

# Carson Schubert

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## EDUCATION

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

## RELEVANT EXPERIENCE

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| <b>Blue Origin</b>   <b>New Glenn Communications Intern</b>   Kent, WA                                                                                                                                                                                                       | May 2020 – Present |
| <ul style="list-style-type: none"><li>Designing and testing low-level antenna control software for New Glenn ground and marine communications</li><li>Reviewing vendor interface control document and directly communicating questions and software bugs to vendor</li></ul> |                    |

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

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

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

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

## SKILLS

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| Programming Languages          | Technologies                 | Miscellaneous                 |
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| Python   C   C++   Java        | Git   Docker   Jenkins   AWS | Project Management            |
| Javascript   Typescript   Bash | Gitlab CI   ROS   PyTorch    | Technical Writing             |
| MATLAB   Rust                  | NodeJS   Latex               | Ability to work independently |

## PUBLICATIONS

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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/CCA.W.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

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