Gavin Martin

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Education

The University of Texas at Austin
B.S., Aerospace Engineering Honors
Concentration: Space Flight
Expected Dec 2019 | GPA: 3.84

Skills

Languages: Python • Java • Go • MATLAB • Bash
Libraries: NumPy • SciPy • Pandas • OpenCV • TensorFlow
Technologies: Linux • Git • Docker • Jenkins • AWS • LaTeX
Interpersonal: Public Speaking • Project Management

Work Experience

NASA Jet Propulsion Laboratory, Software Systems Engineering Intern, Pasadena, CA . . . Jun 2019 - Aug 2019
- Collaborating in designing the JVM-based Merlin SDK for spacecraft activity planning and mission simulation
- Developing a multi-mission GN&C model using the Merlin SDK and extending it for the Europa Clipper mission
- Integrating existing Europa Clipper GN&C modeling and simulation tools into operations planning systems

Raytheon *(Contracted to NASA JPL)*, Software Systems Engineering Intern, Remote . . . . . Apr 2019 - May 2019
- Extended spacecraft modeling and simulation software by integrating JPL's orbital geometry and time toolkits
- Researched geometry and GN&C models for implementation as multi-mission models for operations planning

NASA Jet Propulsion Laboratory, Mission Planning Intern, Pasadena, CA . . . . . May 2018 - Aug 2018
- Optimized Europa Clipper mission modeling and simulation software for speed, scalability, and reliability
- Automated mission simulation, downstream analysis, and data delivery using Jenkins and Docker
- Built dynamic, interactive 3D visualization tool for science instrument coverage maps on Europa's surface

Texas Spacecraft Laboratory, Seeker Vision Project Manager, Austin, TX . . . . . Oct 2017 - May 2018
- Designed computer vision system for NASA JSC's Seeker mission (launched April 2019 on Cygnus NG-11)
- Directed 15+ person development team through successful NASA reviews and flight software delivery
- Trained neural networks with TensorFlow to intelligently detect, recognize, and localize nearby vehicles in space
- Validated robust, high-speed performance on embedded systems via hardware-in-the-loop simulations

Texas Spacecraft Laboratory, ARMADILLO Mission Manager, Austin, TX . . . . . Mar 2017 - Nov 2017
- Constructed operations infrastructure to support the ARMADILLO CubeSat (launched Summer 2019 on STP-2)
- Integrated communication and project management platforms while scaling from 5 to 50+ engineers
- Spearheaded development of PyQt5 GUI to process and interpret downlinked spacecraft telemetry in real-time
- Created downlink simulation suite for ground software validation and spacecraft operator training

GE Aviation, Software Engineering Intern, San Marcos, TX . . . . . May 2016 - Aug 2016
- Built custom enterprise resource planning software using Java's Swing framework
- Automated customer service reporting by integrating custom ERP software with the Apache POI API

Projects

ADCS Simulator – `bit.ly/adcs-simulator`
- Developed object-oriented simulation engine for spacecraft attitude determination and control systems
- Wrote research paper detailing models for dynamics, actuators, sensors, and control algorithms in simulator
- Tools: Python, NumPy, SciPy, Matplotlib, LaTeX

Object Detection Models – `bit.ly/detection-models`
- Developed library for easily deploying TensorFlow Object Detection API models and detecting objects in images
- Tools: Python, TensorFlow, Jupyter

Rotor Control Service – `bit.ly/rotor-control-service`
- Designed RESTful microservice for automated ground station tracking of overhead satellites
- Created Slack bot for notifying spacecraft operators of daily & imminent communications passes
- Tools: Golang, MongoDB, Docker Compose, Slack API