

Interests

I am a PhD candidate in the Stanford Vision and Learning Lab, jointly advised by Silvio Savarese and Fei-Fei Li. I work on developing systems and algorithms to allow robots to leverage human insight for manipulation tasks.

Selected Publications

- *Human-in-the-Loop Imitation Learning using Remote Teleoperation*
Ajay Mandlekar, Danfei Xu*, Roberto Martin-Martin*, Yuke Zhu, Li Fei-Fei, Silvio Savarese
Under Review
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *Generalization through Hand-Eye Coordination: An Action Space for Learning Spatially-Invariant Visuomotor Control*
Chen Wang*, Rui Wang*, **Ajay Mandlekar**, Li Fei-Fei, Silvio Savarese, Danfei Xu
Under Review
[\[paper\]](#) [\[website\]](#)
- *Learning Multi-Arm Manipulation through Collaborative Teleoperation*
Albert Tung*, Josiah Wong*, **Ajay Mandlekar**, Roberto Martin-Martin, Yuke Zhu, Li Fei-Fei, Silvio Savarese
ICRA 2021
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *Deep Affordance Foresight: Planning Through What Can Be Done in the Future*
Danfei Xu, **Ajay Mandlekar**, Roberto Martin-Martin, Yuke Zhu, Silvio Savarese, Li Fei-Fei
ICRA 2021
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *robosuïte: A Modular Simulation Framework and Benchmark for Robot Learning*
Yuke Zhu, Josiah Wong, **Ajay Mandlekar**, Roberto Martin-Martin
Technical Report
[\[paper\]](#) [\[website\]](#) [\[code\]](#)
- *Learning to Generalize Across Long-Horizon Tasks from Human Demonstrations*
Ajay Mandlekar*, Danfei Xu*, Roberto Martin-Martin, Silvio Savarese, Li Fei-Fei
RSS 2020
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *IRIS: Implicit Reinforcement without Interaction at Scale for Learning Control from Offline Robot Manipulation Data*
Ajay Mandlekar, Fabio Ramos, Byron Boots, Silvio Savarese, Li Fei-Fei, Animesh Garg, Dieter Fox
ICRA 2020
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *Scaling Robot Supervision to Hundreds of Hours with RoboTurk: Robotic Manipulation Dataset through Human Reasoning and Dexterity*

Ajay Mandlekar, Jonathan Booher, Max Spero, Albert Tung, Anchit Gupta, Yuke Zhu, Animesh Garg, Silvio Savarese, Li Fei-Fei

IROS 2019 (Best Cognitive Robotics Paper Finalist)

[[paper](#)] [[website](#)] [[blog post](#)]

- *RoboTurk: A Crowdsourcing Platform for Robotic Skill Learning through Imitation*

Ajay Mandlekar, Yuke Zhu, Animesh Garg, Jonathan Booher, Max Spero, Albert Tung, Julian Gao, John Emmons, Anchit Gupta, Emre Orbay, Silvio Savarese, Li Fei-Fei

CoRL 2018

[[paper](#)] [[website](#)] [[talk](#)]

Education

Stanford University

NDSEG Fellow

PhD student, Electrical Engineering

M.S. Computer Science, Class of 2018

GPA: 4.1

California Institute of Technology

B.S. Electrical Engineering, B.S. Computer Science

Class of 2016

Officer of Tau Beta Pi Engineering Honor Society

GPA: 4.1

Programming Languages: Python, C, Matlab, R, OCaml, Haskell, Swift, IA32, x86, VHDL

Work Experience

NVIDIA Seattle Robotics Lab

Summer 2019

Research Intern

- Developed IRIS algorithm for learning from offline crowdsourced robot manipulation data. Supervised by Dieter Fox.

Stanford Vision and Learning Lab

Winter 2017 - Present

Stanford EE PhD

- Advised by Silvio Savarese and Fei-Fei Li

Apple

Summer 2015

Software Engineering Intern on iOS Location and Motion

- Implemented some deep learning methods and presented to Craig Federighi, the SVP of Software.

Caltech High-Speed Integrated Circuits

Summer 2014

Research Intern, Robert J. McEliece and David Rutledge SURF Fellow

- Spent a summer in Professor Ali Hajimiri's lab. Implemented a wireless feedback mechanism using a Raspberry Pi, Android tablet, Arduino Nano.
- Designed both hardware (PCB Design, digital and analog circuit development) and software (control, sensing, and optimization) interfaces and implemented wireless and serial communication protocols.

SLAC National Accelerator Laboratory

Summer 2013

Research Intern

- Studied accelerator physics relating to the operation of the Free Electron Laser and the production of extremely high-power x-rays used by biologists.

- Investigated the theory of harmonic lasing in order to try to make the shift towards shorter wavelength, higher energy radiation.

Teaching

- CS 332 - Advanced Survey of Reinforcement Learning (Teaching Assistant - Stanford)
- CS 231N - Convolutional Neural Networks for Visual Recognition (Teaching Assistant - Stanford)
- ACM 95ab - Complex Analysis, Differential Equations (Teaching Assistant - Caltech)
- CS 24 - Introduction to Computing Systems (Teaching Assistant - Caltech)

Selected Coursework

- CS 124 - Operating Systems
 - Built a command shell, bootloader, priority scheduler, MLFQ scheduler on top of Pintos.
- CS 155/156 - Machine Learning and Data Mining
 - Netflix Challenge - placed 3rd in class using a blend of Time-SVD++, RBM, and kNN models.
- EE 52/90/91 - Embedded Systems Hardware, Analog Electronics Projects
 - PCB Design, built an MP3 player, a “smart” dog bowl and a function generator.
- EE 111/112 - Digital Signal Processing
 - DSP Systems, Difference Equations, Z-Transform, Multirate Systems, Filter Banks, Filter Design.
- EE 113/114 - Feedback and Control Circuits, Analog Circuit Design
 - Basic feedback circuits, compensation, PID, digital control, amplifier design, SPICE simulation.
- EE 189 - Design and Construction of Biodevices
 - Built a pulse oximeter and a PCR machine.
- EE 364ab - Convex Optimization