Jacob King Vendl

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PROFESSIONAL SUMMARY

Current **Masters Student** in Aerospace Engineering Sciences passionate about spaceflight and its potential applications.

- Lifelong learner and engineering enthusiast, with many projects happening outside the classroom
- Demonstrated aerospace competency by completing multiple professional experiences with excellent reviews
- Leadership and enthusiasm for learning expressed through class advisor roles and volunteer tutoring

EDUCATION

BS: Aerospace Engineering Sciences (2019) — University of Colorado at Boulder
MS: Aerospace Engineering Sciences (Expected 2020) — Boulder, CO
MS Focus: Astrodynamics and Satellite Navigation — Cumulative GPA: 3.771

PROFESSIONAL EXPERIENCE

Research Scientist, L3Harris Applied Defense Solutions (2019)

-Tasked with characterizing radar measurements and developing initial orbit determination methodologies.
-Successfully delivered algorithm suite with innovative data solutions. Began work on academic paper contribution.

Hardware Systems Lead, Senior Projects (2018-2019)

- Worked on Space Situational Awareness (SSA) project sponsored by The Aerospace Corporation.
- Tasked with conceptualizing, designing, manufacturing, and testing system capable of tracking space objects across the night sky and updating the orbital state. Personally tasked with hardware design and personnel management.

Center for Aerospace Structures, Research Assistant (2018)

- Completed project to read in CAT scan images and created finite element mesh from data in an effort to improve the Center's geometry capabilities. Completed code was 8-9x faster than existing functionalities.
- Gained valuable experience working in C++, working from basic proficiency to excellence in code development.

MIT Lincoln Laboratory Summer Research Intern (2017)

- Independent researcher working through the Air Force Red Team to better understand aerothermodynamic effects of high-speed flight on infrared domes. Successfully developed a physics model to predict dome failure due to high-speed friction-induced effects. Delivered a set of MATLAB scripts and a professional presentation to the research group.
- Received perfect performance reviews from immediate advisor at the end of the internship.

Idea Forge Makerspace at CU-Boulder (2016-2017)

- Worked in the campus wood-shop for a year to gain a better understanding of manufacturing in the engineering design process. Split roles between instructing students on safe use of equipment and independently constructing various projects.
- Emphasized importance of technical drawings and the ability to fabricate a system based on given dimensions.

Assistant Academic Director, CU President's Leadership Class (2019 - present)

-Worked to thoroughly investigate program curriculum, starting with the question, "How can we teach leaders to be effective in a dynamic, fast-paced world?"

RELATED COURSEWORK

Master's Thesis (2019-present)

- Advised by Professor Marcus Holzinger to develop methodologies for orbit determination using data collected from a ground-based radar. Emphasis placed on initial orbit determination techniques and necessary filter development.

Orbital Mechanics and Spaceflight Dynamics (MS Level)

- Includes celestial mechanics, space navigation, and orbit determination with an emphasis on mission applications.
- Investigates trajectory and mission analysis trajectory requirements, including orbital transfer and rendezvous.

Statistical Estimation of Dynamical Systems (MS Level)

- Topics covered include applied probability and statistics, optimal parameter and dynamic state estimation.
- Developed framework for theory and methods behind statistical estimation for linear and non-linear dynamical systems.

Additional Related Aerospace Coursework: Dynamics and Controls, Statics and Structures, Aerodynamics, Heat Transfer, Material Science, Vehicle Design, Rocket and Airplane Propulsion, Computational Methods.

HIGHLIGHTED SKILLS

Software: MATLAB, Scala, Python, C++, STK, GMAT, Linux
Fabrication: Mills, Lathes, Saws, Drills, Hand Tools, etc.
Electronics: Arduino, Raspberry Pi, UDOO, Circuit Construction, Operational Amplifiers, AM/FM Radios

AWARDS AND HONORS

Boettcher Foundation Scholar (2015)
- Full scholarship to any school in Colorado

CU President's Leadership Class Scholar (2015)
CU Engineering Honors Program (2015)

6th Place out of 3600+, 2017 International Contest in Mathematical Modeling, Problem D
Aerospace Engineering Honors Society (2017)