**Mitchell Piehl**

St. Paul, Minnesota • mitchellpiehl@gmail.com • (612) 999-5268 • mitchellpiehl.com

## Education

**UNIVERSITY of Iowa** Iowa City, IA
Ph.D. Computer Science | Sheets Fellowship Recipient | Advisor: Dr. Muchao Ye August 2025 - Present
Research Focus: Memory in LLMs/VLMs, VLM Reasoning, Vision Anomaly Detection, Computer Vision, NLP

**UNIVERSITY of St. Thomas** St. Paul, MN
B.S. Computer Science | 3.98 GPA May 2025
Minors: Data Science, Applied Statistics, Philosophy and Science, Logic & Analytical Reasoning

- D1 Track and Field Captain | All-Conference Athlete | 7x School Record Holder | SAAC Representative

## Technical Skills

**Languages & Tools:** Python, Java, SQL, Javascript, HTML/CSS, Git
**AI/ML Frameworks:** PyTorch, TensorFlow, Hugging Face, scikit-learn
**Expertise:** Large Language Models (LLMs), Vision-Language Models (VLMs), NLP, Reasoning in AI
**Core Strengths:** Research, Leadership, Scientific Communication

## Research & Professional Experience

**University of Iowa** Iowa City, Iowa
**Ph.D. Reasearcher** August 2025 - Present

- Leading projects on LLM and VLM memory mechanisms to enhance long-context understanding
- Built end-to-end AI and ML pipelines (preprocessing, training, evaluation, deployment, etc.)
- Performed literature reviews and synthesized insights into new research directions
- Presented technical work, demonstrating the ability to communicate highly technical details

**University of St. Thomas** St. Paul, Minnesota
**Teaching Assistant and Research Assistant** August 2024 – May 2025

- Led comprehensive research examining the philosophical evolution of Artificial Intelligence, analyzing key shifts from early symbolic AI to modern neural networks
- Designed and developed curriculum materials for a graduate-level Foundations of AI course
- Collaborated with faculty to integrate philosophical frameworks into technical AI coursework

**University of Colorado Colorado Springs** Colorado Springs, CO
**Natural Language Processing Researcher** May 2024 – August 2024

- Researched novel techniques to improve Large Language Models' mathematical reasoning capabilities, resulting in state-of-the-art performance on math word problem solving tasks
- Achieved a 2% improvement over existing benchmarks across 4 distinct datasets
- Implemented new frameworks for the design and testing of LLM mathematical capabilities
- Authored and presented findings, resulting in a *first-author publication accepted to IEEE ICMLA 2025*

## Publications & Projects

**Solving Math Word Problems Using Estimation Verification and Equation Generation** *ICMLA 2025*

- First author published research at ICMLA 2025 on novel math reasoning techniques in large language models that improve existing benchmarks by ~2 percent on average
- Developed framework that combines equation generation and verification through estimation to achieve accurate math reasoning abilities in large language models
- Designed and Implemented new machine learning and artificial intelligence reasoning methods
- Preprint version can be found at: https://arxiv.org/abs/2509.18565

**Public Guide to Sustainable AI -** toSustainableAI.com

- Researched and developed a modern and interactive website presenting a guide on the environmental and social impacts of AI, including work being done to make it more sustainable