

OLIVIA Y. LEE

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EDUCATION

Stanford University

B.S. with Honors in Symbolic Systems (Learning), Mathematics Minor. GPA: 4.12/4.0.

M.S. in Computer Science (Artificial Intelligence). GPA: 4.0/4.0

Undergraduate Major Advisor: Prof. Nick Haber. M.S. Research Advisor: Prof. Chelsea Finn

Palo Alto, CA

Sep 2020 – Jun 2024

Jan 2023 – Mar 2025

Raffles Institution (Junior College)

Singapore-Cambridge General Certificate of Education A-Level

90/90 Rank Points, 8 Distinctions (Physics, Chemistry, Math, Economics, Higher Math)

Singapore

Jan 2018 – Dec 2019

PUBLICATIONS

Olivia Y. Lee, Annie Xie, Karl Pertsch, Kuan Fang, Chelsea Finn. “Affordance-Guided Reinforcement Learning via Visual Prompting”. *Robotics: Science and Systems 2024, Task Specification & Lifelong Robot Learning Workshops*. arXiv:2407.10341.

Maximilian Du*, **Olivia Y. Lee***, Suraj Nair, Chelsea Finn. “Play It by Ear: Learning Skills amidst Occlusion through Audio-Visual Imitation Learning”. *Robotics: Science and Systems 2022*. arXiv:2205.14850.

Olivia Y. Lee, Tom Vergoossen. “An updated analysis of satellite quantum-key distribution missions”. arXiv:1909.13061.

RESEARCH

Cross-Embodiment Learning for Dexterous, Multi-Fingered Hands

July 2024 – Present

Affiliated with Stanford Artificial Intelligence Lab (IPRL Lab). Advised by Tyler Lum, Prof. Jeannette Bohg

- Developing curriculum learning-inspired approach to bridge the cross-embodiment gap between human and robotic hands.

Household Robotic Manipulation Planning with Large Language Models

June 2024 – Present

Affiliated with Stanford Artificial Intelligence Lab (IPRL Lab). Advised by Yixuan Huang, Chris Agia, Prof. Jeannette Bohg

- Integrating closed-loop policies into LLM-guided bilevel planning frameworks to enable robots to complete complex long-horizon manipulation tasks.

Extracting Affordances from Human Videos for Autonomous Robotic Exploration

May 2023 – Jun 2024

Affiliated with Stanford Artificial Intelligence Lab (IRIS Lab). Advised by Annie Xie, Karl Pertsch, Kuan Fang, Chelsea Finn [Paper](#)

- Implemented approach leveraging vision-language models (VLMs) to define dense rewards for online reinforcement learning.
- Developed pipeline for extracting affordance representations from VLMs to generate dense waypoint trajectories in image space.
- Pretrained policies on Bridge data, finetuned on modest number of demonstrations for implementation on a WidowX robot.

Play it by Ear: Learning Skills amidst Occlusion through Audio-Visual Imitation Learning

Mar 2021 – Jun 2022

Affiliated with Stanford Artificial Intelligence Lab (IRIS Lab). Advised by Suraj Nair, Chelsea Finn

[Site](#), [Paper](#)

- Implemented multimodal imitation learning over vision, audio, and memory, to facilitate success on partially observed tasks.
- Developed behavior cloning algorithms with MuJoCo, Robosuite, and PyTorch for implementation on Franka-Emika Panda robot.
- Established pipeline to train policies offline with expert demonstrations and finetune online with human interventions.

TECHNICAL PROJECTS & SKILLS

Today Years Old: Adapting Language Models to Word Shifts

Jan 2023 – Mar 2023

CS 224N: Natural Language Processing with Deep Learning Final Project

[Github Repo](#)

- Finetuned GPT-2 and RoBERTa to predict word embeddings for novel lexical items given their definitions, trained via supervised learning on word embeddings of common words, using embeddings from pretrained models as ground-truth embeddings.
- Incorporated predicted word embeddings into pretrained language model, evaluated on masked language modeling tasks.

A Shot in the Dark: Transfer Learning with Self-Supervision for Sentiment Classification

Mar 2022 – Jun 2022

CS 229: Machine Learning Final Project

- Modeled improved zero-shot and few-shot transfer learning with self-supervised models for sentiment classification.
- Engaged in comparative testing of direct tuning, zero-shot, and few-shot capabilities of logistic regression models with validation, long-short-term memory (LSTM) networks with frozen and trainable word2vec embeddings, and DistilBERT.

