Shreya Shankar

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Education

Aug 2021–present — **University of California, Berkeley**, Berkeley, CA.
Ph.D. in Electrical Engineering and Computer Sciences
Advised by Aditya Parameswaran

Sep 2015–Dec 2020 — **Stanford University**, Stanford, CA.
M.S. in Computer Science (Artificial Intelligence track)
B.S. in Computer Science (Systems track)
Advised by Pat Hanrahan

Experience

Industry

March 2021–Aug 2021 — **Entrepreneur in Residence**, *Amplify Partners*, Menlo Park, CA.
Building open-source tooling for machine learning software development (MLOps). Press release here.

June 2019–Jan 2021 — **Machine Learning Engineer**, *Viaduct*, Palo Alto, CA.
Built systems and machine learning methods for large-scale time series data as the first ML engineer.
Worked with Airflow, Spark, SQL, Python, TensorFlow 2.0, XGBoost, Spark MLlib, and more.

Sep 2017–April 2019 — **Research Intern**, *Google Brain*, Mountain View, CA.
Researched machine learning security and adversarial examples in collaboration with Stanford AI Lab.
Worked with TensorFlow 1.0, Python, and Borg.
Advised by Alex Kurakin and Ian Goodfellow.

June 2017–Sep 2017 — **Software Engineering Intern**, *Facebook*, New York, NY.
Worked on Facebook's civic engagement team to connect users to their government representatives.
Worked with Hack (PHP), ReactJS, SQL, and Python.

Teaching

April 2020-June 2020 — **Teaching Assistant**, *Stanford University*, Stanford, CA.
Served as a TA part-time for a remote version of CS110 (Principles of Computer Systems). Taught weekly sections and held weekly office hours via Zoom.

June 2018–Dec 2018 — **Head Teaching Assistant**, *Stanford University*, Stanford, CA.
Served as head TA for CS106B (Programming Abstractions) and CS101 (Introduction to Computing Principles). Held weekly office hours. Helped write exams and homework grading criteria. Coordinated a staff of undergraduate section leaders.

Jan 2016–April 2018 — **Undergraduate Section Leader**, *Stanford University*, Stanford, CA.
Taught weekly sections for CS106A (Programming Methodologies) and CS106B (Programming Abstractions). Held weekly office hours. Graded assignments and exams.

Honors and Awards

- 2021 UC Berkeley EECS Excellence Award
- 2020 Interact Fellowship
- 2015-2019 Rella Lou Danenberg Aldrich Scholarship
- 2017 MIT Solve Challenge Finalist
- 2016 Anita Borg Grace Hopper Scholarship
- 2016 Palantir Women in Technology Scholarship

Recent/Upcoming Talks

(Upcoming) November 2021 **Toronto Machine Learning Virtual Summit**, *Toronto ML Society*, Toronto, Canada.
Giving a talk on observability for ML systems and tutorial on building a ML pipeline with testing and monitoring.

(Upcoming) November 2021 **RISECamp**, *UC Berkeley*, Berkeley, CA.
Giving a talk on observability for ML systems and tutorial on building a ML pipeline with testing and monitoring.

(Upcoming) October 2021 **Data Observability Summit**, *Facebook*, Menlo Park, CA.
Giving a talk on observability for ML systems.

June 2021 **D&I Round Table**, *ACM SIGMOD/PODS Conference*.
Participated in a panel on imposter syndrome.

June 2021 **MLOps World Conference**, *MLOps World*, Toronto, Canada.
Gave a talk on debugging ML in production and demo-ed my open-source tracing tool.

May 2021 **Data + AI Summit**, *Databricks*.
Gave a talk on debugging ML in production and demo-ed my open-source tracing tool.

March 2021 **MLOps Salon**, *Verta.AI*.
Gave a talk on debugging ML in production and participated in a follow-up panel.

March 2021 **Practical AI Show**, *Clubhouse App*.
Featured as a guest to discuss my recent retrospective on predictive modeling.

February 2021 **MLSys Seminar**, *Stanford University*, Stanford, CA.
Gave a talk on debugging ML in production. Code and slides on my Github.

February 2021 **DSC102**, *University of California, San Diego*, San Diego, CA.
Gave a talk on debugging ML in production. Code and slides on my Github.

February 2021 **Time Horizons Podcast**.
Machine learning in industry.

