Vincent Lim

vincentklim@berkeley.edu | (408) 890-9493 | vincentkslim | vincentkslim

EDUCATION

University of California, Berkeley — Berkeley, CA

Bachelor of Arts, Computer Science — GPA: 4.0/4.0 — *Class of 2023*

- Selected Coursework: CS 285: Deep Reinforcement Learning (self-study), CS 70: Discrete Math, Probability Theory (A+), CS 61B: Data Structures (A+), CS 61C: Computer Architecture, Machine Structures (A+), EECS 16A&B: Linear Algebra, Differential Equations, Circuits, Machine Learning (A+) | In Progress: CS 162: Operating Systems, EECS 127: Convex Optimization, CS 170: Algorithms & Intractable Problems
- Organizations: BAIR (Berkeley AI Research), AUTOLab (Automation Lab), Cal Cycling, Cal Triathalon

SKILLS

Experienced: Python, Java, C, PyTorch, NVIDIA Isaac Gym, PyBullet, Pandas, Flask, Git, Linux, Matplotlib, OpenCV
Familiar: Javascript, HTML/CSS, R, C++, RISC-V, SQL, Scheme, Solidworks, Creo Parametric, Docker
Interests: Systems, Deep Learning, Reinforcement Learning, Additive Manufacturing, Robotics

WORK EXPERIENCE

Software Engineering Intern — Atlanta, GA

Material in Motion — July 2019 – August 2019

- Developed an internal system to control digital signs used by managers to display critical information and data to employees
- Designed a simple interface for controlling a large network of IOT devices using Flask and Python multiprocessing
- Implemented automatic data retrieval and visualization from internal sources using Requests and matplotlib

RESEARCH

Berkeley AI Research | Undergraduate Researcher. Advised by Ken Goldberg — Jan 2021 – Present

- Led development of an artificial intelligence algorithm for training robots to perceive and manipulate deformable objects
- Built a novel robotic simulation environment using Isaac Gym and PyBullet used by robotics researchers
- Designed a new algorithm for Bayesian optimal experimental design using deep RL and log-density ratio estimation
- Implemented with a consistent API to facilitate ease-of-use with existing and future task environments

PUBLICATIONS

* denotes equal contribution

[1] **"Planar Robot Casting with Real2Sim2Real Self-Supervised Learning."**
Vincent Lim*, Huang Huang*, Yunliang Chen, Jonathan Wang, Jeffrey Ichnowski, Daniel Seita, Michael Laskey, Ken Goldberg. *Preprint.* September 2021 (under review).
We develop a self-supervised learning framework that autonomously collects physical data, tunes a dynamic simulation environment via Differential Evolution, then learns a policy using a combination of real and simulated data with Deep Learning. Applied to a dynamic deformable object manipulation task, we consistently outperform baselines by over 50%.

PROJECTS

Orienting Polygonal Parts without Sensors | Available at `rieff.bair.berkeley.edu/part-feeder`

- Built a full-stack website to demonstrate a computational geometry algorithm that orients arbitrary 2D rigid polygonal parts and accepts arbitrary user-drawn polygons via a drawing canvas
- Implemented logging via database accesses to a SQLite database for persistent storage of user created polygons
- Generated custom animations tailored to user input using plotly.js and planck.js with compatibility for all major browsers
- Optimized for deployment on a low power web server using Docker and webpack

PintOS | C

- Designed and implemented aspects of an instructional operating system in a team of four.
- Implemented system calls, a filesystem, priority scheduler with priority donation, and a user multithreading library.

NumC | C, Python

- Implemented a simple accelerated linear algebra library in C with a Python interface.
- Optimized matrix operations by maximizing cache hits, using SIMD instructions, loop unrolling, and multithreading.

TEACHING

University of California, Berkeley

Reader, Discrete Mathematics and Probability (CS70) — August 2021 – Present

Creating rubrics, grading, and holding office hours for an introductory course on discrete mathematics and probability theory.

ACHIEVEMENTS AND AWARDS

USA Computing Olympiad Platinum Division, Harker Programming Invitational 2019 1st Place, <hack> Cupertino 2019 1st Place, National Merit Semifinalist, MTTD 2019 PG&E Excellence in Engineering Award, Jean M. Greene Scholarship