

# Ryan Smith

Graduate Software Engineer | Machine Learning • Web Development • Ethical AI

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Portfolio: [ryanalansmith.com/](https://ryanalansmith.com/)

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## Profile

Software Engineering undergraduate at Swansea University graduating in 2026, specialising in machine learning, ethical AI, and backend/web development. Experienced building projects in Python, Java, C#, and reinforcement learning systems using CARLA and PPO. Seeking a graduate software engineering role focused on practical, real-world problem solving.

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## Technical Skills

**Languages:** Java, Python, C, C++, C#, HTML, CSS, JavaScript, Haskell, Ada, SQL

**Tools and Frameworks:** Git, GitHub, Unity, Blender, VRChat SDK, Flask, Django, Linux, Excel

**Practices:** Object-oriented programming, agile development, test-driven development, software design patterns, API development, data visualisation, debugging, reinforcement learning, reward engineering

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## Experience

**Instructor (Part-Time)** — *Code4Drones, UK*

*Mar 2025 – Jul 2025*

- Delivered engaging **STEM workshops** for students aged 9–16, introducing computer science and drone programming.
- Encouraged creative problem-solving through hands-on coding challenges.

**Data Analyst Intern** — *Urgo Medical*

*Jul 2023 – Sep 2023*

- Collected and analysed manufacturing data to produce key performance indicators (KPIs).
- Created **data visualisations and dashboards** to streamline reporting for senior management.
- Gained practical experience in **data interpretation, automation, and business process improvement**.

**Technical Support Apprentice** — *The Access Group*

*Sep 2021 – Sep 2022*

- Provided first-line technical support for **Access Care Planning** and **Webroster** within the healthcare sector.
  - Developed strong communication skills through issue diagnosis, ticket handling, and customer engagement.
  - Learned principles of **software troubleshooting, client support, and agile teamwork**.
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## Education

**BSc Software Engineering** — *Swansea University*

*Expected Graduation: Summer 2026*

- Studied **Java, Python, C, C++, C#, HTML, CSS, Haskell, Ada and SQL**.
- Core study areas include **Web Application Development, Critical Systems, Advanced Object-Oriented Programming (OOP), Game Development, Web Backend Engineering**

**A Levels** — *Loughborough Grammar School (July 2021)*

- Applied Science – Distinction (A), Computer Science (B), Maths (C)
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## Projects

**Ethical AI in Driving Simulation | Swansea University Dissertation | Python, CARLA, PPO, Reinforcement Learning, Git**

- Designed and implemented ethical autonomous driving scenarios in the CARLA simulator, including pedestrian hazard scenarios and trolley-problem-inspired dilemmas.
- Extended a pre-trained reinforcement learning driving model by modifying the reward structure and training logic to evaluate harm minimisation and safe driving behaviour.
- Trained and evaluated a PPO-based agent across thousands of simulation episodes, recording collision outcomes, behavioural patterns, and training performance.
- Identified limitations of reward-based ethical decision-making, including reward hacking and inconsistent performance in complex moral trade-off scenarios.

**Guardian | Solo Game Development Coursework | Unity, C#**

- Built a solo Unity wave fighter game focused on enemy waves, player interaction, challenge pacing, and responsive gameplay.
- Designed and implemented the core gameplay loop, including player survival, enemy progression, wave management.

**2D Chips Challenge Game Prototype | Group Project | Java, Object-Oriented Programming, Agile, Debugging**

- Replicated the classic Chips Challenge game as part of a group software project using Java and object-oriented design.
- Added new features, worked with another group's existing codebase, and fixed inherited bugs while following agile development processes.

**Personal Portfolio Website | Personal Project | HTML, CSS, JavaScript, Responsive Design**

- Developed a responsive portfolio website using HTML, CSS, and JavaScript to showcase technical projects and experience.
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## Leadership & Activities

**President** — *Swansea University Anime and Manga Society*

*Jul 2023 – Jul 2025*

- Led society operations, doubling membership from 50 to 100 students.

**Cadet Flight Sergeant** — *Royal Air Force Air Cadets*

*Sep 2017 – Jul 2021*

- Managed and trained over 60 cadets, organising weekly technical and leadership training programmes.