

# EFREM B. RENSI

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## SKILLS

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- Python (PyData stack, scikit-learn), Matlab, Java, Regexp, Linux scripting, Microsoft Excel, HTML, some C(++) in school.
- Git & GitHub workflow

## WORK HISTORY

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### **Impact Hub Oakland co-working space** (Present)

#### *Facility Usage Analysis*

- Wrote a Python script for cleaning text entry/exit data and presenting space usage information for individual members and groups, providing the management with insight into member habits.
- Wrote scripts for parsing text data from Google Calendar entries describing conference room bookings and determining income generated by space rental over 2013-present. The aggregated information is useful for setting future room rental rates and forecasting income for budgeting.
- Wrote script for monitoring work-trader hours and active involvement over time, which could be useful for determining frequency of introducing new cohorts.

### **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

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### **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.

## INTERESTS

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- Running, Ergonomics, Bicycling as transportation, Healthy food, Public transportation, Efficient living, Waste reduction