

Ilan Goodman

Lecturer ◇ Department of Computer Science and Engineering ◇ Washington University in St. Louis
igoodman@alumni.stanford.edu ◇ ilan@ilangoodman.dev ◇ ilangoodman.dev ◇ linkedin.com/in/ilangoodman
7232 Clayton Road, Richmond Heights, MO 63117 ◇ (805)-705-8872

EDUCATION

Stanford University	<i>September 2013 – June 2016</i>
M.S. Computer Science, Theory and Artificial Intelligence dual concentration	Overall GPA: 4.0
Stanford University	<i>September 2011 – June 2015</i>
B.S. Physics	Overall GPA: 3.6
University of California, Santa Barbara, College of Creative Studies	<i>September 2010 – June 2011</i>
Studying Physics and Mathematics; enrolled while in high school	Overall GPA: 4.0

CURRENT POSITION

Washington University in St. Louis St. Louis, Missouri
Lecturer, Department of Computer Science and Engineering

As a Lecturer at Washington University in St. Louis, I developed and launched two new courses: CSE 314A/DCDS 510 (Data Manipulation and Management), a comprehensive introductory data engineering course, and CSE 5114 (Data Manipulation and Management at Scale), a hands-on graduate course designed to introduce students to industry tools and paradigms for working with streaming and large volumes of data. Drawing on my industry background, I designed the curricula from scratch, incorporating in-class labs, twelve homework assignments, a semester-long project, and a unique oral midterm that simulates real-world technical interviews for data engineering and science positions. My instructional efforts have consistently received positive student feedback, with course enrollment for each class more than doubling in a single semester. Additionally, I co-instruct CSE 247/2407 (Data Structures and Algorithms), where I am heavily involved in restructuring the course content to promote mastery of coding skills, algorithm design, and programming abstractions. Beyond my teaching responsibilities, I supervise students pursuing independent projects, lead a committee to reevaluate the algorithms curriculum, participate in a multidisciplinary peer-coaching education program, and serve on a committee focused on advising faculty on generative AI tools. My professional interests include curriculum design, mentorship, and the implementation of evidence-based educational strategies; my background is highly conducive to teaching courses in data engineering, data science, artificial intelligence, and theoretical computer science.

COURSES DEVELOPED

Washington University in St. Louis St. Louis, Missouri
Lecturer, Department of Computer Science and Engineering

- **CSE 314A** (Data Manipulation and Management)
 - Designed and implemented a course on the practical use and management of data (essentially an Introduction to Data Engineering course).
- **CSE 5114** (Data Manipulation and Management at Scale)
 - Developed a course intended for a Data Science graduate program to teach students how to work with large volumes of data and real-time streaming data using industry standard tools.

CLASSES TAUGHT

Washington University in St. Louis St. Louis, Missouri
Lecturer, Department of Computer Science and Engineering

- **CSE 314A/DCDS 510** (Data Manipulation and Management)
 - 2024–2025; up to 61 students enrolled; up to 8 TAs managed.

- **CSE 247/2407** (Data Structures and Algorithms)
 - 2024–present; up to 266 students enrolled; up to 86 TAs managed.
- **CSE 5114** (Data Manipulation and Management at Scale)
 - 2025–present; up to 66 students enrolled; up to 10 TAs managed.

CLASSES STAFFED

Stanford University

Stanford, California

(Head) Teaching Assistant, Departments of Computer Science and Physics

General responsibilities as a (head) teaching assistant/section leader for these courses included: composing and delivering lectures; teaching course sections; holding office hours; tutoring students; developing and grading assignments, exams, and projects; holding review sessions; organizing SLs and TAs; establishing grading criteria; interacting with and advising students; writing autograders; coordinating grading infrastructure; detecting honor code violations; and setting and enforcing course policies.

