

# Alexander Cui

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## Work Experience

### Machine Learning Engineer | Jun - Sept 2019

Facebook

- Built the dynamic budget allocator for our advertiser acquisition product that sends 100M ads daily
- Engineered new data features and pipelines to improve conversion with our ads ranking model
- Won the Judge's Choice award at Facebook's largest-ever hackathon

### Machine Learning Engineer | June - Sept 2018

Kuna Systems

- Built an autohealing AWS server scaler in production, saving the company 60% of its ML costs
- Sped up CNNs by 3x using quantization with Tensorflow, allowing real-time object detection to run on home-security camera CPUs
- Built a dataset of 100K images and retrained our CNNs to reduce missed detections for users by 25%

### CTO, Co-founder | Nov 2017 - Sept 2018

Whimmlly

- Developed an eCommerce chat AI for a Fortune 500 client using patent-pending NLP models
- Built dialogue parser that serves recommendations from product embeddings using SpaCy and Keras
- Deployed microservices infrastructure and CI/CD pipeline with Docker and Jenkins

### Full Stack Engineer | May - Dec 2017

Trexo Robotics

- Developed an Android app for therapists, data processing pipeline with Spark, and analytics dashboard with React and Node.js

## Awards and Honors

- 2018 2<sup>nd</sup> place (out of 25 teams)  
Citadel SoCal Data Open
- 2016 1<sup>st</sup> place (out of 3195)  
National Biology Competition
- 2015 Silver Medalist (out of 290)  
International Chemistry Olympiad

## Education

### California Institute of Technology | 2021

BS in Computer Science, Data Science (3.8 GPA)

## Independent Projects

### Open Mind | 2017 - Present

- Built the backend and ML for a chrome web extension that blocks fake news and generates a politically balanced news feed for each user
- Presented research on misinformation at Congress, Facebook and the DoS
- Interviewed by Fox News, AP, NPR and CTV
- See details at [openmind.press](http://openmind.press)

### Reisman Lab | 2019 - Present

- Optimized yield prediction of allylic oxidation reactions with data augmenting and embeddings
- Created attention-restriction algorithm that increases accuracy by 20% on graph CNNs

### RoboSub | 2017 - Present

Caltech Robotics Team

- Lead ML team to train performant CNNs and conditional GANs to enable our autonomous submarine to locate objects with C++, ROS
- Deployed adaptive thresholding, homography, and SIFT in OpenCV to track props with high precision

### Juntos | 2019

Treehacks (Stanford)

- Created a ML web app that allows users to generate photorealistic faces from common facial descriptors
- Retrained transparent latent GANs and applied transfer learning on a diverse faces dataset
- Awarded Best Deep Learning Hack

## Technical Skills

- Python, C++, C, Java, Javascript, SQL
- Pytorch, Pandas, Tensorflow, Keras, Gensim
- AWS, Docker, Jenkins, MongoDB
- Node.js, React.js, Android, Django, ROS