Efrem Rensi

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Skills

I strive for simplicity. I like deleting code as much as creating it.

- Languages: Python, Javascript (ES6), Matlab, C, Bash/DOS scripting, x86 assembly language
- Data Stores/Queries: PostgresSQL (via SQL and SQLAlchemy ORM), MongoDB, Redis, *Pandas
- Web Development: Flask, Heroku, Oauth2 flow, Realtime protocols (SSE, Websockets), AWS S3
- GIS tools: Python Folium, leaflet.js, GeoJSON
- Linux (Ubuntu, MINT)
- Typesetting/UX: LaTeX, Github markdown, HTML5, CSS, JQuery

Work History

Independent project: Heatflask (3/2016 - Present)
Full-Stack Web Development
An open-source web app for animated visualizations of Strava-hosted activity data.
`http://heatflask.herokuapp.com`

- Achieved top-25 status in 2016 Strava Developer Challenge (6/6/2016)
- Serves thousands of users worldwide using one Heroku web-worker handling requests asynchronously via gevent, a free hobby-tier PosegreSQL database, a free instance of MongoDB, and a free Redis datastore for database query caching.
- Uses Continuous Integration development model to adapt to increasing user-base and code vulnerabilities, minimizing downtime
- Tech Stack: Python Flask, Pandas, Gunicorn, Gevent, PostgreSQL, Redis, Server-Side Events (SSE), Leaflet.js, JQuery

Center on Youth Registration Reform (6/2015-12/2015)
Web Scraping, data-analysis
Provided preliminary data to CYRR for working towards reforming sex-offender legislation as it applies to juveniles.

- Wrote a web-scraper using Python Scrapy framework with a central spider class and 20 sub-spiders to scrape public Sex-Offender registries for 20 states. Data stored in PostgreSQL via SQLAlchemy.
- Identified offenders on the registry who were convicted as juveniles.
- Scraping jobs controled via scrapyd REST API (`https://registry-backend.herokuapp.com`)
- A minimal (Python Flask) front-end is viewable at `https://registry-frontend.herokuapp.com`

Impact Hub Oakland co-working space (3/2015 - 2/2016)
Business Intelligence
Parsed Excel spreadsheets & Google Calendar, presented aggregate data

- Wrote Python scripts to parse and summarize venue rental invoices.
- Used entry/exit data from IHO's card swipe hardware to analyze space usage for individual members and groups, providing IHO management with information about member habits.
- Used invoice records and calendar entries to create a summary of space rental/usage.

Research in Industrial Projects for Students (RIPS) at UCLA (6/2006-8/2006)
Algorithm development, Documentation, Programming
Team leader for Image-based-spam detection proof-of-concept project at Institute for Pure and Applied Mathematics (IPAM), sponsored by Symantec Inc.

- Developed an approach based on image segmentation using Matlab's image processing toolbox.
- Collaborated on publication of *Image Similarity Techniques For Detecting Image-Based Spam.*

Volunteer Projects

Berkeley Food Pantry (8/2015-Present)
Full-Stack Development

- Developed a Python web-application for visualization of aggregate data (food donations received, patrons served) for Berkeley Food Pantry.

Code for America (Open Oakland Brigade) (8/2015-12/2015)
Software Development
I briefly worked with California Civic Lab, a project to extend Oakland's successful open-disclosure project to other California city and County governments. This got me motivated to do web-development.

- Gained familiarity with group collaboration via GitHub, creating and fixing issues, making pull requests, etc.
- Got familiar with Django app development and working in a team environment

Education

University of California, Davis Davis, CA, U.S.A. • M.S. Applied Mathematics, 2006-2014
My research focus was computational linear algebra.

- Developed a new thick-restarted Krylov-subspace method for MIMO model order-reduction.
- Introduced a new orthogonalization process for complex-valued Krylov subspace basis vectors that cuts computational costs in half by treating complex vectors as long real-valued vectors.

- Wrote a suite of Matlab scripts for proof-of-concept implementation and analysis of the method.
- Produced novel transfer-function gain plots that make pole-zero analysis intuitive.
- Worked as a Teaching Assistant for several college-level mathematics courses.

More

See more on my LinkedIn (`https://www.linkedin.com/in/efremrensi`) and Github (`https://github.com/ebrensi`).