Fernando A. Pascual

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Skills

- **Programming Languages:** Proficiency in Java; Knowledge of Python, Ruby, C, HTML, CSS, JavaScript, Assembly
- **Technologies and Frameworks:** Ruby on Rails, React.js, Jquery, Bootstrap, Object-Oriented Programming, Embedded Systems, Heroku Cloud Web Services, UNIX/Linux Environment (MacOS, Ubuntu), Git, SQL Databases (MySQL, PostgreSQL)
- **Languages:** Native Fluency in English and Spanish, Intermediate Portuguese, Basic Japanese

Projects

RipTide (letsripit.com) June 2020-Present

- Deployed app to App Store that displays nearby bars and cheapest drinks from a database using Ruby on Rails/React Native
- Managed relational database to allow users to create personalized routes with in-app navigation from Google Map's API
- Implemented websocket channels for real-time group chatting feature between users
- Managed user feedback to curate content and enhance user experience and retention

Spotify Album Voting Client (spotvote.herokuapp.com) April 2020

- Connected Ruby on Rails server to Spotify Web API to gather Spotify album information for PostgreSQL database
- Created RESTful routes to allow users to view, save, and vote on albums
- Designed custom CSS with media queries for responsive views on different mobile devices/screen sizes.
- Managed database queries to allow flexible searching on albums and return top albums based on total votes

Subbit (subbit.net) October 2019 - February 2020

- Social media web application for users to post about events near subway stops
- Created versioned REST API with Ruby on Rails for consumption by React client
- Collected data from Metropolitan Transportation Authority to seed PostgreSQL database of subway stops
- Manipulated database schema relationships between users and their posts
- Utilized Bootstrap CSS to create responsive frontend UI/UX

Thermodynamic Optimization of Condenser in Python March 2018

- Optimized heat transfer of a condenser in Python using CoolProp thermodynamic data library
- Applied iterative functions to maximize condenser performance based on limiting factors such as Reynolds number
- Facilitated code reusability with other condensers by setting initial input values as variables

Professional Experience

NORESCO, United Technologies Corporation **New York, New York**

Engineer 1 October 2019 – Present

- Developed strong relationship with clients through communication of project needs and troubleshoot solutions for energy savings
- Selected to perform survey on HVAC system at the Library of Congress to determine areas for energy improvements

Final Frontier Design Space Suit Research and Development **Brooklyn, New York**

Engineering Intern June – August 2018

- Redesigned EVA spacesuit wrist bearings to decrease manufacturing costs 10% and reduce the number of components
- Researched and synthesized crucial technical data for SBIR contract for development of Life Support System sublimator plates

Polymer Exploration Group, LLC – National Science Foundation **Ashland, Virginia**

Engineering Intern June – August 2016 & 2017

- Designed and constructed roll-to-roll manufacturing oven that increased product production by 1200%
- **Publication** - Wei Zhang, W.*, Brinn, C., Cook, A., **Pascual-Marquez, F.** (2017) "*Ice-Release and Erosion Resistant Materials for Wind Turbines.*" Journal of Physics: Conf. Series.

NASA Langley Research Center **Langley, Virginia**

Summer Residential Governor's School Mentee July – August 2014

- Debugged tensile testing machine used for the research and classification of the mechanical properties of experimental polymers

Leadership and Activities

Cooling Lead and Systems Integration, Formula SAE EV Fall 2018 – Spring 2019

- Design, test and CNC programming of motor and inverter mount, sprocket, and sprocket holder
- Utilized Solidworks FEA to iterate on designs and validate design choices for safety and ease of manufacture

Buchla 100 Series Synthesizer Restoration Project, Columbia Prof. Vallancourt Fall 2017 – Spring 2019

- Analyzed circuitry to repair defunct modules and electronic components while maintaining historical integrity

Education

Columbia University School of Engineering and Applied Science

Bachelor of Science in Mechanical Engineering, Completed May 2019, GPA: 3.1

Relevant Coursework: Data Structures and Algorithms in Java; Mechatronics and Embedded Microcomputer Control; Python Computer Science Fundamentals; Intro to Electrical Engineering;