Anthony Liang

CONTACT INFORMATION

Website: aliang8.github.io
Github: github.com/aliang8
Email: aliangdw@umich.edu
Phone: 718-395-0622

EDUCATION

University of Michigan - Ann Arbor, Ann Arbor, Michigan — Sep 2017 - Present
Bachelor of Science in Engineering, Minor in Mathematics — GPA: 3.594/4.000
Expected May 2020

Stuyvesant High School, New York City, New York — Sep 2013 - June 2017
Diploma with Advanced Designation in Mathematics and Science

RELEVANT COURSEWORK

Deep Learning for Vision • Deep Learning • Machine Learning • Autonomous Robotics • Articial Intelligence • Computer Vision • Self Driving Cars: Perception and Control • Probability Theory • TechLab at MCity • Operating Systems • Information Retrieval • Linear Algebra

IN PREPARATION

Wilka Carvalho, Kimin Lee, Anthony Liang, Ryan Krueger, Richard L. Lewis, Satinder Singh, Honglak Lee. *"Continually Learning to Perform New Tasks with New Objects through Visual Instruction."*

WORKSHOP PROCEEDINGS

Wilka Carvalho, Kimin Lee, Anthony Liang, Ryan Krueger, Richard L. Lewis, Satinder Singh, Honglak Lee. *"Efficiently Learning to Perform Household Task with Object-oriented Exploration."* In Neural Information Processing Systems Black In AI Workshop (Neurips BAI), 2019 (Oral)

RESEARCH EXPERIENCE

University of Michigan-Ann Arbor AI Lab — Jan 2019 - Present
Advisor: Honglak Lee
Project: Data-Efficient Reinforcement Learning with Object-Oriented Representations

- Developed self-supervised reinforcement learning agent that uses a nonparametric neural network to learn object-categories and performs real-world tasks in a complex 3D environment
- Conducted ablation study on novel memory unit and evaluated top-k retrieval precision-recall metrics on a static object-views dataset collected from the AI2THOR home environment. Achieved $\sim 20\%$ improvement over baseline representation learning methods
- Implemented reinforcement learning and count-based exploration baselines

University of Michigan-Ann Arbor Hospital - Radiology — Sep 2017 - May 2018
Advisor: Ravi Samala, Heang-Ping Chan
Project: Breast Cancer Diagnosis in Digital Breast Tomosynthesis: Multi-Stage Transfer Learning

- Developed a computer-aided system (CAD) for the classification of malignant and benign masses in digital breast tomosynthesis (DBT) using a multi-stage transfer learning approach
- Implemented transfer networks using deep convolution neural network architectures pretrained from the ImageNet competition
- Tested multi-stage transfer learning by first fine-tuning with mammography data and then with the DBT data, two-stage approach improved AUROC metric from 0.85 ± 0.05 to 0.91 ± 0.03

INDUSTRY EXPERIENCE

Google - Ads Quality — May 2019 - Aug 2019
Software Engineering Intern — *Mountain View, California*
Mentor: Nina Li

- Designed and implemented end-to-end data pipeline for scaling Google Ads' deep learning retrieval models via efficient nearest neighbor matching
- Developed an API service for clustering mobile browser tabs into categorical clusters

- Conducted a user study with over 60 participants to evaluate efficacy of clustering feature

Luminar May 2018 - Aug 2018
AI Engineering Intern *Palo Alto, California*
Mentor: Prateek Sachdeva

- Designed and implemented an automated training data collection and prelabeling pipeline
- Worked with deep learning models for 2D and 3D object detection and lane/road segmentation
- Implemented a sensor calibration and fusion tool to better visualize low density pointclouds

Socratic (acquired by Google) May 2017 - Aug 2017
Software Engineering Intern *New York, New York*
Mentors: Shreyans Bhansali, Lili Dworkin

- Developed an open-sourced math problem solver library using object character recognition and abstract syntax tree (AST) parsing
- Moderated an open-sourced community of over 20 active contributors on Github

TEACHING EXPERIENCE

University of Michigan-Ann Arbor, Ann Arbor, Michigan Dec 2019 - Present
EECS 504: Graduate Computer Vision
Working with Professor Andrew Owens on designing and teaching a new computer vision course for graduate students

University of Michigan-Ann Arbor, Ann Arbor, Michigan Sep 2018 - Dec 2019
EECS 280: Introduction to Programming and Data Structures
Taught weekly lab class to undergraduate students on topics ranging from polymorphism to recursion

HONORS & AWARDS

Frederick J. Leonberger Scholar ($23,000 / year)	2017 - Present
National Association for Letter Carriers Scholarship (1/4)	2017 - Present
University Honors	2017 - Present
Dean's List	2017 - Present

EXTRA-CURRICULAR ACTIVITIES

Michigan Autonomous Aerial Vehicles	2017 - 2018
New York City Math Team	2013 - 2017

SKILLS

Languages: C++, Python, Javascript
Frameworks / Tools: PyTorch, Tensorow, NumPy, OpenCV, Pandas, Matplotlib, ROS, PCL, ReactJS, GCP, AWS
Systems: Unix, Linux, OSX