Erik Cheng

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Education

- **University of Texas, Austin** — GPA: 3.93
  PhD in Materials Science and Engineering — *Aug. 2018 – Present*
- **University of California, Berkeley** — GPA: 3.44
  BS in Chemistry — *Aug. 2014 – May 2018*
- **Relevant coursework** Data Structures, Probability, Statistics, Adv. Linear Algebra, Multivariable Calculus, Linear Modeling, Principles and Techniques of Data Science, Concepts in Computing with Data

Experience

- **University of Texas, Austin** — Austin, TX
  Graduate Research Assistant — *July 2018-Present*
  - Used computational methods to perform quantum mechanical simulations of chemical systems.
  - Created data processing scripts using **Python** and workflow optimization scripts using **bash**.
  - Created content for presentation in meetings and conferences using tools including **matplotlib** and LaTeX.
- **UC Berkeley EECS Department** — Berkeley, CA
  Undergraduate Student Instructor, Foundations of Data Science — *Aug 2017-May 2018*
  - Delivered weekly lectures on **Python** programming and inferential statistics to a section of 30 students.
  - Supervised 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.
  - Contributed various functionalities and documentation to the `datascience` package, a Berkeley developed package based on **pandas**, **matplotlib**, and **numpy**, used for data science instruction.
- **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, reducing 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.

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, applying permutation testing over multiple large corpora (thousands of Tweets). Performed using **R**. (Jan 2017- May 2017)
- **2016 Presidential Election Case Study**: An investigation (on team of 4) of the predictive power of features from Census and historical election data, merging multiple large and dirty datasets in several file formats and applying multiple classification techniques including **KNN and decision trees**. Performed using **R**. (Nov 2017- Dec 2017)

Skills

- **Computing: (Proficient)**: Python, R **(Familiar)**: Java, SQL, Bash, MATLAB. **Misc.**: Unix, git, ssh/scp, LaTeX
- **Statistics:** Hypothesis Testing, Parameter Estimation, Nonparametric Methods, Experiment Design, Linear Models