BENJAMIN CULMER

Vienna Virginia • 703-894-8048 • benjamin.w.culmer.20@dartmouth.edu
https://benjamin-culmer.github.io

EDUCATION

Dartmouth College, Hanover, NH **September 2016-June 2020**
Bachelor of Engineering, Mechanical Concentration Major GPA 3.38/4.0
Bachelor of Arts, Engineering Science GPA 3.29/4.0

EXPERIENCE

University of Pennsylvania School of Medicine, Philadelphia, PA **June 2019 – August 2019**
Research Assistant for the Penn PET Explorer (First Full Body PET Scanner) **December 2018 – March 2019**

- Assembled and wired an entire PET scanner from the ground up to learn about the system and build a product
- Diagnosed and repaired unknown defects in components through trouble shooting and testing using Linux
- Developed procedures and produced documentation for manufacturing and testing the Explorer
- Instructed others on manufacturing procedures, defined tasks, and delegated work
- Engineered and manufactured a method for safely mixing radioactive materials in a phantom using SolidWorks (CAD)

Dartmouth College, Thayer School of Engineering, Hanover, NH
Research Assistant **March 2019 – June 2019**

- Researched alternative methods and materials to use in an artificial kidney system and preformed a cost-benefit analysis
- Created 3d models of kidney systems from CT scans using Mimics software
- Built parts of the artificial kidney system and wrote a repeatable procedure for building future parts

Teaching Assistant **September 2019 –November 2019**

- Graded homework for Dartmouth's course in Applied Mechanics: Dynamics

Kellogg, Hansen, Todd, Figel & Frederick, PLLC, Washington, DC **June 2017 – July 2017**
Intern for the Litigation Division

- Searched for evidence in up to 1,000 emails per day during the discovery phase of legal cases
- Wrote memoranda for Associates and Partners presenting findings and documentation on information found in discovery
- Attended case interviews with potential witnesses and took notes

HIGHLIGHTED SKILLS

- Programming Languages: ANSI C, MATLAB, and VHDL
- Computer-Aided Design Software: SolidWorks (CSWA Certified), XDesign
- Foreign languages: German (exchange student in high school)

ENGINEERING PROJECTS AT DARTMOUTH COLLEGE

Microplate Gripper, Engineering and Design Methodology, group **Fall 2019**

- Designed and hand built a gripping mechanism to pick up microplates from a drone with a 5mm sphere of uncertainty
- Designed two test stands to simulate drone flight in order to test our gripping mechanism
- Created parts in SolidWorks (CAD), modified them with Finite Element Analysis (FEA), and improved upon testing failures
- Presented progress of project to board of advisors and sponsoring company

Robot Project, Mechanical Design, group **Fall 2019**

- Designed a robot to: pick up rings, paper balls, cross a bridge, and dump collected items in 15" tall receptacle
- Created custom parts in SolidWorks (CAD), created drawings of the parts, and manufactured the parts by hand
- Tested individual and combined systems, improving upon failures

Bridge Project, Solid Mechanics, group **Winter 2018**

- Designed a bridge and tested its structural integrity using SolidWorks (CAD) and its Finite Element Analysis (FEA) feature
- Fabricated the bridge using a laser-cutter, and stress-tested the bridge

Atari Pong Project, Digital Electronics, partnered **Summer 2018**

- Designed a circuit for Atari Pong, and coded the game in a digital hardware language (VHDL)
- Donated the game on a field-programmable gate array, per his request, to the professor to display to prospective students

Stirling Engine Project, Thermodynamics, individual **Summer 2018**

- Machined, built, and optimized a Stirling Engine by hand
- Acquired experience with 2-D lathing, 3-D milling, and brazing

LEADERSHIP

Dartmouth College Football (Division I), Hanover, NH **August 2016-November 2019**

- 2020 National Football Foundation College Football Hall of Fame Hampshire Honor Society Inductee
- Applied rigorous time management skills to succeed as a student and an athlete
- Took courses while spending 24+ hours per week practicing and training in season and 6 hours per week out of season
- 2019 co Ivy League Champions