

# Michael Zhu

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## EDUCATION

### University of California, Berkeley

Berkeley, CA

- Bachelor of Arts in **Computer Science with Honors** Aug 2019 - Present
- SCET Certificate of Entrepreneurship and Technology GPA: 3.9
- Coursework: algorithms, data structures, computer architecture, artificial intelligence, deep neural networks, reinforcement learning, discrete mathematics, probability, signal processing, iOS development

## EXPERIENCE

### Amazon, Software Development Engineering Intern

May 2021 - Present

- Building secure and efficient data pipelines to monitor business metrics for Alexa Conversational Shopping

### Riot Ventures, Venture Capital Fellow

Jun 2021 - Present

- Researching market opportunities in artificial intelligence and hardware accelerator startups

### UC Berkeley CS 198 (iOS Development), Lead Facilitator

August 2020 - May 2021

- Prepared lecture, lab, and project content in Swift; hold weekly lab sections and office hours
- Supervising 3 teaching assistants; led curriculum rebuild from UIKit to SwiftUI framework

### UC Berkeley EECS 16B (Designing Information Systems), Lab Tutor

January 2021 - May 2021

- Review lab materials; assist students during lab sections with debugging and concept checks

### Ludwig AI, Software Developer

June 2020 - Feb 2021

- Performed comparative analysis of deep learning models on the Stanford Sentiment Treebank dataset
- Used hyperparameter optimization to achieve state of the art performance with a Bi-LSTM model
- Wrote accompanying article on how to use Ludwig's deep learning toolkit to reproduce our project
- Continuing contributions in bug fixes and new features to Ludwig's open source python library

## PROJECTS

### Improving Free Adversarial Training using Scheduling, Augmentations, and Denoising

April 2021

- Improved ResNet-18 performance on geometric perturbations by 16% by applying weighted contrastive loss
- Improved adversarial example test accuracy by 14% using scheduled adversarial training and denoising
- Novel contributions include implementation of denoising network, scheduling to optimize impact of adversarial training, and applying a combined cross-entropy loss with weighted contrastive loss factor

### Ugly Video: Browser based video conferencing with WebRTC

Feb 2021

- Used WebRTC and Peer.js to implement real time video and audio streaming between browsers
- Used Fabric.js to implement image sharing and synchronous whiteboard features
- TreeHacks 2021 Funniest Hack winner and top 20 finalist out of 224 teams; demo at <https://ugly.video>

### Statfinder: Bag-of-Words and TF-IDF techniques for data extraction of websites

Aug 2020

- Used Flask to create REST API that accepts URL input and returns list of relevant statistics from that site
- Used React to develop frontend that queries REST API and displays output at [statfinder.herokuapp.com](https://statfinder.herokuapp.com)

### Crowd Insights: Real-time computer vision and graph algorithms to analyze crowds

Feb 2020

- Accomplished 30 FPS real-time analysis on live video feeds by utilizing Pytorch, Flask, and GC Compute
- TreeHacks 2020 Geospatial Grand Prize winner and top 8 finalist out of 200 teams

### OskiBot: UC Berkeley course recommendation chatbot

Oct 2019

- Created chatbot that recommends UC Berkeley courses using Node, Webex, Azure, and Firebase
- Won CalHacks Cisco API Challenge and Major League Hacking Transposits API Challenge awards

## SKILLS

- Languages: Python, C/C++, Java, Assembly (RISC-V), SQL, Swift, HTML, CSS, Javascript
- Technologies: React, Node, Firebase, Flask, Numpy, Pandas, Pytorch, Tensorflow, Docker, Linux, Git