

EFREM RENSI

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SKILLS

- Data Wrangling/Analysis
- Algorithm design and implementation
- Programing: Python, Matlab, Linux scripting, C, some variants of assembly language, SQL (mostly mySQL)
- Good Git habits, documentation, and GitHub workflow

WORK HISTORY

Impact Hub Oakland co-working space (3/2015 - Present)

Business Intelligence

These projects all have public GitHub repos.

- 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.
- Wrote script for monitoring work-trader hours and active involvement over time, useful to motivate reminder notices and determine frequency for new cohorts.

Center on Youth Registration Reform (6/2015-8/2015)

Web Scraping

CYRR director Nicole Pittman and a small team of legal activists are working towards reforming sex-offender legislation as it applies to juveniles.

- Wrote Python scripts to scrape public Sex-Offender registries for 20 states.
- Provided CYRR with preliminary data regarding number of offenders on the registry who were convicted as juveniles.

Research in Industrial Projects for Students (RIPS) at UCLA (6/2006-8/2006)

Algorithm development, Documentation, Programming

- Team leader for research project at the Institute for Pure and Applied Mathematics (IPAM).
- Developed an approach based on image segmentation. Several of the spam images were comprised of a common text message or logo, but with differing backgrounds meant to confuse an automatic detector. My technique segmented a potential spam image into a number of discretely defined features, independent of scale, and created a database of probable spam components.
- Collaborated on publication of *Image Similarity Techniques For Detecting Image-Based Spam* project sponsored by Symantec Inc.

San Jose State University (1/2006-5/2006)

Modeling, Coding

- Investigated modeling an astronomical accretion-disk with a simple computational model called the "dripping-handrail".
- Collaborated on publication of *Astrophysical accretion as a dripping-handrail* project sponsored by NASA-Ames research center.
- Developed two different Matlab implementations of the model, and an animated visualization that greatly simplified explanation of the process.

San Jose State University (9/2006-12/2006)

Modeling/visualization

- Wrote Matlab scripts to implement and numerically compare two Green's-functions for a differential equation meant to simulate distribution of mass in the early universe: One recursively-defined and the other explicitly-defined.
- Developed animated visualizations in Matlab for comparison of the two methods, and presented the results at Sonoma State University for the Northern California Undergraduate Mathematics Conference.

EDUCATION

University of California, Davis Davis, CA, U.S.A. • M.S. Applied Mathematics, 2014

- Developed a new thick-restarted Krylov-subspace method for MIMO model order-reduction, which will prove useful in the future as circuits become ever more complex and the matrices representing them become too large for current methods. Krylov subspace methods still reign supreme for order-reduction of the largest systems.
- 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.

VOLUNTEER PROJECTS

Code for America (Open Oakland Brigade) (8/2015-present)

Software Development

I am currently volunteering with California Civic Lab, a project to extend Oakland's successful open-disclosure project to other California city and County governments.

- Gained familiarity with group collaboration via GitHub, creating and fixing issues, making pull requests, etc.
- Getting familiar with Django app development
- Caught and fixed bugs
- Continuing streamlining backend ETL