Maria Milkowski

PhD Student

Education

PhD in Computer Science and Engineering - University of Notre Dame, IN — Aug 2024 – Present

- **Specialization:** Artificial Intelligence
- **Advisor:** Tim Weninger

BS in Computer Science - Seattle University, WA — Sept 2020 – June 2024

Research Experience

Graduate Research Assistant | Weninger Lab - University of Notre Dame — Jan 2025 – Present

- Developed autonomous multi-agent systems and simulation environments to evaluate coordination, conflict, and ethical decision-making among agents
- Conducted a user study investigating framing and priming theory to determine if they influence subsequent search terms and user behavior, with an emphasis on potential political influences

Graduate Research Assistant | EPOCH Lab - University of Notre Dame — Aug 2024 – Jan 2025

- In collaboration with the St. Joseph County Department of Health and Lucy Family Institute, studied youth vaping habits to find effective technological prevention and cessation methods

Undergraduate Research Assistant | Seattle University — June 2023 – June 2024

- Implemented and investigated Utilitarian ethical model into societal simulation *Sugarscape*
- Created a new wholistic measure of societal success and used it to determine the benefit of economic and ethical models

Publications

Enabling User-Created Multi-Agent Simulations: Interactive and Customizable 2D Environments to Study Team Dynamics with LLM Agents, NeurIPS — Dec 2025
Almutairi M., Chiang C., Guo H., Belcher M., Banerjee N., ***Milkowski, M.,***
Nguyen D., Yankoski M., Weninger T., Volkova S., Ford T., Gómez-Zará D.

The Power of Framing: How News Headlines Guide Search Behavior, EMNLP — Nov 2025
Poudel, A., ***Milkowski, M.***, Weninger, T.

VIRT-LAB: An AI-Powered System for Flexible, Customizable, and Large-scale Team Simulations, ACM UIST — Sept 2025
Almutairi M., Chiang C., Guo H., Belcher M., Banerjee N., ***Milkowski, M.,***
Volkova S., Nguyen D., Weninger T., Yankoski M., Ford T., Gómez-Zará D.

A Case for Embedding Moral Reasoning in Artificial Agents Engaged in Conflict, IEEE ISTAS — Sept 2025
Kremer-Herman, N., ***Milkowski, M.***

A Little Bit Goes a Long Way: Modeling Universal Basic Income for Noncooperative Artificial Agents, IEEE Ethics — June 2025
Milkowski, M., Gupta, A., Kremer-Herman, N.

Youth Vaping in the Digital Age: A Systematic Review of Technological Interventions for Prevention and Cessation, ACM GROUP — Jan 2025
Milkowski, M., Olesk, J., Martel Asfura, D., Barco, C., Cervera, C., Wachira, M., Sisk, M., Balke, A., Purushotham, D., Williams, R, Badillo-Urquiola, K.

Invited Talks

Leveraging Ethics for Autonomous Agent Decision-Making, Seattle U CS Seminar Series 2023 — Oct 2023
Kremer-Herman, N., ***Milkowski, M.***

Service

Admitted Student Mentor | Seattle University June 2024

Membership + Mentorship Chair | Society of Women in Engineering - Seattle U Chapter June 2022 - June 2023

Industry Experience

Project Manager | F5 June 2024 – Aug 2024

- Coordinated with directors, program managers, and others as needed to organize a technology migration of acquired companies to the F5 system

Software Engineer - Capstone | F5 Sept 2023 – June 2024

- Acted as project manager to create an AI to guide members toward self-help materials, resulting in less maintenance cards being submitted

Pro Bono Project Manager | iMorgan Medical Dec 2023

- Managed medical image tagging project that within its first iteration had over 90% accuracy.
- Automates the process of tagging medical images and sorting the tags into more general classifications using C# and tesseract OCR

Data Collection Associate | Q-Analysts June 2022 – Sept 2023

- Guide research participants for data collection sessions in a secured office to perform captures, prep and maintain equipment, and ensure security of devices. Collected and stored confidential client and participant information
- Filter data and run quality assurance tests on multiple AR and VR devices and their collected data

Teaching Experience

Teaching Assistant | University of Notre Dame August 2024 – Present

- Spring 2026 - Intro to Artificial Intelligence - William Theisen
- Fall 2025 - Database Systems Concepts - Tim Weninger
- Spring 2025 - Human-Computer Interaction - Annalisa Szymanski
- Fall 2024 - Database Systems Concepts - Tim Weninger

Tech Ethics Consultant | Seattle University School of Law June 2024 – July 2024

- Lectured law students on relevant computer science topics, provided feedback on student projects
- Advised course creators on creating a tech ethics course suitable for both law and graduate computer science students

Skills

Programming: Python, C++/C, SQL, HTML/CSS, Assembly

Technical Methods: Model prototyping, data preprocessing, experimental evaluation

Research Methods: Semi-structured interviewing, qualitative coding, thematic analysis, content analysis