Long (Tony) Lian

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Education

University of California, Berkeley — Berkeley, CA
Ph.D. in Electrical Engineering and Computer Science — August 2022 – Present
B.A. in Computer Science (Highest Distinction/Summa Cum Laude) — August 2018 – May 2022

- GPA: 4.0/4.0
- Selected Coursework:
  Computer Vision (CS 280, A+), *Deep Learning* (CS 182, A+), *Signals and Systems* (EE 120, A+), *Security* (CS 161, A+, **ranks 1st of ~200**), *Reinforcement Learning* (CS 285, A+), *Machine Learning* (CS 189, A+), *Artificial Intelligence* (CS 188, A+), *Probability and Random Processes* (EECS 126, A), *Computational Photography*, (CS 194-26, A), *Digital Circuits with ASIC and FPGA Labs* (EECS 151/LA/LB, all A+, won **Outstanding Project Design Award** sponsored by Apple)
- Awarded **EECS Department Citation** for outstanding achievement during undergrad
- Awarded **Dean's List** twice (Spring 2019, Fall 2019) and **Honors to Date** 3 times
- Taught CS198-008 (Linux System Administration DeCal) as a **lecturer** (Fall 2019, Fall 2020, Spring 2021)
- Member of International Computer Science Institute, IEEE, Berkeley Chinese Students and Scholars Association, and Open Computing Facility at Berkeley

Stanford University — Stanford, CA
Summer Session — June 2017 – August 2017

- GPA: 4.11/4.0
- Coursework: CS 193C (Client-end Web Technologies, A+) and CS 106B (Data Structures & Algorithms, C++, A)
- Helped the instructor hold a review session for CS 106B and made contributions to the lecture slides

Publications

Unsupervised Selective Labeling for More Effective Semi-Supervised Learning — ECCV 2022
Xudong Wang*, **Long Lian*** (Equal contribution), Stella X. Yu — arxiv: 2110.03006

Debiased Learning from Naturally Imbalanced Pseudo-Labels — CVPR 2022
Xudong Wang, Zhirong Wu (Equal contribution), **Long Lian**, Stella X. Yu — arxiv: 2201.01490

Unsupervised Visual Attention and Invariance for Reinforcement Learning — CVPR 2021
Xudong Wang*, **Long Lian*** (Equal contribution), Stella X. Yu — arxiv: 2104.02921

Long-tailed Recognition by Routing Diverse Distribution-Aware Experts — ICLR 2021 Spotlight
Xudong Wang, **Long Lian**, Zhongqi Miao, Ziwei Liu, Stella X. Yu — arxiv: 2010.01809

Academic Services

Reviewer — CVPR 2022 and ECCV 2022

Research Experiences and Internships

Undergrad Researcher, UC Berkeley International Computer Science Institute — December 2019 – Present

- Doing research with Prof. Stella Yu and Xudong (Frank) Wang on Computer Vision and Deep Neural Networks
- Developed a new **pixel-based reinforcement learning** method which utilizes unlabeled data to effectively train agents robust to visual distractions and **achieved SOTA on several RL benchmarks**, **accepted by CVPR 2021**
- Developed a multi-expert method that achieved SOTA on **Long-Tailed Distribution Recognition**, where training set and test set have different distributions (**ICLR 2021 Spotlight**)
- Worked on **Open Set Recognition** projects with unsupervised learning to detect instances in novel classes

Research Intern at Deep Learning Platform Team (Dist. ML Group), Baidu Inc. — February 2021 – May 2021

- Designed an efficient **parameter server** on PaddlePaddle, the **most widely-used deep learning framework** in

China, and boosted the training efficiency of large-scale click-through-rate prediction models with both sparse and dense layers up to **2x** and greatly accelerates company's internal ML deployment workflow
- Filed a patent on **large-scale training and acceleration of neural network models** with heterogeneous hardware, specifically for models with I/O-intensive and computation-intensive components
- Implemented **reinforcement learning algorithm Rainbow** with Baidu's RL framework PARL as a side project

Undergrad Research Apprentice, UC Berkeley — September 2018 – May 2021

- Contributed operators to data science library Queryverse for **data scientists** in **JuliaLang** community as a part of Undergrad Research Apprentice Program under the supervision of Prof. David Anthoff
- Added a plot gallery functionality to Julia's ElectronDisplay and Julia's official **VS Code Extension** as a developer in JuliaLang Community, which improves visualizations of multiple Julia plots within VS Code

Full Stack Engineering Intern (Profile Products team), Yelp Inc. — May 2019 – August 2019

- Developed Verified License for Professionals, which extends existing license verification service to professionals such as doctors and lawyers with **React, Node.js, NoSQL,** and **Python** (**Pyramid**)
- Enhanced purchase flow which improves **the license verification rate** and brings Yelp about **$2M** per year
- Improved corporate short URL service so that it **gives smart suggestions** when a nonexistent short URL is typed
- Received a return offer as Machine Learning Intern, but Yelp's intern program was cancelled due to COVID-19

Patents

A Neural Network Training Method, Apparatus, Electronic Device, Medium, and Program Product
Filed in May 2021 during internship at Baidu

- Patent Number: CN202110548446

A Copy/Scanning Device with Automatic Image Adjustments — Granted in December 2017

- Patent Number: CN201720565893

A System Used for Monitoring Indoor Air Quality — Granted in June 2016

- Patent Number: CN201620022057

Standardized Tests

GRE — 339/340 (Writing: 5/6)
TOEFL (taken in high school) — 111/120

On-campus Student Positions

Staff, Open Computing Facility at UC Berkeley (Linux System Admin) — September 2018 – Present

- Migrated the lounge, a web-based IRC client, to **Kubernetes**
- Built an environment for machine learning on **Singularity** with **GPU support** on High Performance Computers
- Enhanced Lab Map, a lab usage map on **Kubernetes** indicating available desktops in Computer Lab

Side Projects

ML-Related Projects

- Rainbow: An implementation of **Rainbow** algorithm with PARL reinforcement learning framework
- AnimeGAN.js: An implementation of AnimeGAN with **tf.js**, which **converts photos to anime style** online

Hardware-Related Projects

- A **RISC-V RV32I CPU** implementation with a 4-stage instruction pipeline on a Xilinx FPGA, with BIOS, UART, PWM, and GPIO support

Full-stack Projects

- Designed Phood, a **web app** for tourists that extracts food information from camera and gives health suggestions with Azure DevOps' **Continuous Integration** service that automatically deploys to **Kubernetes**; Invited by Docker team to present at Official **DockerCon 19** for the use of Docker and Kubernetes
- Founded Code Recipe, an interactive computer science textbook website for beginners with **Vue.js** and **Laravel**