Northwestern University

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Dear Search Committee,

It is my great pleasure to apply for your Assistant Professor position. I am an Assistant Professor in Computer Science and Center for Robotics and Biosystems at Northwestern starting from Fall 2024. I was a postdoctoral researcher at Stanford mainly working with Prof. Jiajun Wu and Prof. Fei-Fei Li, and I received my PhD in Computer Science from UIUC in August 2023, advised by Prof. Heng Ji.

I aim to transform foundation models **from passive observers into active, embodied agents** by bridging the critical gap of **Spatial Intelligence.** My goal is to endow AI with a "physics engine" grounded in action-perception loops, moving beyond static pattern matching to dynamic world interaction. My work defines a new architectural layer, the Reasoning Interface, to transition AI from static pattern matching to active agent-world interaction. I bridge this gap through *Active Spatial Cognition* via spatial-geometric reasoning over state space, *Unified World Modeling* for self-evolving policy reasoning over action space, and *Mechanistic Interpretability and Control* from black boxes to safe and aligned reasoning.

These advancements have received broad recognition across **NLP** (Best Papers at ACL/NAACL), **Computer Vision** (Best Papers at ICCV workshops), and **Robotics** (Best Papers at RSS workshops) and oral/spotlights in NeurIPS, ICML, etc. My PhD dissertation on multimodal event was awarded as an ACL25 Inaugural Dissertation Award Honorable Mention. As a leading author, my work on multimodal reasoning was recognized with ACL20 Best Demo Paper and NAACL21 Best Demo Paper; my research on policy learning was presented as an Oral at NeurIPS24 and received Best Paper awards at symposiums such as SoCalNLP24 and Midwest ML Symposium 25, as well as Best Paper at NeurIPS25 workshops; my work on mechanistic control and safety was recognized with an ACL24 Outstanding Paper, Oral at NeurIPS25, Oral at ICML25, etc. My research has an impact beyond academia: In **government** side, I was recognized as a DARPA Riser. In **industry**, my work has been recognized through Microsoft PhD Fellowship, Amazon Scholar, gift funds from Adobe, Apple, Dolby, Meta, etc; in the **broader public sphere**, I was named to MIT Technology Review's Innovators Under 35 Global List, EECS Rising Star. My work has delivered sustained **engineering impact** including open-source RL agent training RAGEN/VAGEN, with around 3.5K GitHub stars within months.

I value service in the community. I lead the initiative of "Foundation Models Meet Embodied Agents" with the definitive tutorials, challenges, and workshops at NeurIPS25, ICCV25, CVPR25, AAAI25, NAACL25, for newcomers to this field. I also lead the "Knowledgeable Foundation Model" tutorial and workshop series at ACL24, ACL25, AAAI25, and ACL26, and "Responsible FM" workshop series at NeurIPS25. I have delivered ~40 invited talks across leading universities and industry labs in 2025.

I care deeply about teaching and mentoring. Building up classes "Reasoning and Planning in the Foundation Model Era" and "Agent AI", I hope students can control models beyond simply using AI tools. In my first year as faculty, **all** of my first-year PhD students earned paper awards and released open-source projects such as RAGEN[1].

I am eager to contribute to your institute's vibrant interdisciplinary research, and to collaborate with researchers across NLP, Vision, and Robotics. Thank you for considering my application.

Sincerely,
Manling Li

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[1] https://limanling.github.io/uploads/first-year.pdf