Michael Bonnet | Resumé

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EDUCATION

University of Texas at Arlington **Arlington, TX**
Bachelor of Science in Computer Science *May 2022*

University of Texas at Arlington **Arlington, TX**
Certificate in Unmanned Vehicle Systems *May 2022*

SKILLS & TECHNOLOGIES

- **Programming Languages:** Python, Go, C, C++, Ruby, JavaScript/TypeScript, MATLAB
- **Software & Processes:** Amazon Web Services (AWS), Astrodynamics, Simulation, MATLAB/Simulink, DevOps, Computer Vision, OpenCV, React, PostgreSQL, Git, Bash, Linux, Windows, Agile Development
- **Hardware:** Small Satellites, Simulation, Robotics, Commercial & Self-Built Drones, Autonomous Vehicles, Flight Controllers (Pixhawk), Raspberry Pi, Microcontrollers, Software Defined Radio (inc. RTL-SDR & LimeSDR)
- **Certifications:** NOAA Spacecraft Operator

EXPERIENCE

Turion Space **Irvine, CA**
GNC/Flight Software Engineer *February 2023 - February 2024*

- Designed and tested payload software in embedded C/C++ for DROID, a spacecraft launched in June 2023
- Developed Ruby on Rails-based mission control software hosted on AWS used for on-orbit spacecraft operations
- Operated DROID.001 spacecraft as Mission Operator and Flight Director throughout launch and early orbit phase
- Built Turion Space's proprietary STARFIRE API in Go using the Echo framework and a Postgres backend database for cataloguing and distributing orbital space domain awareness data, deploying to AWS
- Developed Turion Space's internal spacecraft dynamics simulation library, enabling safe operation of a constellation of near-real-time space-to-space photoreconnaisance satellites
- Implemented astrodynamics and astronomical algorithms in a library for widespread internal company use

Terran Orbital **Irvine, CA**
Flight Software Engineer *May 2022 - January 2023*

- Configured custom Linux-based operating systems for NASA Pathfinder Technology Demonstrator satellites in low-earth orbit and for customers using Terran Orbital-designed satellites for their own missions
- Designed, developed, and tested performant C++ embedded software for projects totaling dozens of spacecraft
- Supported launches of company and customer payloads to low-earth orbit (LEO) and translunar trajectories with flight software troubleshooting both in mission control and on call

Lockheed Martin **Fort Worth, TX; Grand Prairie, TX**
Software Engineer Intern *May 2021 - May 2022*

- Implemented novel software controlling 6 DOF robotic arms used in manufacturing Patriot missile and F-35 parts
- Developed practices and documentation for properly using Git version control within an Agile (Scrum) development cycle, earning opportunity to continue working past the summer internship

PROJECTS

Astronomy and Astrodynamics Utilities Library *Python, TypeScript, Space*

- Implemented astronomical and astrodynamic algorithms in Python and TypeScript that were previously only available in langauges like FORTRAN, C, etc, providing the functionality in languages with wider appeal and use
- Open-sourced the implementations for public use (MIT License) on GitHub
- Currently implementing all algorithms from David Vallado's "Fundamentals of Astrodynamics and Applications" in Python

Network Exploitation Drone *Drones, RF Engineering, Penetration Testing, Networks*

- Senior capstone project to build a drone that carries a Raspberry Pi sensor and networking payload that locates and identifies open Wireless Access Points before scanning the network and exploiting any vulnerabilities.
- Served as Team Leader on a six-student team that earned sponsorship from Elbit Systems of America; finishing 85% under budget and 6 months ahead of schedule