

Carson Schubert

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EDUCATION

University of Texas at Austin	B.S Electrical and Computer Engineering, B.S Mathematics	May 2021
<i>GPA: 3.91/4.0</i>		
<i>Concentration: Communications, Signal Processing, and Embedded Systems</i>		
<i>Coursework: Intro to Digital Comm., Real Time DSP Lab, Algorithms, Software Eng.</i>		

RELEVANT EXPERIENCE

Blue Origin New Glenn Communications Intern	Kent, WA	May 2020 – Aug 2020
<ul style="list-style-type: none">Designed and tested antenna controller in C++ for long-range New Glenn ground and marine communicationsAdhered to AUTomotive Open System ARchitecture (AUTOSAR) standard for path to DAL certificationInitiated integration of controller with full ground control system to demonstrate end-to-end mission operations		

Blue Origin Advanced Development Programs Intern	Kent, WA	Sep 2019 – Dec 2019
<ul style="list-style-type: none">Led software development efforts for an in-depth, research-grade embedded computing platform surveyDeveloped a comprehensive benchmarking suite of software workloads to characterize each embedded platformArchitected generic porting layer for entire suite that enabled porting to new platforms in mere hoursDeveloped a rigorous, automated build infrastructure that automatically enforces experimental repeatabilityBuild system and porting layer together ensured on-schedule testing and timely delivery of actionable data		

Jet Propulsion Laboratory Mission Simulation Intern	Pasadena, CA	May 2019 – Aug 2019
<ul style="list-style-type: none">Converted Europa Clipper APGen mission simulation to cloud architecture based on Docker and JenkinsDesigned new configuration interface to abstract pipeline complexity and open sim. use to more lab membersAutomated simulation stage transitions after initial trigger, reducing workload by over 70% per simulation runEnabled scalable parallel simulation runs for the first time, improving turn-around time by an order of magnitude		

NASA Glenn Research Center Research Intern	Cleveland, OH	Aug 2018 – Dec 2018
<ul style="list-style-type: none">Developed proof-of-concept reinforcement learning agent that optimizes on-orbit satellite data downlinkRepurposed existing MATLAB simulation tool from SCENIC lab to generate realistic LEO training episodes quicklyDesigned agent as neural network with PyTorch, utilizing hyperparameter grid search and k-fold cross validationFinal agent achieves over 98% of maximum possible reward on the test set, demonstrating optimal behavior		

Texas Spacecraft Laboratory Seeker Vision Flight Software Lead	Austin, TX	Sep 2017 – May 2018
<ul style="list-style-type: none">Aided in development of a novel visual navigation system for NASA JSC's Seeker-1 CubeSat missionDesigned and tested double-redundant flight software to facilitate algorithms and send solutions to GNC systemDeveloped and conducted official command execution and full functional test procedures prior to deliveryFinal system selected for flight over competing solutions due to robustness and flew during mission in Sep. 2019		

SKILLS

Programming Languages	Technologies	Miscellaneous
Python C C++ Java	Git Docker Jenkins AWS	Project Management
Javascript MATLAB Rust	Gitlab CI PyTorch Latex	Technical Writing

PUBLICATIONS

C. Schubert, R. Roche, and J. Briones, "Reinforcement Learning Applied to Cognitive Space Communications," *2019 IEEE Cognitive Communications for Aerospace Applications Workshop*, pp. 1-8. doi: 10.1109/CCAAS.2019.8904912

N. Dhamani, G. Martin, C. Schubert, et. al, "Applications of Machine Learning And Monocular-Vision for Autonomous On-Orbit Proximity Operations," *AIAA SciTech 2020 Forum*, Orlando, FL, Jan. 2020. doi: 10.2514/6.2020-1376

HONORS

Dr. James Rankin Digital Avionics Scholarship - AIAA, 2020
Astronaut Scholarship Foundation UT Austin Nominee - UT Austin, 2020