

Steve Lai

Aerospace Engineer

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2018 - Now

Software Engineer, [Astra](#)

Alameda, CA

Coding Skills

- Build and operate software stack for rocket test and launch operations
- Write software that directly interfaces with hardware on one end and stores/serves data on the other
- Resolve 80%+ software anomalies in test and rocket operations on a daily basis
- Interface with propulsion, test, software, and launch teams to build customer-centric software products
- Automate tests and operations for an agile and safe work environment
- Switch between software engineer, test operator, systems engineer, and IT troubleshooter on a daily basis
- Set up and take down of launch infrastructure
- Launch rockets and run tests from the command operator and train others to do the same

Python, SQL, LabVIEW, Docker, Kubernetes, Redis, InfluxDB, ZeroMQ, Matlab, Linux, Bash, Jenkins, Git, Javascript, Vue.js, React, Confluence, JIRA, PagerDuty, PLM

Computer Engineering

SolidWorks, Abaqus FEA, MicroStation CAD, ESI CFD, STK, ODTK

2017 - 2018



Systems Engineer, [Planet](#)

Mountain View, CA

- LMP-103S Liquid monopropellant propulsion
 - Developed and planned LEO maneuvers
 - Worked with propulsion manufacturer and in-house flight software, mechanical, operations, and flight dynamics teams to make improvements and resolve anomalies
 - Liquid monopropellant loading at launch base
 - Characterized system health and performance
 - Responsible for commissioning six new spacecraft propulsion systems and maintaining performance
- FEEP Electric propulsion
 - Drafted propulsion requirements, procured hardware, led integration and test efforts for earth observation mission and verified LEO performance for untested space hardware ([report](#))
 - Advanced relations with propulsion vendors through the NDA, RFP, term sheet, definitive agreement, operational, and anomaly resolution phases
 - Created and rolled out operational CONOPs for new satellite mission, defining the processes and scripts by which the satellite will operate
 - Managed teams in San Francisco, Mountain View, Stockholm, and Vienna to integrate, test, launch, and fly new propulsion hardware
- General
 - Managed and executed encryption pre-flight end-to-end tests across Operations, Software, Encryption teams, and third parties, proving our ability to communicate with our satellites
 - Built test fixtures for flat sats (IC boards and actuators) in Solidworks and manufactured via laser printer
 - Defined GPS and accelerometer requirements for research mission
 - Resolved flaws and introduced automation in maneuver planning software suite using C#

2015 - 2017



Flight Operations Engineer, [Google](#)

Mountain View, CA

- System Test Lead
 - Led a cross-functional team of 5 engineers to test the multi-system imagery pipeline, verifying the ability to receive, decrypt, and process images from our satellites
 - Led exercises to fully validate new maneuver software interfaces, procedures, and execution
- Helped build and maintain automated sequence validation service built on Flask, Celery, Redis database, and REST APIs
- Designed, built, and executed Python scripts and procedures for encryption testing, validating our ability to communicate with our satellites
- Coordinated and executed a celestial imaging campaign between Planet, NASA JPL, and the B612 Foundation ([report](#))
- Tested and automated hardware-in-the-loop and simulation scripts
- Acceptance tested and managed 10 comprehensive software releases to ground and flight assets using Puppet
- Investigated and resolved over 300 satellite anomalies as the emergency on-call person for 24/7 operations
- Code reviewed, tested, and approved production Python scripts and procedures
- Facilitated the technical development of satellite controllers from our 24/7 operations team

2014 - 2015



DevOps Engineer, Skybox Imaging

Mountain View, CA

- 2000+ hours of satellite flight time
- Created over 170 Python scripts and procedures to streamline fleet operations with CI/CD
- Trended big datasets to analyze irregular tendencies and characterize hardware performance using Jupyter
- Built automated checks in Python that ensure satellite activities occur in sequence and adhere to flight rules

Education

M.S. Aerospace Engineering, San Jose State University, 2015

3.7 GPA

Master's Thesis: [Analysis and Testing of Gelled, High Propulsive Green Propellant for Small Satellites in Low Earth Orbit](#)

- Created a simulated propellant based on LMP-103S to flow through a custom-built testbed that measured pressure and mass flow rate of the system
- Characterized thruster performance and efficiency using computer-aided software tools
- Used CFD to determine gel slosh within the propellant tank



B.S. Mechanical Engineering, Miami University, 2012

3.6 GPA

NASA Researcher

- Studied aircraft material failure analysis