

LINGZE ZHANG

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RESEARCH INTERESTS

Natural Language Processing, focusing on **model understanding** (evaluation, mechanistic interpretability, etc.) and **human-AI collaboration**, and on **integrating these perspectives to develop better systems that support human creativity and reasoning tasks**.

EDUCATION

Brown University Aug 2022 – Dec 2024
Master of Science in **Computer Science** GPA: 4.00/4.00
Cross Registration: Research Topics in Human-Computer Interaction at Harvard University, Fall 2024

University of Maryland, College Park Aug 2018 – Aug 2019
Master of Science Program in **Human-Computer Interaction** GPA: 3.95/4.00
Completed 18 credits in HCI and computational linguistics coursework before voluntary withdrawal in personal reasons.

Peking University Sep 2014 – Jul 2017
Master of Economics in **Economics** GPA: 85.9/100
Exchange: Royal Institute of Technology (KTH), Stockholm, Sweden, Fall 2015

Peking University Sep 2010 – Jul 2014
Bachelor of Economics in **Finance and Banking** Primary Degree GPA: 85.3/100
Bachelor of Science (dual degree) in **Mathematics and Applied Mathematics** Combined GPA: 83.8/100

PUBLICATIONS

[1] **Lingze Zhang** and Ellie Pavlick. 2025. **Does training on synthetic data makes models less robust?** *Accepted by the Workshop on Insights from Negative Results in NLP, NAACL 2025.*
Investigated how fine-tuning with synthetic examples from language models affects task-specific robustness. Observed that performance dispersion and bias amplification occur under certain settings but not consistently across conditions.

PROFESSIONAL EXPERIENCE

Giving Forward *Software Engineer (Volunteer)* Remote 05/2025 – Present
Designed and implemented an AI-driven news aggregation and verification system supporting cause-marketing initiatives. Built an end-to-end pipeline for multi-source retrieval, factual verification, summarization, and automated publication. Developed a ReAct-style agent that conducts automated web searches and evidence checking for each candidate story, reducing outdated information and hallucinations in model-generated summaries.

Microsoft China *Software Engineer* Suzhou, China 11/2021 - 01/2023
Contributed to the *Predicted Whole-page Side-by-side* project modeling human search evaluation outcomes to estimate Bing's cross-market performance. Integrated semantic embeddings (BERT) with feature engineering in a tree-based ranking framework to improve generalization to low-resource markets. Conducted error and bias analyses and co-developed improved evaluation methodologies for multilingual search quality assessment.

Yimian Data *AI Development Engineer (Full-time Intern)* Shenzhen, China 07/2020 - 09/2021
Contributed to developing customized aspect-based sentiment analysis solutions for clients across multiple industries, including defining aspect extraction rules and fine-tuning sentiment models. Built and maintained backend and frontend components with Python (Flask) and Vue, and assisted in system deployment on Kubernetes. Designed an unsupervised sentence embedding and clustering pipeline that improved the efficiency of aspect rule definition. Mentored new team members during project onboarding.

Industrial and Commercial Bank of China *Assistant Product Manager* Beijing, China 07/2017 - 07/2018
Led product design for multiple enterprise payment and settlement features, drafting detailed requirement documents with comprehensive user cases and interface specifications. Coordinated with engineering and business teams to integrate new products into the bank's existing systems. Conducted research on the potential applications of emerging technologies, including artificial intelligence and blockchain, in financial services.

RESEARCH & PROJECT EXPERIENCE

VIBING: Visual INTuition-Based Interaction for Natural Generation from Painters and Artists Fall 2024
Investigated how to bridge the gap between artists' visual intuition and the language-based reasoning of generative models. Conducted need-finding research with visual creators and identified opportunities for AI-assisted creativity support. Co-designed and implemented *VIBING*, a Svelte-based system integrating GPT and Stable Diffusion APIs to offload prompt formulation to LLM agents and inspire users through creative summaries and visual suggestions. Validated the system through a comparative user study, combining quantitative and qualitative feedback, which showed positive reception and informed directions for further refinement. Project report and demo available at: <https://github.com/untakenJ/VIBING>.

