

Education

Massachusetts Institute of Technology

Cambridge, MA

Bachelor of Science in Computer Science and Engineering

GPA: 4.8/5.0

June 2020

Master of Engineering in Electrical Engineering and Computer Science

GPA: 4.8/5.0

June 2020

- Thesis: "Real-time computer-aided polyp detection and localization for clinical applications." Advisors Dr. Dennis Freeman, Amit Ranade.

Working Experience

Iterative Health

Cambridge, MA

Senior Machine Learning Engineer

June 2021 - Present

Machine Learning Engineer

May 2019 - June 2021

- Led a project to build a model to provide a coarse localization of an endoscope in a colonoscopy video based on clinically relevant landmarks. Developed several of the constituent models to identify relevant features toward temporal video segmentation.
- Designed and trained models to identify IBD patients and score disease severity for the company's AI Recruitment pipeline, to flag patients who are eligible for IBD clinical trials. Models were able to reduce rate of manual review to less than 25% of videos.
- Developed a video-level model to predict the endoscopic disease severity (Mayo Endoscopic Score) of UC patients in clinical trial data, achieving an 89% accuracy rate for clinical trial qualification on a test set of UC patients.
- Designed and implemented classification and object detection networks for a product, SKOUT, to detect polyps during colonoscopies in real-time, statistically significantly improving physicians' detection of adenomas per colonoscopy during our clinical trial by 27%. SKOUT was approved by the FDA in a 510(k) submission in September 2022.
- Led a team of up to 4 ML engineers on projects for building models for AI Recruitment and landmark identification.
- Developed scalable cloud-agnostic ML training, inference, and evaluation pipelines to create and manage large datasets, train models with a variety of configurations, generate evaluation reports and visualization, and run models at scale in production

Medical Vision Lab, Computer Science and Artificial Intelligence Laboratory (CSAIL), MIT

Cambridge, MA

Undergraduate Researcher

Feb 2019 - May 2019

- Implemented a model and loss function to investigate performance differences from running on original x-ray images versus original images augmented with enhanced images, toward semi-supervised learning for quantifying pulmonary edema severity

Iterative Health

Cambridge, MA

Associate Software Engineer

Feb 2018 - Jan 2019

- Architected and implemented data services pipeline to process a large inflow of images and videos of colonoscopies into AWS.
- Designed schema for PostgreSQL database in AWS to store millions of image and video metadata records.
- Designed and implemented real-time video streaming infrastructure in C++ for colonoscopies from the edge (e.g. Raspberry Pi).

PAVLAB (Marine Robotics Lab), MIT

Cambridge, MA

Undergraduate Researcher

Sep 2017 - Jan 2018

- Designed and implemented algorithm with C++ and PCL library to allow autonomous water vehicle to detect people and objects on the water using a variety of data processing and clustering algorithms on LIDAR data, toward autonomous navigation
- Work on object avoidance was presented at the *MOOS Development and Applications Working Group* in 2019.

Publications and Patents

Austin Wang, Amit Ranade, Dennis Freeman. "Real-time computer-aided polyp detection and localization for clinical applications." MEng Thesis. 2020.

Jonathan Ng, Sloane Allebes Phillips, Amit Ranade, Daniel Wang, Perikumar Mukundbhai Javia, Avi Walden, Austin Wang, Evan Wlodkowski, Samridhi Dhakal. "Systems and Methods for Detecting Potential Malignancies." US 20220028059A1, United States Patent and Trademark Office, 21 July 2020. *Patent Pending*.

Jonathan Ng, Jean-Pierre Schott, Perikumar Mukundbhai Javia, Austin Wang, Neelima Chavali, Thomas Varner, Lavi Erisson, Sloane Allebes Phillips, Daniel Wang. "Systems and methods for analysis of medical images for scoring of inflammatory bowel disease." US 20220028547A1, United States Patent and Trademark Office, 1 Feb 2021. *Patent Pending*.

Other

- Member of Sigma Xi Society
- Extracurriculars include church, volleyball, robotics (volunteering at tournaments), building things, and music.