Dan Brogan

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Personal Website: ***dan-brogan.github.io***

EDUCATION:

University of Southern California (USC) Dec. 2021
M.S. Astronautical Engineering **GPA: 3.96**
Concentrations: *Space Systems Design, Space Applications*

University of Rhode Island (URI) May 2020
B.S. Mechanical Engineering **GPA: 3.94**
Minors: *Robotics Engineering, Mathematics*

ENGINEERING EXPERIENCE:

Fractal Robotics LLC 2022-Present
President
- Developed open-source 5-axis 3D printer project (hardware & software). Details available on ***fractalrobotics.com***

Roger Williams University 2022-Present
Adjunct Professor of Physics
- Teaches introductory Physics and Astronomy courses

Bristol Municipal Career & Technical Academy (BMCTA) 2023-Present
Board Member, STEM Educator
- Develops and hosts STEM career-readiness and technical programs for students grades 6-12 in the town of Bristol RI

USC Rocket Propulsion Lab (RPL) 2021
Analysis Engineer for spaceshot launch vehicle project
- Worked with Analysis team to validate design of retention rings and carbon-composite rocket fins with ANSYS & MATLAB

USC Space Engineering Research Center (SERC) 2020
Structures Engineer for Lunar Lander Prototype
- Worked with Research team to iterate & implement design of flight vehicle test structures using hand calculations & ANSYS

NASA RI Space Grant 2019-2020
Rhode Island Space Grant Researcher for *Artificially Intelligent Satellite Servicing*
- Worked with Dr. Jouaneh and Dr. DiFilippo to optimize a deep learning computer vision system for fastener detection

Lockheed Martin 2019
Mechanical Engineering Intern (Secret Security Clearance)
- Technical Lead and Small Business Coordinator for hydrostatic composite overwrapped pressure vessel (COPV)

URI Artificial Intelligence Laboratory 2018-2019
Roboticist
- Constructed robots, hosted Arduino workshops, and helped facilitate URI's new public AI lab

Raytheon 2018
Mechanical Engineering Intern
- Worked with Engineering team to progress several internal research and development projects using CREO Parametric

PUBLICATION

Elsevier: Array Journal 2021
Title: "Deep Learning Computer Vision for Robotic Disassembly and Servicing Applications"
Authors: Daniel P. Brogan, Nicholas M. DiFilippo, Musa K. Jouaneh
Link: *https://doi.org/10.1016/j.array.2021.100094*

ENGINEERING PROJECTS:

Lunar Rover Concept Architecture: Robotic Remote-Sensing Scout (R2-S2) 2021
- Developed lunar astronaut-assisting rover concept and presented to Buzz Aldrin as well as NASA NESF 2022 conference

Lunar South Pole Base Design 2021
- Coordinated team to design lunar base involving site selection, life support systems, EVA operations, etc.

Titan (Moon of Saturn) Entry Descent & Landing (EDL) Mission Design 2020
- Coordinated team to plan robotic mission to Titan. Simulated hypersonic, supersonic, & subsonic EDL with MATLAB

3-Body Problem Orbital Mechanics Numerical Solver 2020
- Used MATLAB to numerically integrate and animate 3 body motion given masses and initial position and velocity vectors

NASA Venus Rover Mechanical Sensors 2020
- Worked with Mitchell Brogan to design mechanical obstacle avoidance sensors for the public NASA HeroX challenge

Pulse Jet and Turbo Jet Engines 2018-2019
- Fabrication and testing of a valveless pulse jet engine and a turbo jet engine

PROFESSIONAL SKILLS:

Leadership, Teamwork, Teaching, Robotics, Python, Arduino, MATLAB, ANSYS Workbench, ANSYS Composite PrepPost (ACP), Autodesk Inventor, SolidWorks, CREO Parametric, Microsoft Excel, TIG Welding, CNC Machining, Lathe Machining, Composites

ASSOCIATIONS:

URI Astroneering (Founder & President)**:** 2019-2020 **URI American Society of Mechanical Engineers** (President)**:** 2017-2019