

Matthew Shu

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Education

Yale University: Statistics & Data Science (Joint Bachelor's and Master's), Education Studies (Minor) 2021 - May 2025

Courses: Measuring Culture, Trustworthy Deep Learning, Digital Platforms, Algorithms & Society, AI Foundation Models

Thesis: Reframing History: What Happens When We Trust AI to Learn About the Past

Awards: Angels Wings Scholar (\$10,000), Hadden Scholar (\$16,000), Linck Fellowship (\$2500), Cohere Research Grant (\$1000)

Experiences

Brain Co.

Machine Learning Engineer

LLMs

June 2025 - Present

- Automating construction permits. Previously AI for legal and healthcare. Joined as 1st post-Series A hire (~25th employee, now 180+)

Yale University

Survey Design, LLMs

Sociology of Machine Learning Research Intern, under Prof. Daniel Karell

December 2023 - May 2025

- Researching how LLM-generated summary texts affect people's learning experiences on the internet (Pubs. 4, thesis)
- Scraped and evaluated 1000+ academic peer reviews to track LLM use in writing and its effects on scientific innovation

Uber

Machine Learning Engineer Intern

Tensorflow, PyTorch, Optuna, SparkSQL, LLMs

May 2023 - August 2023, June 2024 - August 2024

- 2024 (Eats Home feed): Improved home page recommendations for Eats users with new aggregate and embedding features. Introduced region-based features to feature store available to all UberEats ML models, changes deployed to production homefeed model
- 2023 (Eats Search): Built image-text grocery classifier, piloted LLMs for data quality, optimized hyperparameter tuning on search model

Podsie (Now Part of Teaching Lab)

Full-Stack Software Engineer

React.JS, Ruby on Rails, PostgreSQL, EdTech

September 2022 - August 2024

- Podsie: First employee, build features to increase engagement and accessibility like points, leaderboards, and GPT-powered translation
- LLM Flashcards (part of \$1.5 million NSF study): Architected system to create/evaluate/edit flashcards with AI-human supervision

Human-Computer Interaction Institute at Carnegie Mellon University

Research Intern, under Prof. Brad Myers and Amber Horvath

React.JS, Figma

June 2022 - August 2022

- Using React.JS, introduced filtering and sorting of relevant notes in Visual Studio Code extension for programmers

University of Maryland at College Park

Research Intern, under Prof. Jordan Boyd-Graber and Shi Feng

NLP, Python, Vue.JS, SQL, Docker

January 2019 - May 2025

- Developing KAR³L Flashcards AI app with 500+ users to study how NLP can support long-term learning (Pubs. 2, 3)
- Investigated bias in question answering systems (Pub. 2). Coordinated 2021 QANTA question answering dataset update

Technaplex Software

iOS Developer, Co-Founder (1 of 2)

Swift, Fastlane

June 2018 - Present

- Built two iOS apps to support learning: Flashcard Adder (~2.7k downloads) and QuizDB for iOS (~8.5K downloads)

Publications

- Daniel Karell, **Matthew Shu**, Keitaro Okura, and Thomas Davidson. [Artificial Intelligence Summaries of Historical Events Improve Knowledge Compared to Human-Written Summaries](#). 2024 (Preprint).
- Matthew Shu**, Nishant Balepur, Shi Feng, and Jordan Boyd-Graber. [KARL: Knowledge-Aware Retrieval and Representations Aid Retention and Learning in Students](#). *Empirical Methods in Natural Language Processing*, 2024.
- Nishant Balepur, **Matthew Shu**,..., and Jordan Boyd-Graber. [A SMART Mnemonic Sounds like 'Glue Tonic': Mixing LLMs with Student Feedback to Make Mnemonic Learning Stick](#). *Empirical Methods in Natural Language Processing*, 2024.
- Mao, Andrew, Naveen Raman, **Matthew Shu**,..., and Jordan Boyd-Graber. [Eliciting Bias in Question Answering Models through Ambiguity](#). In Proceedings of the 3rd Workshop on Machine Reading for Question Answering, 92–99, 2021.

Activities & Leadership

Yale Statistics & Data Science Student Advisory Committee

Committee Member

Logistics

April 2022 - May 2025

- 24-25: Led committee of 13 students; formed subgroups for advising resources, community events, and merchandise

Yale Poorvu Center for Teaching and Learning

Student Leader, Pedagogical Partner for Statistics & Data Science Senior Capstone Seminar

Teaching

August 2022 - June 2024

- 23-24: Co-led program of 10 pedagogical partners to support faculty in developing and teaching courses across the sciences & humanities
- 22-23: Worked with professor and students in two data science classes to improve learning through classroom observation and interaction

CS50: Intro to Computer Science at Yale

Teaching Assistant

Python, C, Teaching

August 2022 - December 2022

- Co-taught weekly supplementary lecture to small cohort of students and hosted office hours to help students with assignments

Splash at Yale

Splash Spring 2022 Director, Admin Team, Class Teacher

Teaching, Logistics

September 2021 - Fall 2023

- One of two directors for Splash Spring 2022, where Yale students teach a one-day class about their interests to 7-12th grade students

Skills

Languages: Human (English/Chinese/Thai), Swift, Python, SQL, R, C, Java, HTML/CSS/Javascript, Typescript, Lisp, Bash

Tools: PostgreSQL, FastAPI, SQLAlchemy, Vue, React, Docker, Traefik, Tidyverse, SpaCy, Pandas, PyTorch, Fastlane, Git