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

Subbit (www.subbit.net) *Stack: Ruby on Rails API, React.js* October 2019 – Present

- Leveraged RESTful API and MVC structure with Ruby on Rails to create user generated posts of events occurring near subway stops
- Created versioned API of backend data to connect to React and allow stateful component architecture
- Collected data from Metropolitan Transportation Authority to seed PostgreSQL database of subway stops
- Manipulated database schema relationships between users and their comments and posts
- Applied object oriented design paradigms to handle instances of database models and React components
- Utilized Bootstrap CSS to create aesthetic frontend UX/UI and create minimal confusion for users

SpotVote – Spotify Album Voting Client April 2020

- Connected to Spotify Web API to gather album information into Ruby on Rails app with PostgreSQL database
- Created RESTful routes to allow Post requests on album database to update album score
- Designed custom CSS styles with media queries to allow for compatibility on mobile devices
- Managed database queries to allow flexible search options from user input and display top albums based on ranking

Pokemon Battler in React.js April 2020

- Utilized React.js and GraphQL to request queries to external API to create turn based Pokemon battle web-app
- Created functional components/containers to reduce length of code and render time while maintaining readability
- Managed state using React hooks to keep track of essential information such as Pokemon health left and turn management
- Hosted on Amazon Web Services/AWS Amplify Console

Thermodynamic Optimization of Condenser in Python March 2018

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

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 for research and test of mechanical properties of experimental polymers to classify their elastic properties

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 determine solutions to 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; Intro to Human Spaceflight; Thermodynamics and Heat Transfer; Mechanics of Fluids; Statics; Dynamics; Vibrations; Control Systems; Mechanical Engineering Lab