

# BENJAMIN CULMER

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## EDUCATION

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

## EXPERIENCE

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

- 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**

<i>Research Assistant</i>	<b>March 2019 – June 2019</b>
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- 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)
- Foreign languages: German (exchange student in high school)

## ENGINEERING PROJECTS AT DARTMOUTH COLLEGE

<b>Microplate Gripper</b> , Engineering and Design Methodology, group	<b>Fall 2019</b>
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- Designed a gripping mechanism to pick up microplates from a drone with a 5mm sphere of uncertainty
- Designed a test stand to simulate drone flight in order to test our gripping mechanism
- Created custom parts in SolidWorks (CAD), manufactured the parts by hand, tested and improved upon failures
- Presented progress of project to board of advisors and sponsoring company

<b>Robot Project</b> , Mechanical Design, group	<b>Fall 2019</b>
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- 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

<b>Bridge Project</b> , Solid Mechanics, group	<b>Winter 2018</b>
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- Designed a bridge and tested its structural integrity using SolidWorks (CAD) and its Finite Element Analysis feature
- Fabricated the bridge using a laser-cutter, and stress-tested the bridge

<b>Atari Pong Project</b> , Digital Electronics, partnered	<b>Summer 2018</b>
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- 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

<b>Stirling Engine Project</b> , Thermodynamics, individual	<b>Summer 2018</b>
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- Machined, built, and optimized a Stirling Engine by hand
- Acquired experience with 2-D lathing, 3-D milling, and brazing

## LEADERSHIP

<b>Dartmouth College Football</b> (Division I), Hanover, NH	<b>August 2016-November 2019</b>
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- 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