- **Head TA, CS 166** (Advanced Data Structures): Spring 2016
- **Head TA, CS 109** (Introduction to Probability for Computer Scientists): Winter 2016
- **Head TA, CS 106X** (Programming Abstractions (Accelerated)): Autumn 2015
- **TA, CS 161** (Design and Analysis of Algorithms): Spring 2015
- **TA, CS 109** (Introduction to Probability for Computer Scientists): Winter 2015
- **TA, CS 221** (Artificial Intelligence: Principles and Techniques): Autumn 2014
- **TA, Physics 43** (Electricity and Magnetism): Spring 2014
- **TA, Physics 41** (Mechanics): Winter 2014
- **Senior Section Leader, CS 106X** (Programming Abstractions (Accelerated)): Autumn 2013
- **Senior Section Leader, CS 106B** (Programming Abstractions): Spring 2013, Summer 2014
- **Section Leader, CS 106A** (Programming Methodology): Autumn 2012, Winter 2013
- **Senior Section Leader, CS 106L** (Standard C++ Programming Laboratory): Autumn 2013, Spring 2014
- **Small Group Leader, CS 198** (Teaching Computer Science): Winter 2014, Spring 2014, Autumn 2014
- **Assistant Instructor, Athletic 405** (Outdoor Leadership): Winter 2013

PRESENTATIONS AND INVITED TALKS

Washington University iTeach

January 7, 2026

Panelist and Presenter

- **Oral Exams: Scaling to Large Classes** (Paper session)

With AI on the rise, maintaining rigorous assessment standards that accurately evaluate a student’s own understanding poses a significant challenge. In this presentation, I shared my experience of implementing oral exams in a data engineering class and expanding this approach from a 30-person class to a 60-person class, with strategies designed to scale to even larger cohorts. Attendees gained insights into the pedagogical benefits of oral exams, such as interview practice and personalized feedback. I discussed practical techniques for managing increased logistical demands, including scheduling, grading consistency, and time management. This session aimed to equip instructors with actionable methods to integrate oral assessments into large classes, fostering deeper learning and engagement.
- **Innovating Final Grades: The Multiplicative Approach for Balancing Mastery and Participation in the AI Era** (Paper session)

In response to the challenges posed by AI tools in academic assessments, I developed an innovative multiplicative grading system that calculates final grades by combining a “skill” grade with a “participation” grade. This approach ensures that grades accurately reflect a student’s mastery of the material while also valuing engagement through homework and class activities. Implemented in an upper-division data engineering course, this system resulted in a near-zero rate of missed homework assignments and a wider grade distribution, showcasing differentiation in

student performance based on both mastery and participation. Attendees learned about the practical application of this grading method, its impact on student performance, and its potential to enhance fairness and accuracy in assessments.

- **Alternative Grading Implementations in STEM Courses** (Panel session)

Alternative grading strategies such as “mastery grading” and “standards-based grading” have gained popularity in higher education in recent years, and many WashU courses now use some form of alternative grading in lieu of a traditional points- or percentage-based assessment strategy. In this panel session, we presented and discussed the implementation of alternative grading schemes in STEM classes taught by the panelists, including Engineering Math courses and a Computer Science course. Our focus was on the practical details and logistics of implementing an alternative grading scheme, including designing appropriate learning goals and aligned assessments, giving actionable feedback with assignment resubmission opportunities at large-class scale, and mapping coarse-grained proficiency ratings to letter grades.

Washington University devFest

April 11, 2025

Keynote Speaker

- Served on the keynote panel discussing Artificial Intelligence for WashU devFest.

STUDENT ADVISING AND MENTORSHIP

Academic Advising

Washington University

- Serve as the primary academic advisor for 19 undergraduate students.

Master’s Thesis Committees

Washington University

- Mohammad Rouie Miab (2026): Enhancing Semantic Precision in Text-to-Image Generation.
- Razi Khan (2026): Text Analysis App.

Master’s Capstone Projects

Washington University

- Qiyang Li (2026): Multi-Modal Representative Image Discovery via Semantic-Visual Alignment.
- Caitlin Pedraja (2026–2027): Capstone advisor (topic TBD).

Independent Studies

Washington University

- Karen Delgado (2025): Predicting asbestos presence in New York buildings.
- Luca Violone (2026): XR multimodal sensor fusion system for robotics in special forces operator contexts.

