project grade of 86%.

### Automated Cyber Defence Through Deep Reinforcement Learning

*Part of Degree - Final Year Individual Project*

- Developed reinforcement learning models in Python to automate cyber defence tasks, using the TTCP CAGE Challenge 2 simulation environment.
  - Focused on training blue team agents with PPO models making use of LSTM nodes with Stable Baselines 3, applying hyperparameter tuning through Optuna.
  - Designed adversarial conditions by modifying red team strategies dynamically to assess model robustness.
  - Conducted performance analysis on policies with nodes that allow decisions to be influenced by historic transitions; findings were inconclusive but informed recommendations for future research.
  - Achieved a final project grade of 80%.
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## EXPERIENCE

### Software Engineer - Copner Biotech

*Sept. 2024 - March 2025*

- Led the architecture and development of a next-generation CAD platform for proprietary 3D and 4D Bioprinting technology, replacing legacy software.
- Designed and implemented a cross-platform, low-maintenance backend using Node.js and Express, enabling zero-setup client access over LAN or localhost.
- Developed a responsive SPA frontend using Vue.js, JavaScript, HTML/CSS, and Three.js, resulting in an intuitive, low-latency user experience.

*Reference available on Request*

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## EDUCATION

### BSc Computer Science - Cardiff University

*September 2021 - July 2024*

*Grade: 2:1*

Including Large-Scale Databases, Informatics, Communication Networks, Combinatorial Optimisation, Object Orientation, Algorithms and Data Structures