# Frank Chen

Program Manager
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**Interest**

I am interested in data-driven engineering. **I am currently a PM at Microsoft** and a part-time Masters student at University of Washington pursuing a degree in Data Science.

**Education**

**University of Washington**                                   Fall 2018 - Spring 2020

M.S. Data Science, Interdisciplinary Program

**University of California, Los Angeles**            Fall 2013 - Spring 2017

B.S. Computer Science, Henry Samueli School of Engineering & Applied Science
GPA: 3.42/4.0

**Relevant Skills & Courses**

**Programming Languages:** Python, C/C++, MATLAB/Octave, Javascript, OCaml

**Courses:** Intro to Machine Learning, Intro to AI, Mathematical Modeling, Scalable Internet Service, Computer Security, Computer Networks, Linear Algebra, Intro to Probability, Formal Languages & Automata, Databases, Algorithms, Data Structures

**Academic Experience**

**Center for Vision, Cognition, Learning & Autonomy**            March 2016 - present

Undergraduate Researcher | PI: Dr. Song-Chun Zhu | Mentor: Nishant Shukla
* Research in causal relationships, fluent extraction, and causal learning
* Implemented detection + tracking modules in OpenCV for teaching robots to fold shirts
* Built fluent visualization modules to learn a generative grammar model from raw robot data
* Submitted paper to the International Joint Conference on Artificial Intelligence (IJCAI)
* Submitted paper to Neural Information Processing Systems (NIPS) conference

**Jet Propulsion Laboratory**                                   June 2015 - June 2016

Computer Vision Research Intern | PI: Dr. Thomas Lu
* Spearheaded frame by frame tracking of IR multi-bandwidth images
* Achieved 90% accuracy in segmentation of images using neural network
* Published paper on correlation optimization at SPIE 2016 conference in Baltimore, MA.
* Paper on neural network segmentation is in proceedings of the SPIE 2017 conference.

**Work Experience**

**Microsoft**                                                   July 2017 - present

Program Manager | Manager: Cory Delamarter
* Saved Service Engineers hundreds of hours using ML to auto-route SAP incidents
* Drive onboarding & adoption for 1000+ components in CSE to Unified Telemetry Platform
* Early in Career Lead for Core Platform Engineering, part of Diversity & Inclusion Initiative

**Workday**                                                      June - September 2016

<u>Application Development Intern</u> | Manager: Phyllis Thompson
* Implemented tax location mapping reports as part of Workday 28 product release
* Created get/put APIs for Workday Web Services
* Actively involved in Workday's agile development pipeline

**Taboola**                                                          March - June 2016

<u>Software Engineering Intern</u> | Manager: Chris Germano
* Implemented user authentication system using React.js and Node.js
* Built modules to communicate with Taboola Backstage API from scratch

**Daily Bruin**                                              September 2014 - March 2016

<u>Project Manager</u> | Mentor: Simon Zou & Jimmy Yang
* Spearheaded complete redesign of Spectrum, Daily Bruin's online Photo Blog
* Led a team to build an interactive web application for UCLA's dorm communities
* Presented workshops on Sublime Text + Git tools for incoming Daily Bruin staff

**Teaching Experience**   **Undergraduate Student Initiated Education (USIE)**  September 2016 - June 2017

<u>Seminar Instructor</u> | Website: http://kfrankc.me/cs88s | Faculty Advisor: Dr. Peter Reiher
* Designed a 10-week undergraduate computer science seminar (CS 88S) to introduce students
  to cybersecurity fundamentals & protecting themselves in cyberspace
* Reached an international audience, with more than 1400 people subscribed to my weekly
  email updates on topics and relevant articles covered in the course
* Topics included general introductions to: computer networking, cryptography, password
  cracking, wireless vulnerabilities, denial of service attacks

**The Coding School**                                       September 2015 - January 2016

<u>Student Instructor</u>
* Organized computer science classes for middle school children on HTML/CSS/Javascript
* Spearheaded a lesson on Github & using that to host a personal website

**Software & Notable Projects**   **Los Angeles Urban Crime Patterns -** Data science project on LA crime patterns

Used crime data in the past 10 years from Los Angeles Sheriff website to analyze crime patterns
in location, type, frequency, and day/month/year. Final project for CS 170A: Mathematical Modeling.
`http://kfrankc.me/files/CS170A_project.pdf`

**NATCAR -** Autonomous RC line-following car

Design, build, and race autonomous RC car on tracks marked by a 1"-wide white tape
Implemented computer vision, motor control, 3D-printing, & circuit design to build the RC car
<u>1st place @ UC Davis NATCAR Competition 2015</u>
`https://www.youtube.com/watch?v=Zx1SNIKpR9Y`

**FluentVisualizer -** Visualizing high-dimensional robot action data in a 3D space

Designed a web UI to visualize fluent changes in a robot's arm movement using t-Distributed Stochastic Neighborhood Embedding, decomposing 7-dimensional data into 3 dimensions.

