Darian Abreu, Engineer-in-Training

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EDUCATION

University of Delaware, Newark, DE — May 2017

College of Engineering, Bachelor of Science

Major: *Mechanical Engineering* | Minor: Electrical Engineering and Mathematics

Cumulative GPA: 3.38 | **Major GPA**: 3.35

Achievements or Awards: 1st Place Design (ADVIA 1800 Impeller Drive Mechanism), Benjamin E. Herring Scholarship, Dean's List (6 Semesters), Environmental Design Discipline Award (Undercarriage Decontamination System), Presidential Scholarship

RELEVANT COURSE PROJECTS

Undercarriage Decontamination System – United States Department of Agriculture

- 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%
- Improved comparable market designs to reduce cost by over 99% while utilizing only 6% of provided budget

Human Powered Beach Wheelchair – Dr. Peter Popper

- Designed an affordable and transportable solution able to withstand over 400 pounds, that provides a safe and practical method to transport wheelchair users onto sand and disassembles into approximately 13 cubic feet of storage volume
- Collaborated with a team of six engineers to create a beach wheelchair concept using material analyses and minimizing needed parts to optimize a rear two-wheel design to be produced for under $175 and weigh up to 25 pounds

ADVIA 1800 Impeller Drive Mechanism – Siemens Healthcare Diagnostics

- 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 analyses of distinct fluids
- Implemented spring-loaded mechanism with an injection-molded cam through testing using SolidWorks, to compose a cost-effective solution to previously fixed single-plane motion impeller capable of handling up to 1800 tests per hour

Hinge Seater 2-in-1 Desk-Couch – Mechanical Engineering Department, University of Delaware

- Constructed an aesthetically appealing, multi-functional desk or couch to optimize students' 114 square feet of living space

EXPERIENCE

Frank's Drywall, Rockland County, New York — June 2019 - October 2020

Construction Manager

- Refined more than 3 process improvements for first year, including compiling functions for Google Sheet to dynamically generate invoices or estimates and autonomously produce customer-email interaction with PDF attachment of file from Google Sheet
- Examined plans, studying 20+ isometric drawings to formulate estimates for framing, gypsum board, acoustical ceilings or floors

Aquatectonic (formerly Trace Pool Design), White Plains, New York — November 2017 - May 2019

Design/Technical Engineer

- Coordinated and interpreted multi-disciplinary drawings to create plans, sections, details, schedules, and P&ID diagrams for lap, leisure or cold plunge pools, whirlpool spas, water features, steam rooms and saunas using AutoCAD; including 1st zero-entry steel construction wading pool at the 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 set by New York State Department of Health

United States Department of Agriculture, Riverdale, Maryland — February 2017 - May 2017

Research and Development Intern

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

University of Delaware Mechanical Engineering Dept., Newark, Delaware — August 2016 - May 2017

Teaching Assistant for Heat Transfer, Thermodynamics and Fluid Mechanics I

- 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 holding office hours for individual help

SKILLS

- **Computer & Software:** Windows, Linux, Unix, Python, Mathematica, C, C++, Excel VBA, Java, JavaScript, HTML, SolidWorks, SolidWorks Finite Element Analysis, AutoCAD, Revit, Arduino, MATLAB, Adobe Acrobat, Bluebeam Revu, Beamchek, Cambridge Engineering Selector, LabVIEW, Microsoft Office (Word, Excel, PowerPoint, Outlook, OneNote), IBM SPSS
- **Languages & Communication:** Bilingual in Spanish (Reading, Writing and Speaking), Excellent Verbal, Written and Analytical Skills
- **Machining Tools:** Milling Machines, Computerized Numerical Control (CNC), Lathes, Band Saws, Table Saws, Drill Presses, Calipers

ACHIEVEMENTS & COMMUNITY INVOLVEMENT

Engineer-in-Training, State of New York, Certification #1716704 — June 2018 - Present

American Society of Mechanical Engineers, Member — September 2015 - Present

American Cancer Society, Volunteer — September 2014 - Present