Hayden Lee

Software Engineer – Defence Science and Technology Group (DSTG)

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Profile

Software Engineer – Mechatronics Engineering and Computer Science (AIMajor) background. Proficient with **C++, Python, Tensorflow, QML** to build functional software in a fast-paced, agile environment. Comprehensive knowledge of **data structures and algorithms**, and **design patterns**. A continuous learner, always seeking opportunities for growth both in and outside of work. Demonstrated strengths in following the **scrum process** to see delivery of projects from stakeholder needs analysis through to design, development/testing. Strong at building rapport, and adaptive communication styles to establish solid teamwork foundation. Strong practice of effective **git version control** processes and documentation writing, to ensure lasting team collaboration and knowledge sharing.

Education and Skills

University of Adelaide 2018 – 2022	Python, C++, Tensorflow, Java, Linux, Docker, Git, Qt, QML
6.50 GPA & First Class Honours	Data structures and algorithms
	Artificial intelligence and Machine Learning background.
Bachelor of Engineering (Honours) (Mechatronic)	Fluent with industry standard design patterns.
Bachelor of Mathematics And Computer Science (AI Major)	Systems Engineering and project management.

Work Experience

Software Engineer | DSTG (2023 – Present)

- Deployed a **Docker-based development environment** for **cross compiling** Qt source code onto the Jetson Nano, allowing for streamlined development by allowing team members to work inside a containerised environment.
- Built key desktop application features using the **Qt Framework**, including:
  o A **Qt3D scenario planner** written in Python, utilizing a custom **Model/View architecture** and **subscriber pattern**, that has helped users design scenarios and simplify Design of Experiments.
  o Byte-parsing interfaces for data logging, designed with **object-oriented** principles for **scalability/maintainability.**
  o Modernized legacy systems by implementing a **GPS track visualizer**, integrating **scraped AIS vessel data** into a **SQLite database** and building a processor to interface with existing display infrastructure.
  o Supportive components, architecture, and processing capabilities to build on existing sonar processing applications.
- Developed a **Generative Adversarial Network (GAN)** using **TensorFlow** for synthetic **audio data generation**, optimizing performance through hyperparameter tuning.
- Worked in an **agile** environment and followed the **scrum process** to develop and maintain software systems. Strong experience with using collaboration tools including **JIRA, Confluence, and Git**.

Personal Projects

Cloud Resume Challenge

- Designed and deployed a **serverless web application** (online resume) using **AWS services** including **S3, CloudFront, Route 53, and Lambda**.
- Implemented **Infrastructure as Code (IaC)** using **AWS CloudFormation** to automate resource provisioning and management.
- Integrated a **CI/CD pipeline** using **GitHub Actions**, enabling automated testing and deployment on code commits.
- Created a **REST API with AWS API Gateway and Lambda**, connected to a **DynamoDB** backend to track website visitor count.
- Secured the site using **HTTPS**, **IAM policies**, and followed best practices for **least privilege** and **access control**.

DYDX Python Trading Bot

- Developed a trading bot that interacts with the **DYDX trading platform API** to open, close, and manage cryptocurrency trades.
- Automated trade management, error handling, and **real-time Telegram notifications** for monitoring performance.
- Runs 24/7 using **AWS Elastic Cloud Compute (EC2)** instance and uses **CRON** for full automation.
- Implemented simple trading strategy using relative strength index and exponential moving averages. Under improvement.

More project details available on my website (see top) and Github: https://github.com/haydensflee

Certificates and Achievements

2021 Honours Project – Bioinspired Cave eXploration (CaveX) Robot MAXMINE Prize for Outstanding Technical Engineering
2019-2022 Recipient of Defence Science Technology Group (DSTG) Cadetship
2019 2nd place Warman Design and Build Challenge at the University of Adelaide
2018 Recipient of Commonwealth Scholarships Program for South Australia

References (Details available on request)

Mr. James Gourley (DSTG SED; Discipline Leader – Concept Demonstration Systems, Undersea Systems)
Mr. Andrew May (DSTG SED; Group Leader – Quantum Technologies)