**Perfusion Angiography Visualization -** Visualize blood flow in angiography videos

Designed a breadth-first-search algorithm to intelligently generate vector fields that follow blood vessel flow in perfusion angiography video frames, and used Javascript framework to visualize blood flow in a web UI.
`https://kfrankc.me/cs188/`

**DJ Set Review w/ Data -** Understand how DJs prepares their set using music data

Reviewed the methods and techniques The Chainsmokers used to prepare their set piece at Ultra Music Festival 2016 by analyzing the bpm, bass drop intensity, and time variation between mixes using Highcharts.js.
`https://kfrankc.me/chainsmokers/`

## Publications & Presentations

### Cross-correlation and image alignment for multi-band IR sensors

**Kang (Frank) Chen**, Andrew Luong, Mallory Dewees, Xinyi Yan, Thomas Lu, Tien-Hsin Chao, Edward Chow, Gilbert Torres
SPIE Optical Pattern Recognition XXVII 2016 | Baltimore, MD

### Intelligent multi-spectral IR image segmentation

**Kang (Frank) Chen**, Andrew Luong, Stephen Heim, Maharshi Patel, Thomas Lu, Tien-Hsin Chao, Edward Chow, Gilbert Torres
SPIE Optical Pattern Recognition XXIX 2017 | Anaheim, CA

### Unsupervised learning of fluents from human demonstrations

Nishant Shukla, Yunzhong He, **Kang (Frank) Chen**, Song-chun Zhu
Submitted to Neural Information Processing Systems (NIPS) 2016

**Learning Human Utility from Video Demonstrations for Deductive Planning in Robotics**

Nishant Shukla, Yunzhong He, **Kang (Frank) Chen**, Song-chun Zhu
Accepted at The International Conference on Robot Learning (CoRL) 2017

**Visualizing Human Utility from Video Demonstrations for Deductive Planning in Robotics**

**Kang (Frank) Chen**, Nishant Shukla, Song-chun Zhu
UCLA Undergraduate Research Poster Day. Research Poster

**Intelligent Image Processing and Feature Extraction from Multiple IR Video Images**

**Kang (Frank) Chen**, Andrew Luong, Mallory Dewees, Xinyi Yan
JPL Summer Research Symposium, August 2015. Pasadena, CA. Section Presentation

### Intelligent IR Image Correlation and Segmentation

**Kang (Frank) Chen**, Andrew Luong, Kevin De Jesus, Maharshi Patel
JPL Winter Research Symposium, December 2015. Pasadena, CA. Section Presentation

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| **Honors and Awards** | **Upsilon Pi Epsilon Honor Society** | March 2014 - present |
| | **Eta Kappa Nu Honor Society** | March 2015 - present |
| | **Henry M. Showman Prize in Undergraduate Research** | May 2017 |
| | **Engineering Achievement for Student Welfare** | May 2017 |
| | **2017 Engineering Commencement Student Speaker** | May 2017 |
| | **Eric & Peggy Johnson Scholarship in Engineering** | January 2017 |
| | **True Bruin Distinguished Senior Finalist** | November 2016 |
| | **Gerald P. Popek Scholarship in Computer Science** | January 2016 |
| | **Harley L. Woods Family Scholarship** | January 2015 |

**Leadership**

**Early in Career Lead** — August 2018 - present
* Lead a team of Microsoft early in career employees in Core Platform Engineering to organize events pertaining to the Microsoft Diversity & Inclusion initiative

**Technology & Development Co-Lead** — July 2017 - present
* Manage a committee of 20 Microsoft University Hires and 3 event tracks within the Core Services Engineering organization.

**Resident Assistant** — September 2015 - June 2017
* Responsible for a floor of 90 residents in UCLA's residential dorms

**IDEA Hacks Organizer** — September 2015 - February 2016
* Sponsorship organizer for the largest hardware-focused hackathon in the West Coast

**LA Hacks Organizer** — January 2015 - June 2017
* Mentorship + Operations organizer for the largest hackathon in the West Coast

**Engineering Society of UCLA** — September 2014 - June 2015
* External VP for the umbrella engineering club at UCLA

**Bruin Entrepreneurs** — September 2013 - June 2015
* Led incubator program for UCLA's student entrepreneurs