BENJAMIN CULMER

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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

Merck & Co. (AllSource PPS), Harrisonburg, VA **July 2020 – Present**
Associate Specialist Engineering (Operations Engineer)

- Researched, authored, and peer-reviewed standard operating procedures (SOP) for factory equipment and facilities
- Conducted a personal protective equipment (PPE) hazard analysis for a manufacturing process
- Contributed to facility and equipment commissioning and qualification walk downs for factory preparation
- Analyzed numerous plumbing and instrument diagrams (P&ID) for equipment and facility tracing
- Studied and presented process descriptions to team members
- Instructed team members on equipment use

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 an artificial body 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
- Distributed Control System: DeltaV
- Foreign languages: German (7 years in school and 1-1/2 months in Germany as an exchange student)

ENGINEERING PROJECTS AT DARTMOUTH COLLEGE

Marine Chronometers, Computer-Aided Mechanical Engineering Design, group **Spring 2020**

- Designed both a complete working marine chronometer and all of its components in xDesign (CAD)
- 3D printed the marine chronometer using PLA, achieving ±1 second precision over 10 seconds
- Voted group leader: communicated with TAs, divided work, assigned tasks, troubleshot issues, and managed overall assembly
- Created the overall design of the chronometer, building a modular aesthetically pleasing displayable product
- Earned an award for designing a chronometer with the "most risky, cutting edge, and out of the box design innovations"

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 the 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 and paper balls, cross a bridge, and dump collected items into 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

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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 to the professor, per his request, to display to prospective students

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 Ivy League Co-Champions