Fernando A. Pascual

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Skills

- **Programming Languages:** Proficiency in Java; Knowledge of Python, Ruby, C, HTML, CSS, JavaScript, Assembly
- **Design and Manufacturing:** SolidWorks CAD, FEA, CNC Machining (Milling, Lathe), LabView, Embedded Systems, Arduino
- **Languages:** Native Fluency in English and Spanish, Intermediate Portuguese, Basic Japanese

Professional Experience

NORESCO, United Technologies Corporation   New York, New York
Engineer 1   October 2019 – Present
- Designed and executed testing procedures for 15 project sites in New York City ranging from medical to commercial buildings
- Informed clients on the results of testing procedures and advised on paths to issue resolution
- Collected over 5000 room pressurization samples throughout hospitals in New York City during COVID-19 pandemic

Final Frontier Design Space Suit Research and Development   Brooklyn, New York
Engineering Intern   June – August 2018
- Decreased manufacturing costs by 10% and the number of components by 40% via redesign of EVA spacesuit wrist bearings
- Researched and synthesized crucial technical data for SBIR contract for product development of Life Support System sublimator plates
- Improved Pressure Relief Valve flow reliability while preserving cost and weight through strategic material removal

Polymer Exploration Group, LLC – National Science Foundation   Ashland, Virginia
Engineering Intern   June – August 2016 & 2017
- Increased product production by 1200% by designing and constructing a new roll-to-roll manufacturing oven
- Conducted and recorded results for over 200 tests of ice-release coating of 10 polymer formulas
- Reviewed test data for accuracy and quality, and prepared short write ups summarizing findings for supervisor
- Co-authored testing report featured in the Journal of Physics

Leadership and Activities

Manufacturing Leader, Formula SAE EV   Fall 2018 – Spring 2019
- Integrated the electrical systems into chassis for Columbia's first FSAE Electric Vehicle
- Designed, tested, and manufactured drivetrain assembly utilizing Solidworks CAD and Fusion360 CAM
- Fabricated 20 components across various vehicle systems using CNC machinery for the team
- Sourced and assembled components for motor cooling system that met calculated heat output of the motor

Buchla 100 Series Synthesizer Restoration Project, Columbia Prof. Vallancourt   Fall 2017 – Spring 2019
- Restored the functionality of a 1960s modular synthesizer in collaboration with a team of four multi-disciplinary students
- Diagnosed and resolved mechanical issue creating an open circuit on step-sequencer
- Cleaned and restored over 50 of the original electrical components while maintaining historical integrity

President/Treasurer/Player, Columbia University Men's Lacrosse Club   Spring 2017 – Spring 2019
- Secured a 60% budget increase from university administration through a structured proposal describing budget needs and team goals
- Increased player retention by 40% through creation of team values, rules, and club – sponsored social events
- Managed an $8000 budget involving equipment purchases, game officiating fees, and transportation for away games
- Coordinated logistics for 10 games per season between university officials, visiting teams, and referees
- Organized the interview process for a new coach

Personal Projects

Pressure Sensitive Motorized Skateboard   January 2021
- Wrote Arduino code to adjust motor speed based on user weight distribution and foot positioning on skateboard
- Sourced motor, batteries, and other components based on required loads and desired speeds

PID Feedback Control of DC Motor   December 2018
- Applied C language to manipulate speed of a DC motor under PID feedback control with microcomputer
- Programmed functions to alert user of operational sensor readings and errors displayed on LEDs
- Controlled output of digital PWM signal to create a trapezoidal velocity profile for smooth motor acceleration and deceleration
- Measured analog velocity and compared to setpoint in code to modulate velocity profile to maintain desired motor speed

RipTide (letsripit.com)   June 2020-October 2020
- iOS application to help New Yorkers discover cheap bar deals
- Managed user feedback to curate content and enhance user experience and retention

SpotVote (spotvote.herokuapp.com)   April 2020
- Web based album voting application utilizing Spotify API
- Designed custom UI/UX for responsive views on different mobile devices/screen sizes.
- Managed SQL queries to allow user to search database and display top results based on cached votes

Education

Columbia University School of Engineering and Applied Science
Bachelor of Science in Mechanical Engineering, Completed May 2019, GPA: 3.1