Hengyue Liang

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Professional Summary

Applied Scientist at Amazon with a Ph.D. in ECE and 6+ years of research and engineering experience, with deep expertise in production Agentic AI systems. Scoped and led multiple agent initiatives spanning web-based task automation, agent reliability and observability, and automated workflow generation. Published researcher in evaluation, robustness, and trustworthy AI (TMLR, CVPR, KDD 2025). Known for identifying ambiguous gaps in production AI systems, translating them into rigorous research directions, and driving cross-functional teams to measurable business outcomes.

Education

Ph.D. in Electrical and Computer Engineering University of Minnesota, Twin Cities | Sep 2018 – May 2025

M.S. in Electrical Engineering Chalmers University of Technology | Sep 2015 – Jun 2017

B.Eng. in Electrical Engineering Shanghai Jiao Tong University | Sep 2011 – Jun 2015

Experience

Applied Scientist

Amazon – Applied AI - World-Wide Store | Bellevue, WA | Sep 2024 – Present

- Scoped and prototyped an employee-facing web automation assistant from scratch, then led a team to full production deployment with enterprise identity integration
- Scoping and leading an automated debugger agent that helps customers refine agentic workflow configurations, targeting significant reduction in the agent-building cycle
- Designed and deployed an LLM-driven web-based task automation platform supporting complex multi-step enterprise agentic workflows at production scale
- Independently scoped and deployed a reliability monitoring framework for production agents, enabling continuous online quality tracking
- Collaborated to scope and design a workflow generation system that mines historical task trajectories to templatize repetitive enterprise tasks, then led the team to production deployment
- Sustained an active research pipeline (KDD 2025, ongoing) while regularly presenting internal science talks on multi-agent systems — driving both research output and technical alignment across the organization
- Leading cross-product roadmap discussions to unify enterprise web automation platforms — consolidating fragmented agent solutions into a cohesive, scalable infrastructure
- Shaping architectural principles for how agentic tools should be designed and operated as enterprise services

Applied Scientist Intern

Amazon – Alexa AI | Sunnyvale, CA | Jun 2021 – Sep 2021 & May 2023 – Sep 2023

- Built an end-to-end audio-driven talking avatar pipeline — reconstructed photorealistic 3D head avatars from monocular video via NeRF (40% faster than baselines), introduced a vector-space expression control mechanism for precise disentangled manipulation, and drove the avatars with speech signals to achieve natural lip-sync and real-time head motion suitable for interactive applications

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Skills

Languages & Frameworks: Python, PyTorch, JavaScript / TypeScript

Cloud & Tools: AWS Bedrock, Playwright, AWS, LangChain / LangGraph, Strands Agents, REST APIs, AI-assisted development

AI & ML: Agentic AI, Multi-agent Systems, GUI Agents, LLM Applications, RAG, Web Automation, Workflow Orchestration, Tool Use, Prompt Engineering, Agent Evaluation & Benchmarking, Agent Observability, Trustworthy AI, Robustness, Generative Models

Computer Vision: 3D Reconstruction, NeRF

Publications

- *Cybernaut: Towards Reliable Web Automation*, KDD 2025 Workshop
- *A Baseline Method for Removing Invisible Image Watermarks using Deep Image Prior*, TMLR 2025
- *Selective Classification Under Distribution Shifts*, TMLR 2024
- *Implications of Solution Patterns on Adversarial Robustness*, CVPR 2023
- *Rethinking Transfer Learning for Medical Image Classification*, BMVC 2023
- *Early Stopping for Deep Image Prior*, TMLR 2023
- *Attribute-based Robotic Grasping with One-Grasp Adaptation*, ICRA 2021
- *A Deep Learning Approach for Grasping the Invisible*, IEEE RA-L 2020
- Reviewer: NeurIPS, CVPR, ICRA, IROS, TMLR
- Google Scholar: scholar.google.com/citations?user=I9uZHzoAAAAJ