Model Predictive Curiosity

Mar 2022 – Jun 2022

PSYCH 240A: Curiosity in Artificial Intelligence Final Project. Advised by Prof. Nick Haber

[Poster](#)

- Proposed Model Predictive Curiosity (MPCu), backpropagates on predicted curiosity value to select curiosity-maximizing actions.
- Tested MPCu's capability to optimize for high-curiosity action values and enrich multi-object interactions in Box2D environment.

Updated Jul 2024

Languages and Libraries: Python (PyTorch, OpenCV, NumPy, Open3D, MuJoCo), C++, C, HTML/CSS, JavaScript, React
Tools: MuJoCo, Robosuite, Robot Operating System, Oculus Quest VR Headset, Git, Unix, LaTeX, Terminal
Research Areas: Machine Learning, Reinforcement Learning, Robotics, Computer Vision, Behavior Cloning, Natural Language Processing

HONORS & AWARDS

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- Stanford Symbolic Systems Honors Program** **Sep 2023 – Jun 2024**
- Graduated with Honors and Distinction. Honors thesis titled “Leveraging Affordance Representations for Robot Learning”.
- Phi Beta Kappa Honors Society, California Beta Chapter** **May 2024**
- Nationwide honor society awarding students for excellence and breadth of undergraduate scholarly accomplishments.
 - Awarded to the top 10% of undergraduates of Stanford’s 2024 graduating class. [About PBK](#)
- Tau Beta Pi Scholarship 2023-24** **Jul 2023**
- Awards ~200 members across all chapters nationwide with funds to support their studies and research, based on academic achievement, extracurriculars, and promise of substantial contributions to engineering. [About TBP Scholarship](#)
- Tau Beta Pi Engineering Honors Society, California Gamma Chapter** **Jun 2023**
- Nationwide engineering honors society. Elected junior year, top 12.5% of juniors in the School of Engineering. [About TBP](#)
- Symbolic Systems Research Fellow 2023** **Jun 2023**
- Guaranteed funding for Stanford Computer Science Department’s undergraduate summer research program.
 - Selected as 1 of ~20 Symbolic Systems Summer Research Internship Program fellows in 2023. [About SymSys Interns](#)
- Stanford Engineering Research Scholars 2022** **Feb 2022**
- Awarded to underrepresented students interested in engineering research to empower graduate engineering departments.
 - Selected as 1 of 16 students from colleges across the US to participate in Stanford’s Engineering Research program.
- CURIS Fellowship 2021** **Jun 2021**
- Guaranteed funding for Stanford Computer Science Department’s undergraduate summer research program.
 - Selected as 1 of 17 undergraduate CURIS Fellows for the Summer 2021 CURIS Program. [About CURIS Fellows](#)
- GCE A-Level Examination Excellence Award** **Aug 2020**
- Awarded to students who achieved the highest possible grades in all subjects offered in the GCE A-Level Examinations.
 - 1 of 70 students who achieved 8 distinctions, out of high school’s graduating cohort of ~1300 students.

WORK EXPERIENCE

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- Stanford Artificial Intelligence Laboratory – IPRL Lab | Graduate Researcher** **Jun 2024 – Present**
- Conducting research in robotics and computer vision, studying autonomous robot manipulation and sensorimotor control.
 - Working on projects supervised by Yixuan Huang, Chris Agia, Tyler Lum, and Prof. Jeannette Bohg.
- Stanford School of Engineering, Computer Science Department | Course Assistant (CA)** **Sep 2023 – Present**
- (Summer 2024) Graduate CA for CS 229: Machine Learning, taught by Prof. Jehangir Amjad.
 - (Spring 2024) Graduate CA for CS 224N: Natural Language Processing, taught by Prof. Christopher Manning.
 - (Winter 2024) Graduate CA for CS 224N: Natural Language Processing, taught by Prof. Tatsunori Hashimoto and Prof. Diyi Yang.
 - (Fall 2023) Graduate CA for CS 157: Computational Logic, taught by Prof. Mike Genesereth.
 - Graded assignments and projects, held office hours to clarify queries, taught quiz review sessions, set and revised quiz questions.
- Stanford Artificial Intelligence Laboratory – IRIS Lab | Undergraduate Researcher** **Mar 2021 – Jun 2024**
- Conducted research in reinforcement learning and robotics studying intelligence through robotic interaction at scale.
 - Worked on projects supervised by Suraj Nair, Annie Xie, Karl Pertsch, and Prof. Chelsea Finn.
- Inspirit AI | Instructor & Research Mentor** **Jun 2023 – Dec 2023**
- Taught high school students about AI fundamentals: introduction to machine learning and deep learning, linear and logistic regression, natural language processing, computer vision, and neural networks.
 - Mentored advanced high school students in independent AI research projects spanning various fields, e.g., NLP for sentiment analysis of financial news, computer vision and object detection models applied to autonomous driving.
- Salesforce | Full-Stack Software Engineer** **May 2022 – Aug 2022**
- Contributed to Flow Builder, a low-code tool for building, managing, and running automated end-to-end enterprise workflows.
 - Enhanced user customization tools in Flow Builder using React, Typescript, and HTML/CSS by shipping production-ready code.
 - Collaborated with engineers, product managers, and UI/UX team to iterate on features for September 2022 product release.

