GAVIN C. MARTIN

me@gavincmartin.com (713) 805-8729 www.gavincmartin.com gavincmartin gavincmartin

EXPERIENCE

Amazon - Project Kuiper

Software Development Engineer II, Constellation Operations

May 2022 – Present Remote (Irvine, CA)

- Designing and developing mission operations tooling for planning, execution, and automation use cases for the Kuiper satellite constellation
- Building and maintaining hardware-in-the-loop test frameworks for functional and system-level satellite testing
- Developed automated test + mission ops reporting pipelines and dashboards using a variety of AWS services

Python | Jupyter | Lambda | SNS | Glue | Athena | QuickSight

NASA Jet Propulsion Laboratory

Software Systems Engineer, Europa Clipper

Jan 2020 – Apr 2022 Pasadena, CA

- Led the Activity Planning Software development team (10 engineers)
- Designed and implemented models of spacecraft subsystems and instruments for use in planning software
- Architected integrated uplink software and processes to satisfy operations needs for a range of science and engineering stakeholders

Java | GraphQL | Dagger | JUnit | Guava | Gradle

Software Systems Engineering Intern, AMMOS *(contracted via Raytheon)*

Apr 2019 – Dec 2019 Remote (Austin, TX)

- Collaborated in designing a multi-mission framework for spacecraft activity planning and mission simulation
- Developed a generic discrete event engine for simulating activity plans and predicting resource usage

Java | SPICE Toolkit

Mission Planning Intern, Europa Clipper

May 2018 – Aug 2018 Pasadena, CA

- Optimized legacy mission modeling and simulation software for speed, scalability, and reliability
- Automated simulation, mission plan analysis, and data delivery workflows

Python | Pandas | Docker | Jenkins | MATLAB

Texas Spacecraft Laboratory

Project Manager, Seeker Vision

Oct 2017 – May 2018 Austin, TX

- Designed computer vision system for NASA JSC's Seeker-1 CubeSat mission
- Directed 15+ student development team through successful NASA reviews and flight software delivery
- Trained neural networks to intelligently detect, recognize, and localize nearby vehicles in space

Python | TensorFlow | OpenCV | NumPy | Unreal Engine

EDUCATION

B.S., Aerospace Engineering

The University of Texas at Austin

Aug 2015 – Dec 2019

Engineering Honors Program
Concentration: Space Flight
GPA: 3.81

SKILLS

Languages

Java | Python | Go | Bash

Technologies

AWS | Docker | Git | Linux | GraphQL | Jenkins | Jupyter

Interpersonal

Public Speaking | Proj. Management | Technical Leadership | Mentorship

PROJECTS

Seeker Vision

- Developed spacecraft detection and relative bearing estimation system for NASA mission using deep neural networks
- Co-architected ML pipeline for synthetic image generation, CNN training, and evaluation

`https://bit.ly/seeker-vision`

ADCS Simulator

- Developed object-oriented simulation engine for spacecraft attitude determination and control systems
- Can be used to demonstrate the viability of a specific suite of sensor, actuator, and controller designs
- Detailed models for dynamics, actuators, sensors, and control algorithms in associated paper

`https://bit.ly/adcs-simulator`

Mission Manager, ARMADILLO CubeSat

Mar 2017 – Nov 2017 | Austin, TX

- Constructed operations infrastructure to support a CubeSat funded by the Air Force Research Lab
- Scaled satellite laboratory from 5 to 50+ student engineers

Python | PyQt5 | Pandas | GPredict

General Electric Aviation

Software Engineering Intern

May 2016 – Aug 2016 | San Marcos, TX

- Built custom enterprise resource planning software using Java's Swing framework
- Automated customer service reporting by integrating custom ERP software with Apache POI

Java | Swing | Apache POI

HONORS & AWARDS

Professional Awards

- **Voyager Award (Individual)**
  NASA JPL | 2022
  For implementing a proof of concept . . . to resolve MOS issues with gathering . . . activity definitions
- **Team Award**
  NASA | 2022
  For excellence in developing comprehensive models and simulations for . . . mission architecture and design decisions
- **Discovery Award (Individual)**
  NASA JPL | 2021
  For shepherding Europa Clipper adaptation of Merlin planning tool
- **Bonus Award (Team)**
  NASA JPL | 2020
  For contributions to the successful Europa Clipper . . . S/W Peer Review
- **Voyager Award (Individual)**
  NASA JPL | 2020
  For foundational advancement of Europa Clipper and Aerie Merlin simulation and scheduling concepts
- **Above & Beyond Bronze Award (Individual)**
  GE Aviation | 2016

Academic Honors

- **Graduation with Honors**
  UT Cockrell School of Engineering | 2019
- **Longhorn Poster Session Audience Favorite Award (1st Place)**
  UT Research Week | 2019
- **Tejas Scholarship**
  UT Office of the Dean of Students | 2017 – 2019
- **Uniden Corporation of America Endowed Scholarship**
  UT Cockrell School of Engineering | 2015 – 2019
- **Class of 2019 Representative**
  UT Aerospace Dept. Advisory Board | 2015 – 2019
- **National Merit Scholar**
  National Merit Scholarship Corp. | 2015

FLIGHT PROJECTS

Kuiper Protosats 1 & 2
launches 2023

Europa Clipper
launches October 2024

Mars Sample Retrieval Lander
launches 2028

Seeker-1 CubeSat
launched April 2019

ARMADILLO CubeSat
launched June 2019

PUBLICATIONS

Conference Proceedings

- C. Schubert, K. Black, D. Fonseka, A. Dhir, J. Deutsch, N. Dhamani, **G. Martin**, and M. Akella, "A pipeline for vision-based on-orbit proximity operations using deep learning and synthetic imagery," in *2021 IEEE Aerospace Conference*, 2021.
- N. Dhamani, **G. Martin**, C. Schubert, P. Singh, N. Hatten, and M. R. Akella, "Applications of machine learning and monocular vision for autonomous on-orbit proximity operations," in *AIAA Scitech 2020 Forum*, 2020.
- M. Kumar, A. Rothstein-Dowden, and **G. Martin**, "A higher-order temporal reasoning approach to authoring semantically precise flight rules for spacecraft systems," in *The 16th International Conference on Space Operations 2020*, 2020.

LANGUAGES

English

Spanish

Italian