Joseph Breda

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Education

University of Massachusetts Amherst (Commonwealth Honors College) September 2015 - May 2019
Bachelor of Science in Computer Engineering
Minor in Computer Science
GPA: 3.82/4.00
Member of HKN (Eta Kappa Nu) & IEEE
Relevant Coursework: Neural Networks (grad), Machine Learning (Python), Software Intensive Engineering (C), Data Structures & Algorithms (Java), Probability & Random Processing, Computer Networks & Internet

Industry

Staples Inc. Framingham, MA
Cloud Computing Software Engineering Intern May 2018 – Present

- Designed and implemented a GUI to display aggregate cloud operational cost data and provide price estimates for provisioning resources using React frontend and Flask backend
- Developed a full stack architecture with REST API to transfer state between client and server
- Retrieved cloud cost data from Microsoft Azure using Python web-scraping script and Azure API calls and stored price estimates using SQL in Cosmos DB

Research Publications

University of Massachusetts Amherst, STIMA Lab Amherst, MA
Fancy that: Measuring Electricity Gird Voltage with a Phone and a Fan September 2017 – March 2018

- Published peer-reviewed research paper as first-author on system using mobile phones to measure electrical grid power quality to assist in brown-out detection in the developing world
- Created algorithm in Python & Matlab to analyze harmonic distortion in audio signal caused by nearby fan blade RPM to provide a proxy for grid level voltage powering fan
- Presented research paper at ACM COMPASS 2018 conference on Computing and Sustainable Societies

University of Massachusetts Amherst, Sustainable Computing Lab Amherst, MA
Staring at the Sun: A Physical Black-box Solar Performance Model May 2017 – August 2017

- Published peer-reviewed, co-authored research paper at ACM BuildSys conference 2018
- Developed program in Python to data-mine and construct a database of millions of solar metrics used to predict daily solar panel performance from weather forecast data
- Data mined weather and solar metrics using Beautiful Soup web scraping and XML data querying
- Constructed database using Pandas to interface CSV files joined by reference files

Projects

OINK (Open INcentive Kit) for Lab11 at University of California Berkeley March 2018 – May 2018

- Worked with a team of 4 engineers to build an open source API using JavaScript and Google Firebase Cloud Functions for administering automated payments as incentives for in-app activities
- Designed queue for accepting HTTP requests and link to proper relational table

MIPS Pipeline Simulator November 2017 – December 2017

- Worked on a team of 3 students to develop a MIPS assembly instruction simulator in C

Skills

Languages: Java, Python, JavaScript, C
Frameworks & Technologies: NumPy, React, Flask, Firebase, Git, matlab, SQL, Linux, Bash, Jenkins