February 2021 **NLP Zurich Meetup**, Zurich, Switzerland.
Gave a talk on debugging ML in production. Code and slides on my Github.

January 2021 **OSCON**, O'Reilly.
Participated as a panelist to discuss open source and machine learning.

January 2021 **CS329S**, Stanford University, Stanford, CA.
Gave a tutorial on PyTorch and distributed training.

October 2020 **Machine Learning Podcast**.
A day in the life on an Applied ML Researcher.

October 2020 **Data Engineered Podcast**.
Lessons learned after a year of putting ML into production.

October 2020 **Datacast Podcast**.
Computer Systems, Machine Learning Security Research, and Women in Tech.

Software

mltrace This project enables coarse-grained lineage and tracing in complex data pipelines. *200+ stars.*

Toy ML Pipeline This is a toy example of a standalone ML pipeline written entirely in Python. No external tools are incorporated into the master branch. I built it mainly to experiment with my ideas for ML tooling. *100+ stars.*

Create ML App This project makes it easier to spin up a machine learning project locally in Python and handle various package dependencies using a Makefile. It abstracts away pip installs and virtual environment commands from the user. *500+ stars.*

GPT3 Sandbox This project enables users to create cool web demos using OpenAI's GPT-3 API with just a few lines of Python. Co-authored with Bora Uyumazturk. *2.3k+ stars.*

Service

- Founder of A4 Machine Learning, an organization that teaches machine learning to high school students.
- Former co-director of SHE++, a 501(c)(3) nonprofit that improves diversity in tech.
- Former financial officer of Stanford WiCS (Women in Computer Science).

Advising

Current

- Aditi Mahajan (Undergrad, UC Berkeley)
- Boyuan Deng (Undergrad, UC Berkeley)

Past

- Peter Maldonado (Undergrad, Stanford)

Reviewing

- ICLR 2022
- NeurIPS 2021
- ICML 2019 Workshop in Adversarial Machine Learning in Real-World Computer Vision Systems
- ICML 2019 Workshop in Security and Privacy of Machine Learning
- NeurIPS 2018 Workshop on Security in Machine Learning

Preprints and Publications

[1] Sumanth Dathathri, Krishnamurthy Dvijotham, Alexey Kurakin, Aditi Raghunathan, Jonathan Uesato, Rudy R Bunel, Shreya Shankar, Jacob Steinhardt, Ian Goodfellow, Percy S Liang, and Pushmeet Kohli. Enabling certification of verification-agnostic networks via memory-efficient semidefinite programming. In H. Larochelle, M. Ranzato, R. Hadsell, M. F. Balcan, and H. Lin, editors, *Advances in Neural Information Processing Systems*, volume 33, pages 5318–5331. Curran Associates, Inc., 2020.

[2] Gamaleldin F. Elsayed, Shreya Shankar, Brian Cheung, Nicolas Papernot, Alexey Kurakin,

Ian Goodfellow, and Jascha Sohl-Dickstein. Adversarial examples that fool both computer vision and time-limited humans. In *Proceedings of the 32nd International Conference on Neural Information Processing Systems*, NeurIPS'18, page 3914–3924. Curran Associates, Inc., 2018.

[3] Gamaleldin F. Elsayed, Shreya Shankar, Brian Cheung, Nicolas Papernot, Alexey Kurakin, Ian Goodfellow, and Jascha Sohl-Dickstein. Adversarial examples influence human visual perception. *Journal of Vision*, 19(10):190c–190c, Sep 2019.

[4] Shreya Shankar, Yoni Halpern, Eric Breck, James Atwood, Jimbo Wilson, and D. Sculley. No classification without representation: Assessing geodiversity issues in open data sets for the developing world. In *NIPS 2017 workshop: Machine Learning for the Developing World*, 2017.

[5] Shreya Shankar and Aditya Parameswaran. Towards observability for machine learning pipelines, 2021.

Interests

Triathlons Competed for Stanford's Triathlon team. Completed 2021 Ironman 70.3 Santa Cruz. Currently training for 2022 Ironman 140.6 Texas.

Hobbyist musician Took classical piano and violin lessons from 2003-2015. Gave a senior recital in 2015. Now mainly playing pop songs and random Chopin works.

Writing Member of a weekly writer's group in San Francisco. Technical writing available at personal website.

Intentional communities Member of Phoenix House and Haight Street Commons, a network of co-ops in the Bay Area.