Fergal Riordan

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PROFILE

Software Engineer with a First-Class Honours Master's degree in Computer & Electronic Engineering from Trinity College Dublin. Specialised in machine learning, computer vision and embedded systems programming. Proficient in Python, with practical experience including a Master's thesis on deep learning for image-to-image translation, implementing a variety of control systems for a quadcopter drone, and developing an IoT device integrating speech recognition and cloud computing. Seeking an entry-level role to apply technical skills and continue building expertise.

TECHNICAL SKILLS

Key Competencies	**Deep Learning, Computer Vision, Embedded Systems**
Programming Languages	**Python, C, C++, Matlab, ARM Assembly Language**
Frameworks & Libraries	**PyTorch, TensorFlow, Keras, scikit-learn, Pandas, NumPy, OpenCV**
Tools	**Git, VSCode, LaTeX, Excel, AWS**
Development Practices	**Agile Development, Test-Driven Development, CI/CD**

PROFESSIONAL EXPERIENCE

Sep 2023 — Present **Machine Learning Freelancer, Data Annotation Tech** Remote

- Training LLM-based chatbots for advanced programming and data science tasks using RLHF, applying analytical techniques and prompt engineering skills.
- Contributions to model improvements in API integration and data analysis earned recognition and access to a domain expert team focused on advanced computer science projects.
- Currently developing high-quality Jupyter notebooks for training purposes, covering data science topics such as data preprocessing, exploratory data analysis, and machine learning model development.

RELEVANT PROJECTS

Sep 2023 — Apr 2024 **Master's Thesis: Enhancing CycleGAN for Day-to-Night Image Translation**

GitHub Repository

- Researched cycle-consistent generative adversarial networks (CycleGAN) for image-to-image translation with PyTorch, enhancing performance with transfer learning and architectural changes.
- Developed novel network architectures, with a content-style disentangling scheme to improve the accuracy of the network and a timestamp input to facilitate the generation of synthetic time-lapses.
- New network outperformed the baseline model on the Kernel Inception Distance metric by up to 20%.
- Attained a First-Class Honours grade of 82% for the project overall.

Jan 2024 — Apr 2024 **IoT Party Game Device Using ESP32 Microcontrollers and C++**

- Collaborated on an IoT device for interactive party games and language learning with real-time speech recognition and acoustic location technology, leveraging Espressif's Audio Development Framework.
- Utilised ESP32-S3-Korvo board for speech recognition and cloud communications, attaining experience with neural network models on low-power embedded MCUs.
- Used the MQTT protocol for low-power communication and employed AWS IoTCore and Lambda for secure and scalable data processing.

EDUCATION

Sep 2019 — May 2024 **Integrated Bachelor's and Master's, Computer & Electronic Engineering, Trinity College Dublin** Dublin

- Master's Result: 1.1 (80%)
- Bachelor's Result: 1.1 (72%)
- Relevant Coursework: Machine Learning, Operating Systems, Computer Vision, IoT, Microprocessors
- Erasmus semester at The University of Iceland, Reykjavík

Sep 2013 — Jun 2019 **Leaving Certificate, Christian Brothers College** Cork

- 625 points (7 H1 grades)
- Top 0.1% nationally

EXTRA-CURRICULAR ACTIVITIES

Sep 2021 — May 2022 **Control Team, Formula Trinity** Dublin

- Participated in Formula Student AI, an international engineering competition where teams design autonomous race cars to compete in tasks such as driving, obstacle avoidance, and precision navigation.
- Implemented control algorithms (PID, Model Predictive Control) for the self-driving vehicle, enhancing precision and responsiveness for FS-AI competitions.
- Gained hands-on experience in a large-scale software project, learning to solve complex problems in a collaborative team environment.

LANGUAGES

English	Native speaker
Irish	Fluent
French	Conversational
Spanish	Basic
German	Basic

SOFT SKILLS

- *Strong Work Ethic:* Honest and hard-working mindset instilled through background on a family farm and reflected in academic achievements.
- *Communication Skills:* Developed through part time work in high-pressure hospitality roles.
- *Innovative & Ambitious:* Evident through the completion of a challenging Master's thesis and ongoing skill development in emerging technology.
- *Cultural Adaptability:* Enhanced by Erasmus semester and a recent 4-month solo backpacking trip through South America, as well as a long-standing passion for language learning.

HOBBIES

- *Soccer:* Played 11-a-side soccer throughout my teenage years and continue to play 5-a-side regularly.
- *Water Sports:* Advanced SSI-certification in scuba diving; enjoy surfing and sailing regularly during summer.
- *Guitar:* Proficient in both acoustic and electric guitar, with experience spanning over 15 years of playing and performing.