Charles Tang

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EDUCATION

UC BERKELEY
M.S. EECS
Graduating May 2021

UC BERKELEY
B.A. Computer Science
Graduated Magna Cum Laude

COURSEWORK

Data Structures (A+ Top 1%)
Artificial Intelligence (A+ Top 5%)
Computer Vision
Computer Graphics
Natural Language Processing
Deep Reinforcement Learning
Machine Learning
Robotics
Operating Systems
Programming Languages
Probability and Random Processes
Numerical Analysis

ACTIVITIES

KAGGLE COMPETITIONS
10/2017 - 10/2018

- Placed in the top 7% among 900+ teams in the 2018 March Madness Prediction Challenge using logistic regression, cross-validation, and scikit-learn.

COMPETITIVE PROGRAMMING
07/2015 – 01/2018

- Codeforces Peak Rating: 1758
  Top 15% out of 10,000+ users
  Expert Category
- Competed in the Pacific NorthWest ACM-ICPC Regional Contest

PROJECTS

CAL HACKS GYM-ME APPLICATION | October 2019

- Built a prototype for an IOS social media app for gym members

POINTMASS RL EXPLORATION | December 2020

- Trained a robot to navigate a maze-like environment using DQN and Model-Based RL with RND exploration bonuses

EXPERIENCE

TESLA | Autopilot Simulation Software Engineer Intern
06/2020 - 08/2020 | Palo Alto

- Built an internal tool used in production that generates Unreal Game Engine simulation scenarios from Computer Vision outputs.
- Pipeline involved an optimization based point to spline algorithm, transformation between reference frames, and heuristics for statistical signal processing of noisy Computer Vision outputs.
- Wrote simulation scenarios for speed limit signs used in production

QUORA | Data Infrastructure Software Engineer Intern
05/2019 - 08/2019 | Mountain View

- Wrote a prediction algorithm using DFS and historical task times to estimate task end times for Airflow DAGs
- Prototyped internal tool using monkeytype to analyze the types of python objects in Quora's codebase

UC BERKELEY | Intro to AI Teaching Assistant
01/2019 - 01/2020 | UC Berkeley

- Hosted weekly discussions, lead office hours, and developed exam problems.
- Taught topics ranging from reinforcement learning, bayes nets, game trees, etc.

JOHNSON AND JOHNSON | Machine Learning Intern
06/2018 - 08/2018 | San Diego

- Employed the Felzenszwalb algorithm in OpenCV to segment skin disease images.
- Proposed segmentation regions were fed into a CNN (Tensorflow) which separated lesion and non-lesional regions with 90% cross validation accuracy.

RESEARCH

ROBOTICS | Hybrid Systems Research Lab
09/2019 - Present | Professor Claire Tomlin

- Implemented RL inspired warm starting ideas to efficiently compute backwards reachable sets with the beacls ROS C++ repository
- Investigating controller blending schemes between safety and spline planners in matlab for known and unknown environments

MACHINE LEARNING | Berkeley AI Research Lab
06/2018 - 12/2019 | Professor Jennifer Listgarten

- Compared different generative models (HMM, VAE, RNN) and their abilities to generate new dataset distributions similar to the original training set in PyTorch
- Analyzed linear and nonlinear loss function errors when one relaxes the simplex to the discrete space using the gumbel softmax trick

COMPUTATIONAL BIOLOGY | Center for Comp. Bio
02/2018 - 06/2018 | Professor Nir Yosef

- Built R wrapper package around the C++ LINE dimensionality reduction algorithm to process biological data using devtools, testthat, and Roxygen

AWARDS AND HONORS

2018 Upsilon Pi Epsilon (CS Honors Society)
2017 USA Computing Olympiad Platinum Division Qualifier
2015 USCF Expert Category Chess Player: Rating 2055
2014 California Parliamentary Debate State Champion