Johnny Martin (Shaun) Lowis

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Christchurch, New Zealand

Education

Postgraduate Certificate in Mechanical Engineering *2024*

- University of Canterbury | GPA 7.5.

Bachelor of Science, majoring in Physics and Finance *2018-2022*

- University of Canterbury | 300-level Physics GPA 5.6.

Work Experience

Spacecraft Operations Engineer: Rocket Lab, Auckland *Present*

- Spacecraft operations: design, development and implementing systems and procedures for the commanding of spacecraft. Experience in a mission control centre.
- Systems testing: design and test of concept of operations procedures for RF, propulsive, attitude control and other subsystems.
- Development: software expertise in data analysis and visualisation in Python, devops such as automated regression testing and writing on-spacecraft flight software using MAX FSW.
- Interpersonal: coordination, communication and leading inter-team discussions and design on systems interfaces and spacecraft operational testing and commanding.

Data Scientist: Dawn Aerospace, Christchurch *2022-2025*

- Developing an maneuver detection model in Python, using TLE data for finding delivered in-orbit impulse.
- Designing and building Python, C++ and SQL tools for collating test data in the in-space propulsion team.
- Product owner of two servers, one in NZ, one in the Netherlands running Proxmox, with docker swarm for hosting internal software.
- Building a high availability PostgreSQL multi-server cluster.

- Full stack development of internal software hosted on our servers.
- AWS hosting for customer facing services.
- Automation of manufacturing processes using electronics and serial protocols for test sequence control.
- Mentoring an intern, summer 2023, on further automation and improvements to systems I have built.

Programmer: Bodeker Scientific, Alexandra *2017-2021*

- Data analysis and visualisation for Atmospheric physics research publications.
- Daily analysis and discussion of scientific publications.
- Compiling and running the PALM Large-Eddy windflow model, then examining the effect of terrain changes on urban windflow in Auckland. Visualising this as a video using CLI tools such as ffmpeg, gdal, published here.
- Developing data anaylsis methods in Python, using NetCDF, xarray, pandas, numpy libraries for the output of the WRF large weather model, in collaboration with MetService.
- Visualising geospatially referenced weather data, using matplotlib, here.

Internship Experience

Summer Intern *Summer 2022*

- Dawn Aerospace, Christchurch
- Researched and developed a maneuver detection algorithm in Python, with a Tkinter GUI, to infer a satellite's delivered impulse from open-source TLE data.

Skills

- Programming languages: Python, SQL, bash, C, C++, MATLAB.
- Frameworks: Docker, linux, GitLab CI/CD, pytest.
- Hardware: Electronics, basic circuitry design in KiCAD. Some knowledge of fluidic interfaces and testing. Server installation, networking.
- Machine Learning: Neural Networks; physics informed and convolutional, Regression; multivariate and time-series, Classification; image segmentation, k-NN; clustering, similarity.
- Data Analysis: Data pre-processing, Visualization, Statistical analysis, Mathematical analysis, Model design and validation.
- Data Engineering: Designing robust data collection pipelines in Python.
- Interpersonal: I work with 4+ different teams in different departments and countries and enjoy working on new and novel problems.

- Multilingual: I am fluent in Afrikaans and English, I can read and hold conversations in German and Dutch.
- Versatility: with my Physics and Finance backgrounds, I work well as a generalist, having taught myself programming and electronics. I am skilled at learning new technical skills quickly as with my mechanical engineering postgraduate courses.

Personal life

- In high-school, I was in a band, which opened a few festivals and was great fun. I played lead guitar and did vocals and backing vocals. I still often play guitar, though not in a band any more.
- After work, I can be found at the gym, or playing DOTA 2, which I have played for over 10 years now, with some semi-professional stints. I am currently in the top 4% of the player base.

References

Available upon request.