Bang Nguyen

Ph.D. Candidate in Computer Science & Engineering
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Research Interest

With a strong interest in Natural Language Processing (NLP) and Generative AI, my research integrates the development of effective AI applications with realistic, end-to-end evaluation. I explore use-case-driven approaches where insights from simulated interactions and targeted benchmarks directly inform the refinement of LLM-based agents. This tight feedback loop between building and testing ensures the development of more reliable, efficient, and aligned AI systems.

Research and Industrial Experience

University of Notre Dame Notre Dame, IN

Research Assistant

Project: AI Agents for Automated Assessment of Research Claims *June 2025 - present*

- Lead the development of AI agents for replicating social science research, formalizing human research replication workflow into end-to-end benchmarks (accepted to **KDD 2026**).
- Develop tools and sandboxed execution environments for agents to iteratively conduct autonomous computational experiments and interpret research fingdings.
- Collaborate with interdisciplinary teams at the **Center for Open Science** to translate qualitative scientific standards into automated evaluation mechanisms.

Project: Evaluating and Refining AI assistants with simulated interactions. *June 2022 - present*

- Applications: Educational quiz generation, AI tutoring, AI research assistants.
- Methods: (1) Proposed reliable evaluation mechanisms by simulating user interactions with AI applications (published in **EMNLP Findings 2024, ACL Main 2025**); (2) Refine AI applications leveraging feedback based on simulated interactions via reinforcement learning (**ongoing**).
- Broad Impact: Anticipate user needs and use cases to reduce development costs while increasing end-user satisfaction and task success rates.

The Goodyear Tire & Rubber Company Wooster, OH

Applied Research Consultant *May 2021 - Aug 2021*

- Proposed and designed deep learning models for image segmentation in automated quality control systems, improving accuracy by 48% compared to previous rule-based methods.
- Executed the complete machine learning cycle: data collection, preprocessing, modeling (transfer learning), and evaluation.
- Worked closely with various academic and industry stakeholders to translate research findings into actionable insights.

The College of Wooster Wooster, OH

Independent Study Thesis *Aug 2021 - May 2022*

- Analyzed bias against LGBTQ+ identities in word embeddings. Poster accepted at oSTEM 2021.

Education

University of Notre Dame Notre Dame, IN

Ph.D. in Computer Science and Engineering *2022 - present*

- Research assistant in Data Mining Lab, advised by Dr. Meng Jiang.
- Teaching assistant in Department of Computer Science & Engineering.
- Relevant Coursework: Natural Language Processing, Advanced Topics in Machine Learning, Human-AI Collaborative Systems, AI for Society, Computational Behavior Modeling, Data Science, Human-centered Computing Research.
- GPA: 4.0/4.0.

The College of Wooster Wooster, OH

B.A. in Computer Science *Aug 2018 – May 2022*

- GPA: 4.0/4.0.
- Minors: Communication Studies, Data Science
- Graduated with Summa Cum Laude and Departmental Honors.
- Phi Beta Kappa Member.

Selected Publications

- **Nguyen, B.***, Soós, D.*, et al. (2026, Feb). ReplicatorBench: Benchmarking LLM Agents for Replicability in Social and Behavioral Sciences. *To appear in KDD 2026 AI for Sciences track.*
- **Nguyen, B.,** Du, T., Yu, M., Angrave, L., & Jiang, M. (2025, Feb). QG-SMS: Enhancing Test Item Analysis via Student Modeling and Simulation. In *Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics: ACL Main 2025.*
- **Nguyen, B.,** Yu, M., Huang, Y., & Jiang, M. (2024, Feb). Reference-based Metrics Disprove themselves in Question Generation. In *Findings of the Association for Computational Linguistics: EMNLP Findings 2024.*
- Dang, H.*, **Nguyen, B.***, Ziems, N., & Jiang, M. (2023, July). Embedding Mental Health Discourse for Community Recommendation. In *4th Workshop on Computational Approaches to Discourse at ACL 2023* (p. 163).

Honors and Awards

Best Presentation Awards (top 2 of 10) Dec 2025, May 2026
DM2 Lab, University of Notre Dame

Researcher Access Program Jun 2025
OpenAI

Critical Digital Engagement Award for Senior Thesis (top 3 of 175) Apr 2022
The College of Wooster

- Thesis Title: Queering MLP - A Non-Heteronormative Approach to Quantifying and Investigating Sentiment Bias against LGBTQ+ Identities in Word Embeddings.

oSTEM Hackathon Winner Oct 2021
Out in STEM Conference

- Collaborated with two teammates to develop a Django web app for reporting and tracking inaccessible conditions on college campuses.

Skills

- **Programming**: Python (proficiency), C++ (familiarity)
- **ML Frameworks**: PyTorch, HuggingFace
- **Machine Learning & NLP**: Model Fine-Tuning and Alignment, Machine Learning Algorithms, Deep Learning Architectures, Large Language Models, Model Evaluation

Service

- **Teaching Assistant at Univesity of Notre Dame**: Large Language Models - Fall 2025, Secure Software Engineering - Spring 2023, Algorithm Analysis - Fall 2022
- **Reviewer**: CSUR, ARR'26 Jan & Mar, ARR'25 Feb & Oct, KnowledgeNLP-ACL'24, TKDE'23, KnowledgeNLP-KDD'23
- **Organizer**: Midwest Speech and Language Days (MSLD) 2025

*Equal contribution