Planning Ahead for Future Tokens in LLMs

Collaborated with researchers from Brown and MIT on an investigation into whether large language models exhibit implicit planning or lookahead behavior. Extended earlier approaches by implementing myopic and bigram variants of the OPT-125M model to isolate effects of pre-caching versus short-term contextual cues. Trained models on large-scale natural language data and compared validation perplexities across training schemes. Findings suggested stronger pre-caching behavior in fully converged models, offering complementary evidence to contemporaneous work published in early 2024. (project report: bit.ly/48taEZt)

Spring 2024

Multimodal PowellReader: Analyzing Market Response to FOMC Press Conferences

Investigated how multimodal information in Federal Reserve press conferences influences market expectations of interest rates. Constructed a novel dataset aligning sentence-level transcripts, audio, and video of FOMC conferences with high-frequency Federal Funds Futures price movements. Extracted embeddings with FINBERT, wav2vec2.0, and CLIP, and trained multimodal classifiers including MLP and Transformer fusion models. Performed interpretability analysis using modality-specific input corruption to quantify each modality's contribution to prediction performance. (project report: bit.ly/4ifGCvM)

Spring 2023

Teachable Machine for Older Adults (Part-time RA at University of Maryland)

Contributed to an early-stage exploration of self-tracking technologies designed for older adults. Developed a smartwatch-based prototype supporting text and voice input for self-tracking activities using the WeChat API. Collaborated with the research team in planning the human-subject study design and discussing data collection and interaction procedures.

Spring 2019

TEACHING EXPERIENCE

Brown University, Providence, United States

CSCI1951A – Data Science: Undergraduate Teaching Assistant:

CSCI1410 – Artificial Intelligence: Undergraduate Teaching Assistant

CSCI1470 – Deep Learning: Joint Undergraduate TA and Socially Responsible Computing TA

Spring 2023

Fall 2023

Spring 2024

Supported course instruction by hosting office hours, developing and grading assignments, and contributing to the design of socially responsible computing discussion modules.

EARLY INTERNSHIP EXPERIENCE

Bohai Life Insurance Product Design Intern

Beijing, China 07/2015 - 08/2015

Contributed to the design of a social networking application for policyholders, including user requirement research and the development of both low-fidelity paper prototypes and high-fidelity interactive prototypes.

Meituan Marketing Intern

Beijing, China 05/2013 - 08/2013

Contributed to the operation and content creation of Meituan's official Weibo account. Designed a streamlined campaign management system to coordinate real-time promotional requests from regional business development teams. Assisted in the early-stage design of Meituan's personalized brand mascot.

AWARDS & HONORS

Peking University

Mong Man Wai International Communication Scholarship (10000 CNY)

Outstanding Graduate of Yuanpei College

“Challenge Cup” May-4th Youth Science Competition, Third Prize (Interdisciplinary Group)

Academic Excellence Award

May-4th Scholarship (2000 CNY)

06/2015

06/2014

04/2013

12/2012

12/2011

SKILLS

Machine Learning & NLP:

PyTorch, Hugging Face Transformers, WandB, Large Language Models, Parameter-Efficient Fine-Tuning, Model Evaluation, AI Agents.

System Development:

Python, JavaScript/TypeScript, HTML/CSS, SQL, MongoDB, Flask, Node.js, React, Vue, AWS, Google Cloud(GCP), Docker.

Human Research Methods:

Experimental Design, Mixed Methods Research, Thematic Analysis, Interview, Contextual Inquiry, Statistical Analysis.

EXTRACURRICULAR ACTIVITIES

UpHill Chinese Theatre Group of Brown University Performer

02/2024 - 04/2024

Performed the role of *The Coppersmith* in the club's semester Mandarin-language stage production *Mr. Donkey*. Collaborated with cast and production teams on script interpretation and character development for cross-cultural theater performance.

Maker Space of Peking University Co-founder and Director

12/2014 - 07/2017

Co-founded and led a student-run maker community promoting hands-on innovation and technical literacy. Designed the organizational framework and training programs introducing fabrication technologies such as Arduino and 3D printing, especially for students from non-engineering backgrounds. Organized and mentored student teams in developing technical projects and creative prototypes.