

# Maximilian Du

maxjdu@stanford.edu / [maximiliandu.com](http://maximiliandu.com) / [github.com/MaxDu17](https://github.com/MaxDu17)

## EDUCATION

---

### Stanford University

Sept 2020–Present

BS, Computer Science + Creative Writing Minor. GPA: 4.103

- **Relevant coursework:** Meta-Learning, Computer Vision, Probabilistic Graphical Models, Deep Reinforcement Learning, Real Analysis, Probability Theory, Linear Algebra, Linear Dynamics Systems, Algorithms, Computer Systems

## PUBLICATIONS

---

- Maximilian Du et al. “Play It by Ear: Learning Skills amidst Occlusion through Audio-Visual Imitation Learning”. In: *Robotics: Science and Systems XVIII*. Robotics: Science and Systems 2022. June 27, 2022. URL: <https://arxiv.org/abs/2205.14850>
- Maximilian Du. “Improving LSTM Neural Networks for Better Short-Term Wind Power Predictions”. In: *2019 IEEE 2nd International Conference on Renewable Energy and Power Engineering (REPE)*. 2019, pp. 105–109

## TECHNICAL SKILLS

---

**Languages and Libraries:** Python, PyTorch, Tensorflow, Numpy, Matplotlib, Pandas, Tkinter, C++, C, HTML

**Codebase/API Familiarity:** Robosuite, Robomimic, DrQ, Oculus Quest, SLURM

**Areas:** Behavior Cloning, Model-Free RL, Computer Vision, Probabilistic Graphical Models, Variational Inference

**Tools:** Franka-Emika Panda Robot, Git, Unix,  $\LaTeX$ , Terminal, Zotero, Adobe Creative Cloud, Autodesk Inventor, THT/SMD Hand Soldering, Oscilloscope, Spectrum Analyzer, Arduino

**Other Skills:** Narrative Interviews (20+ hours), Educational Presentations, Creative Non-Fiction, Fiction, Poetry

## SELECTED RESEARCH PROJECTS

---

### Rewatching the Lecture: Reweighing Demonstrations through Expert Interventions

Jan 2022—Present

*Advised by Suraj Nair, Chelsea Finn & Dorsa Sadigh.*

- Demonstrated that we can use state-action embeddings to select relevant demonstrations from a mixed-quality (and potentially adversarial) dataset

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

Jan 2021—Jan 2022

*Advised by Suraj Nair, Chelsea Finn.*

- Demonstrated that audio data can augment visual and proprioceptive data to improve success rates in certain tasks, like extracting keys from a bag
- Used MuJoCo, Robosuite, and PyTorch to run reinforcement learning & behavior cloning algorithms in simulation and on a Franka-Emika Panda robot
- Developed a data pipeline for Oculus Quest demo collections that was later adopted by other researchers.

### Improving LSTM Neural Networks for Better Short-Term Wind Power Predictions

Jun 2018—Nov 2019

*Advised by Joshua Comden, Zhenhua Liu.*

- Demonstrated that a modified LSTM can be used to accurately predict short-term wind power outputs
- Collected, processed, and combined large (3TB) databases of wind power and weather forecast data

## SELECTED EXPERIENCES

---

### CS 106A/B Section Leader (TA)

Jan 2021—Present

Stanford Computer Science Department

- Led weekly instructive “sections” for the popular CS106A/B Stanford course series. Answered conceptual questions and guided students through coding problems. Also helped grade assignments and exams.

### Stanford Splash Lecturer

Nov 2021—Present

Stanford Splash

- Gave lectures to high school students on the connections between animal training and reinforcement learning.

### Producer & Writer

Jun 2022—Present

Stanford Storytelling Project

- Doing fieldwork and archival research for a creative nonfiction book and audio story on whale trainers, advised by Stanford DCI fellow Melissa Dyrdaahl and Prof. Jonah Willihnganz. Collecting tens of hours of interviews and 3500+ archival documents.