FANFEI (FAUSTINE) LI

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Profile

A Master's student in the Duke Statistical Science program with a passion for energy, environment, and sustainability. Past projects include design of experiments, analysis of air quality data, and optimizing reactor design. Current interests include machine learning and Bayesian modeling.

Education

Duke University, Durham NC **August 2016 – Expected May 2018**
MS Statistical Science

California Institute of Technology, Pasadena CA **September 2011 – June 2015**
BS Chemical Engineering

Work Experience

Research Data Analyst, Oak Ridge National Laboratory **June 2015 – July 2016**

- Cleaned, analyzed, and visualized data collected on particulate matter from engine emissions.
- Wrote MATLAB code to perform statistical tests such as outlier detection and ANOVA.
- Developed scripts to facilitate image segmentation of particulate aggregates.
- Automated data cleaning steps including time-alignment, filtering, and error checking.
- Produced publication quality plots and wrote a set of experimental guidelines.

Research Experience

Undergraduate Researcher, Caltech **Summer 2014**

- Developed rate equation models in MATLAB to simulate the kinetics of photochemical smog.
- Used Mathematica to visualize the impact of reactive oxygen species in aerosol droplets.
- Created reports, read literature, analyzed model parameters, and designed graphics.

Undergraduate Researcher, Caltech **Summer 2013**

- Researched a method to dynamically alter the physical properties of hydrogel bio-materials.
- Prepared samples, ran experiments, designed primers, and used various analytical techniques.

Projects

- Designed, built, and tested a pyrolysis reactor for the conversion of waste plastics into diesel fuel. Researched and implemented various methods to characterize resulting product.
- Built and optimized a small-scale plasma-based reactor that converts methane gas into higher order products. Used statistical design of experiments to find a set of operating conditions.

Skills

- Proficient in MATLAB, R, and Markdown. Familiar with R packages such as dplyr and ggplot2.
- Familiar with Python, Mathematica, Git and Github.
- Taking courses in Bayesian Statistics, Machine Learning and Statistical Computing.