COURSEWORK

Computer Science

- CS 168: Modern Algorithmic Techniques (Spring 2024)
- CS 330: Deep Multi-task and Meta-Learning (Fall 2023, A)
- CS 326: Topics in Advanced Robotic Manipulation (Fall 2023, A)
- CS 384: Seminar on Ethical and Social Issues in Natural Language Processing (Spring 2023, A)
- CS 231N: Deep Learning for Computer Vision (Spring 2023, A)
- CS 422: Interactive and Embodied Learning (Winter 2023, A)
- CS 224N: Natural Language Processing with Deep Learning (Winter 2023, A)
- OSPOXFRD 196Q: Graph Representation Learning (Fall 2022, A) (Stanford in Oxford Study Abroad Program)
- CS 157: Computational Logic (Fall 2022, A+)
- CS 229: Machine Learning (Spring 2022, A)
- CS 205L: Continuous Mathematical Methods for Machine Learning (Winter 2022, A+)
- CS 161: Design and Analysis of Algorithms (Winter 2022, A)
- CS 221: Artificial Intelligence: Principles and Techniques (Fall 2021, A)
- CS 110: Principles of Computer Systems (Summer 2021, A+)
- CS 109: Probability for Computer Scientists (Spring 2021, A)
- CS 103: Mathematical Foundations for Computing (Spring 2021, A)
- CS 107: Computer Organization and Systems (Winter 2021, A)
- CS 106B: Programming Abstractions in C++ (Fall 2020, A)
- CS 56N: Great Discoveries and Inventions in Computing (Fall 2020, A+)

Mathematics

- STATS 200: Introduction to Statistical Inference (Winter 2024, Audit)
- MATH 151: Introduction to Probability Theory (Winter 2024, Audit)
- MATH 101: Math Discovery Lab (Probability Theory, Markov Processes) (Winter 2024, A)
- PHIL 152: Computability and Logic (Spring 2023, A+)
- MATH 87Q: Mathematics of Knots, Braids, Links, and Tangles (Spring 2022, A)
- PHIL 151: Metalogic (Winter 2022, A)
- PHIL 150: Mathematical Logic (Fall 2021, A+)
- MATH 52: Integral Calculus of Several Variables (Spring 2021, A+)
- MATH 104: Applied Matrix Theory (Winter 2021, A)
- MATH 51: Linear Algebra, Multivariable Calculus, and Modern Applications (Fall 2020, A)

Philosophy

- PHIL 194K: Capstone Seminar: The Metaphysics of Consciousness (Spring 2024)
- PHIL 186: Philosophy of Mind (Spring 2023, A+)
- SYMSYS 202: Theories of Consciousness (Winter 2023, A+)
- OSPOXFRD 199A: Philosophy of Mind (Fall 2022, A) (Stanford in Oxford Study Abroad Program)
- SYMSYS 205: The Philosophy and Science of Perception (Spring 2022, A)
- SYMSYS 207: Conceptual Issues in Cognitive Neuroscience (Fall 2021, A)
- PHIL 80: Mind, Matter, and Meaning (Spring 2021)
- PHIL 20N: Philosophy of Artificial Intelligence (Winter 2021, A+)
- SYMSYS 1: Minds and Machines (Winter 2021, A+)
- ESF 7: The Transformation of the Self (Fall 2020, A)

Psychology & Linguistics

- PSYCH 140: Introduction to Psycholinguistics (Winter 2023, A)
- PSYCH 240A: Curiosity in Artificial Intelligence (Spring 2022, A)
- LINGUIST 130A: Introduction to Semantics and Pragmatics (Winter 2022, A+)
- PSYCH 1: Introduction to Psychology (Winter 2022, A+)
- LINGUIST 150: Language and Society (Winter 2021, A)

Other

- PHYSICS 83N: Physics in the 21st Century (Winter 2023, A+)
- OSPOXFRD 29: Artificial Intelligence and Society (Fall 2022, A+) (Stanford in Oxford Study Abroad Program)
- HISTORY 44Q: Gendered Innovations in Science, Medicine, Engineering, and Environment (Fall 2021, A)
- CS 21SI: AI for Social Good (Spring 2021, Satisfactory)
- DESINST 210: Human Interaction in the Digital vs. Analog World (Fall 2020, Satisfactory)