Carl De Vries

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EDUCATION

Iowa State University College of Engineering | Ames, IA — Expected: May 2020
Bachelor of Science, Aerospace Engineering
GPA: 3.89

Des Moines Area Community College | Boone, IA — December 2014
Associate of Arts, Liberal Arts, Pre-engineering w/ Honors
GPA: 3.76

EXPERIENCE

Research Intern
MIT Lincoln Laboratory | Lexington, MA — May 2019 - August 2019
- Implemented 3 degree of freedom missile model and integrated it into an aircraft engagement simulation
- Updated aircraft models from fixed altitude in a flat Earth frame to 3-D Earth-centered Earth fixed frame
- Validated the simulation using Proportional Navigation, gravity bias, and lofting guidance schemes

Engineering Co-op
The Charles Stark Draper Laboratory, Inc. | Cambridge, MA — January 2018 - July 2018
- Implemented guidance computer simulation software in MATLAB and Simulink
- Verified performance characteristics between system level models and standalone sensor models
- Integrated a new sensor model into a system simulation and generated data for performance verification
- Automated data analysis and unit tests which verify a sensor model's scale factor and bias implementation

Software Engineering Co-op
Collins Aerospace (formerly Rockwell Collins) | Cedar Rapids, IA — January 2017 - August 2017
- Verified functional and DO-178B Level A compliance for 75 upgraded Simulink models (2007a - 2016b)
- Developed graphical and functional flight display software to meet customer requirements on time
- Decreased build times via script enhancements which omitted unchanged models from the build process
- Developed a script to parse and sort C lint violations (MISRA, DO-178) to increase developer efficiency

SKILLS

MATLAB, Simulink, Python, C/C++, Git, SVN, Linux, Model Based Engineering

COURSEWORK

Automatic Control of Flight Vehicles, Computational Techniques for Aerospace Design

PROJECTS

Developing a Sounding Rocket Model (C++)
- Generated Black Brant V and IX flight data and analyzed single versus multi-stage rocket performance
- Developed and tested a multi-stage sounding rocket model

Predicting Landing Times and Initial Velocities for a Lander in a Two-Body System (C++)
- Implemented C++ solutions for the Euler method and 4th Order Runge-Kutta ODE solvers
- Conducted a parameter study to identify a curve fit to predict landing solutions for the model

American Society for Engineering Education Model Design Competition 2014 (C++)
- Implemented an algorithm to navigate a vehicle about a 12 foot track 5 times in less than 60 seconds

ORGANIZATIONS

ISU Spaceflight Operations Workshop — August 2018
Vermeer International Leadership Program — August 2018 - Present
NASA National Community College Aerospace Scholars — September 2013 - February 2014
Winchell Undergraduate Research Symposium — April 2014