DERRICK ZHANG

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EXPERIENCE

Full-Stack Engineer — Aug 2024 - Present
WAM Partners

- Developed a pet adoption system using Large Language Models (LLMs).
- Implemented hybrid search engine with vector database.
- Implemented Q&A chatbot for pre- and post-adoption assistance.

Full-Stack Engineer — May 2022 - Aug 2022
Happy the Movement (Health Startup) — *Lafayette, IN*

- Developed a data pipeline for health information extraction from conversations using advanced LMs.
- Developed a website that enables users to annotate and validate target information in text/audio conversation.
- Achieved automatic data extraction that understands, annotates and validates health attributes in conversation.

Research Assistant — Jan 2023 - Aug 2023
Purdue University, Amazon Alexa Prize Taskbot — *Lafayette, IN*

- Developed a modular conversation AI chatbot leveraging advanced LLMs and VectorDB.
- Implemented algorithms for NLU and information extraction, fine-tuned 8-bit quantized LM using LoRA.
- Processed 11.6K interactions per 14 days with 76.2% success rate, achieving the highest rating of 5.0/5.0.
- Gained expertise in user-centric design, acquired skills in optimizing performance on diverse datasets.

Research Assistant — Aug 2022 - Present
Purdue University — *West Lafayette, IN*

- Developed a real-time abuse chat analysis triage tool (CATT) to assist in identifying high-priority offenders.
- Implemented language detection and authorship attribution, fine-tuned LM to predict the risk of predation.
- Improved risk estimation accuracy to 68.7% on 60 ground truth chats from perverted justice.
- Gained experience in low-resource classification, interdisciplinary collaboration and complex architectural design.

PEER-REVIEWED PUBLICATIONS

- **2024** - **Zhang, D.**, Rayz, J. (2024) Beyond the Noisy Form: Fuzzy Author Role Classification with Intention (NAFIPS'24).

- **2024** - **Zhang, D.**, Zhang, Y., Bihani, G., Rayz, J. (2024) Hire Me or Not? Examining Language Model's Behavior with Occupation Attributes (under review)

- **2024** - Barber H, Reimer T, **Zhang D**, Rayz J. Is Alexa Happy or Angry? Perceptions and Attributions of Emotional Displays of Smart Technologies in Residential Homes. Sustainability. 2024; 16(7):2721. (paper)

- **2023** - Hu, Y., Setpal, J., **Zhang, D.**, Zietek, J., Lambert, J., Gonzalez, R. A., & Rayz, J. (2023) BoilerBot: A Reliable Task-oriented Chatbot Enhanced with Large Language Models. In *Alexa Prize TaskBot Challenge 2 Proceedings.* (paper)

- **2022** - **Zhang, D.**, & Rayz, J. (2022, May). Examining Stereotypes in News Articles. In *The International FLAIRS Conference Proceedings* (Vol. 35). (paper)

SKILLS

Frontend	JavaScript, HTML, CSS, React, Bootstrap
Backend	Python, REST API, Django
Cloud	AWS, Docker
Other	Git, SQL, Figma, PyTorch

EDUCATION

Purdue University, Ph.D. in Computer and Information Technology   2022 - Expected 2026
Research Interests: Knowledge Representation, Intent Classification

Purdue University, M.S. in Computer and Information Technology   2020 - 2021
Thesis: Examination of Gender Bias in News Articles

University of Massachusetts Amherst, B.S. in Computer Science   2015 - 2019
Minor in Mathematics