Charles Tang

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EDUCATION

UC BERKELEY
M.S. EECS 2021
GPA: 3.87/4.0

UC BERKELEY
B.A. CS 2020
Magna Cum Laude
GPA: 3.89/4.0

COURSEWORK

GRADUATE
Computer Vision
Computer Graphics
Natural Language Processing
Deep Reinforcement Learning
Robotics

UNDERGRADUATE
Data Structures (A+ Top 1%)
Artificial Intelligence (A+ Top 5%)
Machine Learning
Operating Systems
Programming Languages
Probability and Random Processes
Optimization
Numerical Analysis
Quantum Mechanics

SKILLS

PROGRAMMING
Over 3000 lines:
Java • Python • Matlab • C++ • C
Familiar:
Shell • Javascript • CSS • Go • LaTeX• Assembly • MySQL • iOS • Android

PROJECTS

GYM-ME APPLICATION
- Proto-typed an IOS social media app for gym members

POINTMASS RL EXPLORATION
- Trained a point-mass robot to navigate a continuous maze environment using PPO, DQN, Model-Based RL, and RND exploration bonuses

FLUID DYNAMICS SIMULATION
- Simulated real-time 2D fluid dynamics by solving the Navier-Stokes PDE
- Wrote runge-kutta integrator in WebGL and built project in Three.js

EXPERIENCE

APPLIED INTUITION | Incoming Software Engineer
08/2021 | Mountain View

TESLA | Autopilot Simulation Software Engineer Intern
06/2020 - 08/2020 | Palo Alto
- Led and shipped the clip to sim pipeline which uses Tesla Autopilot computer vision outputs to generate Unreal Game Engine test scenarios.
- Pipeline involved an optimization based point to spline algorithm, transformation between reference frames, and heuristics for statistical signal processing of 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
- Estimated Airflow DAG finish times with previous historical task finish times
- Prototyped internal tool using monkeytype to support python type hints for 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, alpha-beta pruning, 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 (Keras) which separated lesion and non-lesional regions with 90% cross validation accuracy.

RESEARCH

ROBOTICS | Hybrid Systems Research Lab
09/2019 - 05/2021 | Professor Claire Tomlin
- Implemented warm start and local queue updates to efficiently solve the Hamilton-Jacobi-Isaacs PDE and obtain the backwards reachable set.
- Sped up Matlab baselines by 6x with the BEACLS_ROS C++ repository
- Investigated controller blending schemes between backwards reachable sets and spline planners for autonomous robotic navigation in Matlab

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 protein sequences 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 using devtools, testthat, and Roxygen