Erik Cheng

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Education

- **University of California, Berkeley** — Berkeley, CA
  Pursuing BS in Chemistry; GPA: 3.40 — *Aug. 2014 – May 2018 (anticipated)*
- **Relevant coursework** : SICP, Data Structures, Probability, Statistics, Adv. Linear Algebra, Multivariable Calculus

Experience

- **UC Berkeley EECS Department** — Berkeley, CA
  Undergraduate Student Instructor — *Aug 2017-Present*
  - Deliver weekly lectures on Python programming and inferential statistics to a section of 30 students.
  - Supervise programming and statistics lab exercises, addressing student questions and managing technical issues.
  - Created instructional documents, practice and exam problems, and assist in general course responsibilities.

- **Rubik's Cube Club at Berkeley** — Berkeley, CA
  Vice President (as of Aug 2017) — *January 2015 - Present*
  - Organize and instruct Math 98/198, a class about Rubik's cubes. Lead two small groups in weekly classes.
  - Co-organized multiple officially sanctioned competitions of 200+ guests; manage staff and logistics during events.
  - Built a competition announcements page using HTML/CSS to provide real time updates to competitors and guests.

- **Nano Precision Medical** — Emeryville, CA
  Nanomaterials Intern — *Jun 2017- Aug 2017*
  - Improved and incorporated permeance model of porous films into Python program for automated real time data analysis, which parametrically fits model to data and produces key parameters, a task formerly done by hand.
  - Introduced improvements to, and validated, theoretical model of current generation in titanium anodization.
  - Designed and conducted experiments to determine effect of two step anodization on film characteristics. Characterized films with Wyko profilometry and various imaging tools, including skimage and ImageJ.

- **Sandia National Labs** — Albuquerque, NM
  R&D Student Intern — *June 2016 - August 2016*
  - Improved methods for quantification of microscale structures. Reduced uncertainty by about an order of magnitude.
  - Worked on a semi-automated experiment procedure using Python to study aluminum anodization.
  - Determined and visualized effects of key parameters in electrochemical processing for presentation to clients.

- **Saykally Group** — Berkeley, CA
  Undergraduate Research Assistant — *May 2015- May 2017*
  - Studied the evaporation behavior of aqueous solutions of acidsa and bases using Raman thermometry techniques.
  - Optimize data collection through control of optics and hardware improvements in Raman spectroscopy experiment.
  - Determine quality of data by observation of Raman spectrum features and analysis of data through processing in MATLAB and Igor, assessing results using theoretical cooling models.

Projects and Publications

- **Surprising Effects of Hydrochloric Acid on the Water Evaporation Coefficient Observed by Raman Thermometry**: Rizzuto, A. M., Cheng, E. S., Lam, R. K., Saykally, R. J. *J. Phys. Chem. C* (2017)
- **Understanding Bias in Sampling Users with Twitter's Streaming API** : Independent study (in group of 2) supervised by Prof. Deborah Nolan in assessing sampling biases in Twitter's publicly available Streaming API, using automated queries from a full sample and applying permutation testing. Performed using R. (Jan 2017- May 2017)
- **2016 Presidential Election Case Study**: An investigation of the predictive power of features from Census and historical election data, merging from several file formats with dirty data and applying multiple classification techniques. (Nov 2017- Dec 2017)

Skills

- **Computing: (Proficient)**: Python, Java, R **(Familiar)**: SQL, Scheme **Misc.**: Jupyter, scipy, git, ssh/ftp
- **Statistics:** Hypothesis testing, Parameter estimation, Nonparametric methods, Experiment design, Linear Models