J. Owen Murphy

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EDUCATION

B.S. Mechanical Engineering - Northern Arizona University (NAU) Anticipated Graduation: May 2022

- GPA - 4.0, Full Tuition Scholarship

WORK EXPERIENCE

POBA Medical, Engineering Intern July 2021 - Present

- Designing prototype angioplasty medical balloons and catheter assemblies for endovascular procedures
- Generating engineering drawings that meet customer requirements
- Designing and building test equipment using 3D printed parts and pneumatic cylinders

Nalco Water, An Ecolab Company, Engineering Technical Sales Intern June 2021 - July 2021

- Aided district representative in analyzing and improving large-scale manufacturing equipment
- Analyzed and remedied problems in the water treatment processes of beverage manufacturing facilities

NAU Utility Services, Energy/HVAC Data Manager June 2020 - April 2021

- Interpreted and organized data for HVAC systems throughout Flagstaff campus using Alerton
- Prepared data for use in a campus wide utility dashboard

PROJECTS

NASA EscaPADE Mission, Northern Arizona University, UC Berkely, NASA, Rocket Lab January 2022 - Present

- Design, build, and test a dual-wavelength camera system for twin satellite mission to Mars
- Designing camera housing for exterior mounting to Rocket Lab's Photon satellite bus
- Planned launch in 2024 with goal of studying interaction between solar wind and magnetosphere

Micro-Wind Turbine, U.S. Department of Energy, Northern Arizona University August 2021- Present

- Design, build, and present a wind turbine based on market research and test the turbine in an on-site wind tunnel for national engineering competition
- Leading an interdisciplinary team of 15 students in prototyping all subsystems including pitching, braking, yaw, nacelle, foundation, and blade molds
- Managing team budget of $6000, the project timeline, and technical report submissions to the DOE
- Performed airfoil analysis and designed mold for carbon fiber blades

Hollow Wooden Surfboard, Personal May 2021 - Present

- Designed 6'0 fish surfboard in CAD and machined parts on personal CNC router
- Completed CFD simulations on multiple board designs to optimize for wave-catching ability
- Current board has estimated weight reduction of 50% from previous board design

Helicopter-Recovery Rocket, Brophy College Preparatory March 2018 - April 2018

- Designed and built a model rocket that deployed a set of rotors to slow descent
- Modeled flight path using Excel to target an apogee of 300 feet and achieved 344 feet
- First student in program to make a successful helicopter-recovery model rocket

Cardboard Canoe Race (1st Place), Brophy College Preparatory November 2018 – December 2018

- Led team of 5 in annual engineering competition where students build and race cardboard canoes
- Created competition's first ever catamaran canoe design that distributed load to separate keels
- Catamaran canoe designs were subsequently banned in all future competitions

FIRST Robots, Brophy College Preparatory August 2015 – May 2018

- Led team and built 6 separate robots for both First Robotics Competition and First Tech Challenge
- Finalist in 2018 Sanghi Foundation Arizona State FIRST Robotics Championship

SKILLS

CAD & CAM – OnShape, Solidworks, Fusion 360, VCarve
FEA & CFD – ANSYS Fluent, CFX, APDL
Manufacturing – 3D printing, CNC machining, welding, laser cutting, composite layups
Data Analysis – Excel, Matlab

ACTIVITIES AND ACHIEVEMENTS

President, NAU Energy Club - Grew club membership from 3 to 15 in the span of 3 months
Project Lead, Sustainable Revolving Fund – Led proposal to commit $500,000 to changing football stadium lights to LED's
Co-Chair & Treasurer, NAU Green Fund Committee – Managed fund with annual revenue exceeding $640,000
Co-President, Brophy Robotics Team - Designed and built multiple robots to compete in FIRST Robotics competitions
Winner, 2020 Jack's Big IDEA - Designed and pitched method of removing ocean plastic using ballast filtration systems