Adyn Miles

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Education

Delft University of Technology – MSc in Aerospace Engineering July 2024
University of Toronto – BASc in Aerospace Engineering May 2022

Experience

Payload Systems Engineering and Test Intern, Planet Labs – San Francisco, CA June 2023 – Aug 2023
- Designed procedures for detector and lens alignment across two payloads, greatly improving assembly repeatability and reaching sub-micron level accuracy.
- Built payload prototypes in the laboratory using consumer optical components to test these procedures.
- Created documentation and hosted in-person sessions to teach the rest of the technical team the alignment process as part of a larger effort to handle increasing payload complexity.

Software Development Intern, Canadian Space Agency – Toronto, ON May 2021 – Aug 2021
- Added critical payload electronics functionality to a simulator for the currently operational NEOSSat, allowing the software team to more accurately simulate and solve on-orbit problems from the ground.
- Developed functional embedded code in C and C++ using a real-time operating system with effective task sequencing and prioritization to improve the simulator.

Aircraft Stability and Control Intern, Bombardier Aerospace – Toronto, ON Aug 2020 – Apr 2021
- Implemented MATLAB simulations to certify Bombardier aircraft for flight conditions in abnormal flight events such as uncontrolled high thrust.
- Automated processes in Visual Basic to determine the effects of non-conformities on performance metrics such as drag and to analyze production quality trends of over 50 aircraft.
- Streamlined the evaluation of each manufactured aircraft's performance and highlighted areas for production improvement using these tools.

Projects

Spectropolarimeter for Planetary Sciences Research, Master Thesis Oct 2023 – July 2024
- Designed the optical and mechanical architecture of a laboratory-based spectropolarimeter for high-precision studies of surfaces including asteroids and icy moons.
- Developed an end-to-end simulator in Python that determines the effects of input errors on the polarimetric accuracy of the instrument, saving €10,000+ in testing costs.
- Designed and optimized custom lenses and mirrors in Zemax to meet light throughput requirements.
- Published research to SPIE Astronomical Telescopes and Instrumentation Conference 2024, and was selected for €100,000+ in grants from the Dutch Research Council.

Remote Sensing Nanosatellite, University of Toronto Aerospace Team Mar 2020 – Mar 2022
- Led a team of 15 students in the early design of a hyperspectral camera for high-precision greenhouse gas monitoring in a nanosatellite platform.
- Developed software tools in Python and MATLAB to simulate the signal-to-noise and scientific accuracy of the instrument, leading to more focused design improvements.
- Built the instrument architecture, requirements, as well as a complete verification plan from the ground up.

Radio Communications Nanosatellite, University of Toronto Aerospace Team Sept 2018 – Mar 2022
- Coordinated and successfully performed vibration testing and thermal vacuum chamber testing campaigns, both key steps in validating the satellite for launch.
- Assembled the satellite to withstand launch conditions with a team of 6 in a cleanroom environment.
- Designed the software architecture for a custom-built ground station to communicate with this satellite using GNURadio and Python.

Skills

Programming Languages: Python, MATLAB, C, C++
Software Tools: SolidWorks, Zemax OpticStudio, LabVIEW, GNURadio
Laboratory: Optical bench testing, Arduino, Cleanroom assembly