

## Siyang Liu

7348347522 • lsiyang@umich.edu • Ann Arbor, USA • [Google Scholar](#) • [Linkedin](#)

### SUMMARY

PhD candidate in Computer Engineering at the University of Michigan with expertise in large language models, user simulation, and web automation. Experienced in developing AI systems for healthcare, mental health, education, and gaming, with publications at top venues including ACL and EMNLP. Skilled in building end-to-end systems spanning tokenization, post-training, interactive agents, RAG workflows, and web agents. Seeking to advance research and applications of AI that bridge human-centered design with scalable, real-world impact.

### EDUCATION

#### University of Michigan

*Doctor of Philosophy in Computer Engineering*

*GPA: 4.00/4.00*

*Relevant Coursework:* natural language processing, human-computer interaction, computer vision, machine learning

**Ann Arbor, MI**

*May, 2027*

#### Tsinghua University (Previous Institution)

*Master of Computer Science and Technologies*

**Beijing**

*June, 2021*

### SKILLS

*Large Language Models (LLM):* In-context learning, instruction-tuning, preference optimization, RAG, human-in-the-loop post-training.

*User Simulation & Agents:* Role/agent design, multi-agent systems, character synthesis, interactive interfaces, user experience modeling

*UI Automation:* Web agent framework development (independent), UI automation, full-stack system design

*Programming & Systems:* Python, Java, JavaScript, C++, concurrency, full-stack development, data processing

### RESEARCH EXPERIENCE

#### University of Michigan/ Language and Information Technology Group

*Graduate Student Research Assistant*

*Advisor: Rada Mihalcea*

**Ann Arbor, MI**

*2022-Present*

- Designed a **patient-centered RAG system** for oncology visit preparation, improving usability (UMUX = 6.0/7), content relevance (6.7/7), and clinical faithfulness (6.82/7); submitted to EMNLP 2025 Demonstration, [demo link](#).
- Developed an **expert-in-the-loop** depression simulation model, combining **supervised fine-tuning and preference optimization**; produced a realistic 8B LLM outperforming OpenAI baselines in linguistic authenticity and profile adherence (ACL Findings 2025), [project link](#).
- Led an **age bias study** across six LLMs, demonstrating systematic alignment toward youth values; published at EMNLP 2024.
- Engineered **task-adaptive tokenizers** to enhance long-form generation efficiency by up to 60% while maintaining output quality; published at EMNLP 2023.

#### Tsinghua University/Conversational AI Lab

*Graduate Student Research Assistant*

*Advisor: Minlie Huang*

**Beijing**

*2019-2021*

- Rectified the widely used generation diversity metric Distinct by correcting its mathematical bias toward longer outputs, achieving stronger correlation with human judgment; published at ACL 2022.
- Built emotional support dialogue systems and benchmarked the emotional support conversation task, pioneering work in AI for mental health; published at ACL 2021.

---

## WORK EXPERIENCE

---

### Educational Testing Service

Princeton, NJ

Research Intern

June, 2025

- Developed a student-role driven **web agent** system to simulate digital assessment experiences, accelerating testing and prototyping cycles for educational platforms.
- Delivered [internship presentation](#) showcasing early progress toward scalable, AI-powered system evaluation.

### Tencent America

Bellevue, WA

Research Intern

May, 2024

- Created AI-driven **human proxy agents** to simulate player experiences at scale, generating 11 user insights and 6 design implications for game design.
- Validated by three domain experts as a cost-efficient, moderate-fidelity alternative to traditional user studies; work under review at CSCW 2026.

---

## PROJECT EXPERIENCE

---

### OpenWebAgent (Independent Development), [github repo](#)

Ann Arbor, MI

Independent developer

August, 2025

- Built **OpenWebAgent**, an open-source framework for AI-driven web automation — “Any site. Any page. Any UI. Any complexity.”
- Added one-parameter engine switch (Playwright ↔ Selenium) and a dual-agent architecture for modularity and scalability.

---

## PUBLICATIONS

---

1. **Liu SY**, An L, Mihalcea R, Patient-Centered RAG for Oncology Visit Aid Following the Ottawa Decision Guide, *EMNLP Demonstration Track (under review)*, 2025
2. **Liu SY**, Sabour S, Wang X, Mihalcea R, Free Lunch for User Experience: Crowdsourcing Agents for Scalable User Studies, *The Proceedings of the ACM on Human-Computer Interaction (under review)*, 2026
3. **Liu SY**, Brie B, Li W, Biester L, Lee A, Pennebaker J, Mihalcea R, Eeyore: Realistic Depression Simulation via Expert-in-the-loop Supervised and Preference Optimization, *ACL Findings*, 2025
4. Sabour S, Liu JM, **Liu SY**, Yao CZ, Cui SY, Zhang XM, Zhang W, Cao, YR, Bhat A, Guan J, Wu W, Mihalcea R, Althoff T, Lee T, Huang M, Human Decision-making is Susceptible to AI-driven Manipulation, *Nature Communications (under review)*, 2025
5. **Liu SY**, Maturi T, Shen SQ, Mihalcea R. The Generation Gap: Exploring Age Bias in the Value Systems of Large Language Models. *EMNLP*, 2024.
6. Sabour S, **Liu SY**, Zhang ZY, Liu JM, Zhou JF, Suharto A, Li JZ, Lee TMC, Mihalcea R, Huang ML. EmoBench: Evaluating the Emotional Intelligence of Large Language Models. *ACL*, 2024.
7. **Liu SY**, Deng NH, Sabour S, Huang ML, Mihalcea R. Task-Adaptive Tokenization: Enhancing Long-Form Text Generation Efficacy in Mental Health and Beyond. *EMNLP*, 2023.
8. **Liu SY\***, Sabour S\*, Zheng YH, Ke P, Zhu XY, Huang ML. Rethinking and Refining the Distinct Metric. *ACL*, 2022.
9. Sun H\*, Lin ZR\*, Zheng CJ, **Liu SY**, Huang ML. PsyQA: A Chinese Dataset for Generating Long Counseling Text for Mental Health Support. *ACL Findings*, 2021.
10. **Liu SY\***, Zheng CJ\*, Demasi O, Li Y, You Z, Huang ML. Towards Emotional Support Dialogue Systems. *ACL 2021*.
11. Ke P, Ji HZ, **Liu SY**, Huang ML. Sentilare: Linguistic Knowledge Enhanced Language Representation for Sentiment Analysis. *EMNLP*, 2020.

---

## ACTIVITIES

---

Reviewer for Nature Communications and the Association for Computational Linguistics (40+ papers).

Organizer for NLP@Michigan Day and university-wide events including the AI Network and Building Bridges in CSE PhD Studies.