NICHOLAS BARTEL

Physics, Computer Science and Mathematics

Website: ***n-bartel.github.io***
Experienced with Java, C++, Python, Git, C#, ASP.NET Core, SQLite, and JavaScript **Email:** nbartel@carthage.edu
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EDUCATION

09-2016 - 05-2020 Carthage College, Bachelor of Arts

Major in Physics, Minors in Computer Science & Mathematics; GPA - 3.59, unweighted 4.0 scale

EXPERIENCE

08-2019 - 12-2019 NASA KSC Intern, Orbital Syngas Commodity Augmentation Reactor (OSCAR Payload)

Development of Waste-Propellant Conversion Technology for Use in Zero-Gravity

- Created 3D-CAD models of OSCAR payload shelving units in CREO
- Enhanced existing code that controls the OSCAR payload fluid dispersion system

05-2019 - 08-2019 NASA LaRC Research Assistant, Hercules Martian Concept Lander Aerodynamics

Martian Concept Lander Low Speed Aerodynamic Analysis

- Designed a physical model of the Hercules Martian lander for low speed wind tunnel testing
- Correlated empirical wind-tunnel data with predictions made using NASA's Computational Fluid Dynamics software and a semi-empirical aerodynamics program
- Modified flight simulation software in Fortran to correct existing inaccuracies in Reynolds number

09-2017 - present Electronics Team Lead, Suborbital Research Payload Development

Modal Propellant Gauging in Microgravity Environments - Future Implementation on SLS/Orion

- Designed and built two research payloads that predict propellant mass and monitor structural health using acoustic data in 1-g and 0-g; one has flown on a Blue Origin New Shepard rocket and a larger version has flown on parabolic flight campaigns
- Exclusively designed and built the Blue Origin research payload electronics systems including PCB fabrication

09-2016 - present Attitude Determination and Control Systems, Nano-satellite Development

CaNOP; Canopy Near-Infrared Observing Project, 3U Autonomous Earth-Imaging CubeSat

- Developed and presented conceptual, preliminary, and critical design reviews for NASA
- Designed and constructed a Helmholtz Cage to generate a uniform 3-axis adjustable magnetic field to simulate on-orbit magnetic conditions to test the orientation and attitude determination and control system
- Executed tests using the Helmholtz Cage to prepare the attitude adjusting systems for flight

PUBLICATIONS

09-2018 Celestine Ananda, Nicholas Bartel, Et. al. "Modal Propellant Gauging - Blue Origin Payload."
Proceedings of the 28th Wisconsin Space Conference, 2019, doi:10.17307/wsc.v1i1.243.

09-2017 Celestine Ananda and Nicholas Bartel. "CaNOP 3U CubeSat Attitude Determination and Control Testing System"
Proceedings of the 27th Wisconsin Space Conference, 2018, doi:10.17307/wsc.v1i1.222.

01-2020 Timothy Aiken, Nicholas Bartel, Et. al. *"Subscale Validation of the Hercules Ascent, Descent, Entry Vehicle"*
In Publication Process with American Institute of Aeronautics and Astronautics (AIAA) Journal

AWARDS

04-2018 Best Use of Web Development - UW Madison, MLH Sponsored Hackathon

- 12-hour Software Development Competition, placed in a team of 3 for an app development using Java & Python

11-2018 HATCH Entrepreneurship Regionals - First Place

- Competed for and won $5000 to offset startup fees to turn the app we began at the Hackathon into a business

2018 & 2019 Wisconsin Space Grant Undergraduate Scholar

- Award acknowledging academic success and significant developments in the aerospace industry