Teaching Statement

Manling Li

I have been very fortunate to work with many passionate, critically-thinking and hard-working students. Teaching and mentoring have been fulfilling experiences for me for being able to positively influence my students' academic and professional development. My goal as an instructor or a mentor is to make a difference by igniting students' passions and dispelling negative stereotypes. It is the most pleasant thing to see students have their first paper appear in a peer-reviewed conference. My academic background, teaching, mentoring and management skills serve me well in a teaching role:

- I teach courses **CS 396 Reasoning and Planning** and **CS 496 Agent AI**, where I focus on teaching students not only how to use AI, but also how to control AI and fix AI errors, enabling them to build agents of their own as class projects.
- I have organized and presented **tutorials** at major AI, Natural Language Processing and Computer Vision conferences. My tutorials span cutting-edge topics including *Foundation Models Meet Embodied Agents* (ICCV 2025, NAACL 2025, AAAI 2025), *Safe Multi-Modal Learning* (ICCV 2025), *Knowledge-Driven Vision-Language Encoding* (CVPR 2023), *Knowledge-Driven Vision-Language Pretraining* (AAAI 2023), *New Frontiers of Information Extraction* (NAACL 2022), and *Event-centric Natural Language Processing* (ACL 2021), attracting over 200 attendees per tutorial and demonstrating my ability to effectively communicate complex research topics to diverse audience.
- I have delivered **over 70 guest lectures and invited talks** at leading universities (Stanford, MIT, CMU, UC Berkeley) and industry research labs (Google DeepMind, Amazon, Adobe Research, Apple) for their Natural Language Processing, Computer Vision, and AI classes and seminars, demonstrating my commitment to knowledge dissemination and educational outreach.
- I served as an **ACL Mentor at EMNLP 2024** and an **ICCV 2025 Doctoral Consortium Mentor**, providing guidance to junior researchers from diverse academic backgrounds and helping them navigate research challenges and career development.

Mentoring Experience

As an Assistant Professor, one of the most rewarding aspects of my position is advising and mentoring students. My mentoring philosophy is grounded in my research approach: I guide students to bridge the gap between theoretical concepts and practical implementations, helping them develop the skills to perceive problems deeply, reason about solutions systematically, and act effectively. At Northwestern, I currently **supervise six Ph.D. students and multiple master and undergraduate students** on research projects spanning embodied AI, foundation model reasoning, and multimodal understanding. In their first year, my students have achieved remarkable success: Best Poster Award at MMLS 2025 (with 2k+ GitHub Stars and media coverage by MIT Tech Review); Best Paper Award at CRLH @ RSS 2025; Oral Presentations at NeurIPS 2025 (top 0.36%) and ICML 2025 (top 1%); Best of ICCV by Voxel51. My students have also received fellowships including Patronus AI PhD Fellowship and NSF CS4Grad PhD Fellowship.

My mentoring approach emphasizes hands-on research training: from problem formulation and literature review, to experimental design and implementation, to paper writing and rebuttal skills. I also actively help students with their career development, including graduate school applications, providing guidance on application materials, personal websites, and mock interviews. **All of my advisees have continued on to pursue graduate school or STEM careers**, and **three of them are currently pursuing Ph.D. degrees**. Beyond university-level mentoring, I am committed to broader educational outreach, engaging with K-12 students and junior undergraduates from diverse academic backgrounds to inspire the next generation of computer scientists and make AI research more accessible.

Teaching Experience

Course Instructor at Northwestern University. As an Assistant Professor at Northwestern University, I teach two courses: *CS 396 Reasoning and Planning in the Foundation Model Era* and *CS 496 Agent AI*. My primary goal is to teach students not only how to use AI tools, but more importantly, how to control AI systems and diagnose and fix AI errors when they occur, mirroring the core challenges in my research on mechanistic control and spatial-geometric reasoning. I emphasize interactive teaching through hands-on demonstrations and encourage students to present their own agent implementations to the class. Students learn to build agents that can perceive, reason, and act in dynamic environments, working through challenges such as handling partial observability, learning from sparse feedback, and ensuring safe and aligned behavior. The course projects empower students to build any agent of their own choosing, from embodied navigation agents to reasoning systems for complex planning tasks. This approach has proven highly effective, with students successfully developing diverse applications ranging from research assistants to task automation agents, and presenting live demos of their systems. Several students from these courses have continued to work with me on research projects.

Guest Lectures. I have given guest lectures at over 20 universities on topics spanning reasoning and planning, multimodal understanding, and knowledge-driven AI, including at University of Michigan, Virginia Tech, North Carolina State University, and UIUC. I tailor my lectures to accommodate students with diverse backgrounds, from those already publishing research to those new to the field, ensuring the content is challenging yet accessible. My lectures have been highly praised for their clarity, and multiple students have approached me for research collaborations.

Teaching Philosophy. My teaching philosophy centers on creating a collaborative learning environment where students, teachers, and researchers all contribute to the learning process. I emphasize regular student feedback to continuously improve my teaching. Furthermore, I believe in teaching students how to learn independently, guiding them to find information, understand it, and apply new skills. My teaching approach mirrors my research principles: just as I develop reasoning interfaces that bridge perception and action in AI agents, I design learning experiences that bridge theoretical knowledge and practical implementation. I encourage students to develop a **reasoning-first mindset** to understand not just what works, but why it works and when it fails.

Teaching Interests

With my experience as a faculty member and my extensive background in research and teaching, I am well prepared to contribute to UT Austin's educational mission. I can teach courses including *CS 388 Natural Language Processing*, *CS 395T Special Topics in Machine Learning*, *CS 391L Machine Learning*, and *CS 376 Computer Vision*, as well as fundamental core courses in programming, data structures, algorithms, and artificial intelligence at both undergraduate and graduate levels.

Furthermore, I am interested in developing new courses at UT Austin based on my research expertise. My extensive experience organizing tutorials at major conferences and delivering over 70 invited talks has refined my ability to present complex technical material in accessible ways. Building on my experience teaching at Northwestern, one potential course is on **Foundation Agent AI**, which would teach students how to build, control, and debug AI agent systems. Another course could focus on **multimodal knowledge extraction and reasoning**, presenting techniques for grounding AI systems in structured knowledge from vision and language. A selective seminar on **vision-language understanding and embodied AI** would explore recent advances in spatial intelligence and long-horizon reasoning. These courses would emphasize hands-on projects, interactive learning through live demos, and a reasoning-first approach that encourages students from various majors and academic levels to explore AI research.