Summer Mentorships

Washington University

- DI2 Digital Transformation Research Corps (2025): Mentored student projects utilizing multimodal AI to predict responses to the Big Five Personality Test, and exploring how AI agents make decisions and interact with legal frameworks and ethical accountability.

ACADEMIC AND PROFESSIONAL SERVICE

Conference and Journal Reviewing

- SIGCSE-TS 2026 (February 18–21, 2026): Reviewer for Experience Reports and Tools.

Academic Committees and Programs

Washington University

- AI Tools Committee (2025–present): Advising faculty on the integration and policies of generative AI.
- AI Curriculum Corps (2026): Developing a new AI-focused assignment on hybrid streaming anomaly detection with LLMs.

Hackathons and Competitions

- WashU Hackathon (October 26, 2025): Judged hackathon projects based on their technical innovation and overall impact.

PROFESSIONAL DEVELOPMENT AND EDUCATIONAL LEADERSHIP

Washington University in St. Louis

August 2024 – present

Lecturer, Department of Computer Science and Engineering

- Early Career STEM Pedagogy Seminar Series, Autumn 2024 – Spring 2026.
- Teaching Triangles, Autumn 2024, Spring 2026.
- ACM/SIGCSE Member, 2024 – present.

Chan Zuckerberg Initiative

July 2016 – February 2021

Senior Software Engineer, Data

- Education Book Club, 2019 – 2021.
- Completed Learning Science 1001 course, Summer 2019.
- Attended Algorithms and Analytics: Connecting the Learner and the Learning conference, March 2019.
- Attended Society for Research on Education Effectiveness (SREE) conference, March 2019.

Khan Academy

June 2014 – August 2014

Data Science/Software Development Intern, Data Science team

- Developed interactive instructional physics content exercises during the 2014 hackathon.

Stanford University

September 2012 – June 2016

(Head) Teaching Assistant, Departments of Computer Science and Physics

- Served on the teaching staff for 19 classes across 12 quarters.
- Managed instructional teams of up to 10 TAs simultaneously as a Head TA.

PROFESSIONAL EXPERIENCE

Washington University in St. Louis

August 2024 – present

Lecturer, Department of Computer Science and Engineering

- Designed and implemented multiple courses, taught classes with up to 266 students, managed extensive TA teams, and spearheaded departmental curriculum priorities. See above sections for full details.

Meta Platforms, Inc.

November 2022 – February 2024

Machine Learning Engineer

- Designed and implemented telemetry for ingestion and delivery pipelines, improved pipeline automation, and built an interpolation framework for hand and body annotations on the XR Tech Ground Truth Data team within Reality Labs.

Robinhood Markets, Inc.

April 2021 – October 2022

Senior Data Engineer

- Built data tools and established standards; developed core metrics; authored models predicting the firm's liquidity risk; designed frameworks for scalable Spark and Airflow pipelines; and organized team social and work events.

Chan Zuckerberg Initiative (formerly Facebook, Inc.)

July 2016 – February 2021

Senior Software Engineer, Data

- Built the data infrastructure for the Summit Learning Platform; established the initial Redshift data warehouse and subsequently migrated to Snowflake; designed the architecture and data models for the warehouse; authored ETL pipelines using Matillion and Airflow; built and maintained the data deletion process; managed an intern; and led engineering projects with up to five engineers. Additionally, designed the interview loop and conducted hundreds of technical interviews for software engineering, data engineering, and data science positions.

Facebook, Inc.

June 2015 – September 2015

Software Engineering Intern, Applied Machine Learning Solutions team

- Developed a language model to parse shape model inputs and determine the most likely sequence and segmentation of characters for text detection and extraction in images.

Khan Academy

June 2014 – August 2014

Data Science/Software Development Intern, Data Science team

- Designed, implemented, and evaluated multiple A/B tests, including identifying and highlighting the most effective educational videos, and adding targeted feedback clues for common incorrect answers. Analyzed and visualized terabytes of data using Google BigQuery; authored BigQuery utility functions; and developed interactive instructional physics exercises.

Snapchat, Inc.

