

# Juanyan Li

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## EDUCATION

Expected, May 2016      M. Eng., Industrial Engineering and Operations Research, UC Berkeley  
Jul 2015                  B. S., Automotive Engineering, Tsinghua University (China) GPA: 3.6/4.0

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## TECHNICAL SKILLS

Programming:                      Java, R, Python, C, SQL, MATLAB, Arduino  
Software & Operating Systems:      Spark, MySQL, MS Office, STATA, Linux

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## RELATED COURSES

Java Programming, Data Structure (CS 61B), Algorithms (CS 170), Machine Learning (Coursera, Andrew Ng), Statistical Learning Theory (CS 281A), Introduction to Statistics Programming (STAT 243), Data Analytics (IEOR 242)

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## PROJECTS

### Industry Performance Analytics Based On Companies' Annual Report (10-K) Jan 2016~Present

- Aim to predict public companies' future performances through quantity and sentiment analysis on 10-K
  - Scraped financial statements in the annual report from U.S. Securities and Exchange Commission's EDGAR database
  - Used Python's nltk package for basic Natural Language Processing (NLP)
  - Conducted preliminary sentiment analysis based on Loughran and McDonald's dictionary
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### Capstone Project: Big Data for Manufacturing (LMAS of UC Berkeley) Sep 2015~Present

- Goal is to develop a firmware to predict machine tool failures in Computer Numerical Control (CNC) centers
  - Designed and implemented a user interface in Python for data collection and distributed it to other research institutes
  - Conducted wavelet packet decomposition on physical signals (vibration, audio) collected from the hardware
  - Extracted features which showed the ability to recognize machine tools' various working conditions
  - Implemented Hidden Markov Model with mixture Gaussian on the dataset in MATLAB for preliminary predictive analysis
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### R Package Development for Adaptive Rejection Sampling Nov 2015~Dec 2015

- Adopted a modular design approach in a group of four to build an open-sourced R package that use ARS to draw samples from a variety of log-concave density functions more efficiently
  - Focused mainly on the bound evaluation and reject test parts of the algorithm
  - Established a set of test cases (log-concavity, bound legitimacy, etc.) to verify the functionality of our package
  - Analyzed computational efficiency and optimized corresponding primary time-consuming functions
  - Numerical experiments showed good approximations to density function being sampled
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## RESEARCH EXPERIENCES

### Diploma Thesis: Multi Vehicles Green Light Optimal Speed Advisory

Supervisor: Prof. Luo, Yugong Tsinghua Univ. Mar 2015~Jun 2015

- Optimization of hybrid-vehicles' velocity profile to pass single or multiple intersection(s)
  - Goal is to improve traffic efficiency and fuel economy in a holistic perspective
  - Developed a speed optimization strategy taking traffic signals, regulation, and driver's behaviors into consideration
  - Implemented genetic algorithm on MATLAB to solve the optimization problem
  - Built comparative models to testify the results
  - Simulation showed 5~10% fuel consumption reduction with enhanced traffic throughput
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### Student Researcher: Cold Chain Distribution Network Modeling

Supervisor: Prof. Li, Lefei, Prof. Lin, Weihua Tsinghua Univ. & Univ. of Arizona Jul 2014~Feb 2015

- Optimization of complex supply chain distribution network for perishable products
- Reduce operation costs and improve perishable product quality
- Developed a cooperative distribution operation scheme for local retailers using continuous approximation, an efficient heuristic in solving NP-hard problems in operation research practice
- Results demonstrated a near 10% cost reduction along with considerable initial cost savings
- Extended the problem to a facility location problem where long-term strategic planning became major concern