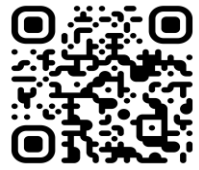


# Darian Abreu, Engineer-in-Training

dariannn@udel.edu | (845) 826-1635 | tiny.cc/darianabreu | Pomona, NY 10970



## 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: 1<sup>st</sup> 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 1<sup>st</sup> 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 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