

# Darian Abreu, Engineer-in-Training

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## EDUCATION

### University of Delaware

Bachelor of Science, College of Engineering

Major: Mechanical Engineering | Minors: Electrical Engineering and Mathematics

Cumulative GPA: 3.39 | Major GPA: 3.35

Newark, DE

May 2017

## RELEVANT COURSE PROJECTS

### Undercarriage Decontamination System - United States Department of Agriculture

August 2016 - May 2017

- Developed an easy to build, cost-effective, open-source undercarriage decontamination system to disinfect vehicles and prevent disease outbreaks on small farms in the United States by reducing viral load of a disease by at least 90%
- Re-engineered comparable market designs to reduce cost by over 99% while utilizing only 6% of provided budget

### Beach Wheelchair - Dr. Peter Popper

February 2016 - May 2016

- Produced an affordable, transportable solution for wheelchair users to maneuver on sand and disassemble into approximately 13 cubic feet of storage volume
- Collaborated with a team of six engineers to create beach wheelchair concept at an 80% lower price-point than bench-marked market designs, by minimizing parts needed and using material analyses to optimize two-wheel design

### ADVIA 1800 Impeller Drive Mechanism - Siemens Healthcare Diagnostics

September 2015 - December 2015

- Redesigned Siemens' ADVIA 1800 Clinical Chemistry System drive mechanism to allow adjustable horizontal and vertical positions of impeller, while meeting performance expectations of accuracy for rapid chemical analysis of distinct fluids
- Implemented spring-loaded mechanism with an injection-molded cam to implement a cost-effective solution to previously, fixed single-plane motion impeller handling up to 1800 tests per hour

### College Dorm or Apartment Furniture - University of Delaware

February 2015 - May 2015

- Constructed an affordable, multi-functional, appealing desk or couch to optimize space in college setting for \$125

## EXPERIENCE

### Construction Manager - Frank's Drywall (Rockland, NY)

June 2019 - September 2020

- Implemented more than 3 process improvements during first year in position, including improvement of customer service model; compiled functions for Google Sheet to dynamically generate invoices/estimates and autonomously produce customer-email interaction with PDF attachment
- Interpreted plans, studying 20+ isometric drawings to formulate estimates for gypsum board, acoustical ceilings, or framing

### Pool and Aquatic Feature Engineer - Aquatectonic/Trace Pool Design (White Plains, NY)

November 2017 - May 2019

- Coordinated and interpreted multi-disciplinary drawings to create plans, sections, details, schedules, and P&ID diagrams for lap and leisure pools, whirlpool spas, cold plunge pools, water falls, fountains, water features, steam rooms and saunas, including 1<sup>st</sup> zero-entry steel wading-pool at firm
- Prepared construction drawings for over 50+ pools, spas, steam rooms and water features; consolidated piping layout drawings, equipment specifications, mechanical equipment sizing, filtration system designs, utility requirements, and hydraulic calculations to comply with state regulations and approval standards

### Research and Development Intern - United States Dept. of Agriculture (Riverdale, MD)

February 2017 - May 2017

- Earned lead engineer tasked with improving undercarriage system to adopt solar heating and auto-metering for under \$100

### Teaching Assistant for Heat Transfer, Fluid Mechanics I & Thermodynamics - (Newark, DE)

August 2016 - May 2017

- Established interpersonal skills in working with diverse populations of students while leading classes of up to 40 students to provoke innovative thinking through communication and management, as well as office hours for individual help

## SKILLS

**Communication:** Excellent Verbal, Written, and Analytical Skills, Proficient in Spanish (Reading, Writing, and Speaking)

**Languages & Operating Systems:** Python, Linux, Windows, Unix, Mathematica, C, C++, Excel VBA, Java, JavaScript

**Machining Tools:** Milling Machines, Computerized Numerical Control (CNC), Lathes, Band Saws, Table Saws, Drill Presses

**Software:** SolidWorks, SolidWorks Finite Element Analysis, AutoCAD, Revit, Arduino, MATLAB, Adobe Acrobat, Bluebeam Revu, Beamchek, Cambridge Engineering Selector, LabVIEW, Microsoft Office

## ACHIEVEMENTS AND COMMUNITY INVOLVEMENT

**American Society of Mechanical Engineers** - Member

September 2015 - Present

**American Cancer Society** - Volunteer

September 2014 - Present

**Engineer-in-Training** - State of New York, Certification #1716704

June 2018

**Benjamin E. Herring Scholarship** - University of Delaware

July 2015 - May 2017

**Dean's List** - University of Delaware, 6 Semesters

December 2013 - May 2017

**Presidential Scholarship** - University of Delaware

August 2013 - May 2017

**Environmental Design Discipline Award** - USDA Undercarriage Decontamination System

December 2016

**1<sup>st</sup> Place Design** - Siemens Healthcare Diagnostics

December 2015