

## Overview

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

### Selected Publications (see website for full list)

- *What Matters in Learning from Offline Human Demonstrations for Robot Manipulation*  
**Ajay Mandlekar**, Danfei Xu, Josiah Wong, Soroush Nasiriany, Chen Wang, Rohun Kulkarni, Li Fei-Fei, Silvio Savarese, Yuke Zhu, Roberto Martin-Martin  
**CoRL 2021**  
**Oral (6.5% Acceptance)**  
[\[paper\]](#) [\[website\]](#) [\[video\]](#) [\[blog post\]](#) [\[code\]](#)
- *Error-Aware Imitation Learning from Teleoperation Data for Mobile Manipulation*  
Josiah Wong, Albert Tung, Andrey Kurenkov, **Ajay Mandlekar**, Li Fei-Fei, Silvio Savarese, Roberton Martin-Martin  
**CoRL 2021**  
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *Human-in-the-Loop Imitation Learning using Remote Teleoperation*  
**Ajay Mandlekar**, Danfei Xu\*, Roberto Martin-Martin\*, Yuke Zhu, Li Fei-Fei, Silvio Savarese  
**Preprint**  
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *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  
**IROS 2021**  
[\[paper\]](#) [\[website\]](#)
- *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**  
**Best Multi-Robotic Systems Paper Finalist**  
[\[paper\]](#) [\[website\]](#) [\[video\]](#)
- *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**  
[\[paper\]](#) [\[website\]](#) [\[blog post\]](#) [\[video\]](#)
- *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**  
[\[paper\]](#) [\[website\]](#) [\[video\]](#)

## 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