June 2013 – August 2013

Data Analyst/Software Engineering Intern

- Designed and implemented Snapchat’s inaugural spam detection framework and logging infrastructure. Analyzed massive datasets to provide actionable product insights, designed optimal data structures, and brainstormed new platform features.

Stanford University

September 2012 – June 2015

Dorm Staff, Crothers Hall

- Planned and led events, counseled students, ensured resident well-being, and managed dorm issues as a Resident Assistant. Maintained computer clusters and resolved technical issues as a Resident Computer Consultant.

Stanford Pre-Orientation Trip Leader

- Planned and led a week-long wilderness backpacking trip for incoming freshmen.

SLAC Physics Researcher

- Conducted original research on weak gravitational lensing with Professor Aaron Roodman at the Stanford Linear Accelerator Center. Designed and implemented a simulation program to sample massive datasets and generate best-fit regressions.

HONORS, STANDARDIZED SCORES, AND AWARDS

- **Centennial Teaching Assistant Award for outstanding TAs:** Stanford University (2016)
- **GRE results: 170 Verbal / 168 Quantitative / 5.5 Analytical Writing** (2013)
- **Valedictorian:** Dos Pueblos High School (2011)
- **National Merit Scholar** (2011)
- **Outstanding Senior in Science:** Dos Pueblos High School (2011)
- **National AP Scholar** (2010)
- **Chairman’s Award in Math:** New Rochelle High School (2009)
- **Gold medalist, National Latin Exam** (2008, 2009, 2010, 2011)

TECHNICAL AND PROGRAMMING SKILLS

- Experienced programmer in Python, SQL, C++, Java, C, LaTeX, Ruby on Rails, and PySpark
- Extensive experience with Airflow and Snowflake; familiar with Matillion, Luigi, Alooma, Redshift, BigQuery, PostgreSQL, AWS, GitHub, Periscope (Sisense for Cloud Data Teams), Mode, Looker, ChartIO, and Tableau
- Deep knowledge of practical and theoretical foundations of artificial intelligence, mathematical foundations of computer science, and probability and statistics
- Expertise in data structures and algorithms
- Experience with machine learning and probabilistic analysis, game development, and computer systems programming
- Experience using Gemini and Codex for coding projects and developing course materials

INDEPENDENT PROJECTS

- Wrote a neural network to teach a computer to compose music
- Developed new techniques for understanding the strength of college football teams from the season's competition graph
- Implemented Natural Language Understanding techniques to predict the emotional reaction distribution to a BuzzFeed article based on the article's text
- Designed and developed an artificial intelligence program to predict which Major League Baseball player is most likely to get a hit on any given day
- Formulated a novel probabilistic graph search algorithm for general game playing and exploring small state spaces

ADDITIONAL ACTIVITIES

- Accomplished musician, including piano, guitar, songleading, and composition
- Leland Stanford Junior University Marching Band: first and only Theremin player

PROFESSIONAL REFERENCES

- **Dr. Steve Cole**
Senior Lecturer, Department of Computer Science and Engineering, Washington University in St. Louis
svcole@wustl.edu
- **Dr. Ron Cytron**
Professor Emeritus, Department of Computer Science and Engineering, Washington University in St. Louis
cytron@wustl.edu
- **Dr. Roch Guerin**
Harold B. and Adelaide G. Welge Professor and Chair, Department of Computer Science and Engineering, Washington University in St. Louis
guerin@wustl.edu
- **Dr. Bill Siever**
Teaching Professor and Associate Chair, Department of Computer Science and Engineering, Washington University in St. Louis
bsiever@wustl.edu
- **Dr. Mehran Sahami**
Chair and James and Ellenor Chesebrough Professor (Teaching), Department of Computer Science, Stanford University
sahami@cs.stanford.edu
- **Dr. Virginia Williams**
Professor, Department of Computer Science, Massachusetts Institute of Technology
virgi@mit.edu
- **Anqi Cong**
Senior Data Platform Engineer, Material Security
anqicong@gmail.com
- **Keith Schwarz**
Senior Lecturer, Department of Computer Science, Stanford University
htiek@cs.stanford.edu