

# LINGZE ZHANG

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## EDUCATION

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**Brown University, Providence, United States** *August 2022 (In-person from Spring 2023) - December 2024*  
Master of Science, *Computer Science* GPA 4.00/4.00  
*Courses:* Artificial Intelligence, Language Processing in Humans and Machines, Advanced Topics in Deep Learning, Reintegrating AI, Computer Systems, Research topics in Human-computer Interaction (at Harvard University)

**University of Maryland, College Park, United States** *August 2018 - August 2019*  
Master of Science, *Human-computer Interaction* (withdrew with GPA 3.95/4.00)  
*Courses:* Fundamentals of Human-Computer Interaction, Introduction to Research Methods, Computational Linguistics I, Advanced Computer Graphics, Interaction Design Studio, Big Data Infrastructure

**Peking University, Beijing, China** *September 2014 - July 2017*  
Master of Economics, *Economics* GPA: 85.9/100  
*Exchange Study:* Royal Institute of Technology (KTH), Stockholm, Sweden (August 2015 - January 2016)

**Peking University, Beijing, China** *September 2010 - July 2014*  
Bachelor of Economics, *Finance and Banking* Primary degree GPA: 85.3/100  
Bachelor of Science (dual degree), *Mathematics and Applied Mathematics* Combined GPA: 83.8/100

## PUBLICATIONS

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[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.*

We hypothesize that fine-tuning task-specific models with synthetic examples generated by language models can significantly degrade performance on challenging subsets of examples referred to as blind spot even if the overall performance improves. In our experiments, we use MultiNLI as the general task and HANS as the blind-spot dataset. By varying experimental settings (e.g., initial model state, training size, etc.), we observed that performance dispersion occurs under specific scenarios, although not as consistently as we anticipated. Additionally, we identified biases in synthetic data, such as the correlation between lexical overlap and entailment labels.

## FULL-TIME WORK EXPERIENCE

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**Microsoft China Co., Ltd., Suzhou, China** *November 2021 - January 2023*  
*Software Engineer (Full-time)*  
Worked on improving the model for predicting human-judged search engine performance comparison results between Bing and Google, on queries in different languages across multiple markets worldwide. Designed and developed experiments with new data, features and model components, and iterated on the model with data analysis. The main model is a LightGBM-based tree model with deep neural network components for analyzing search result contents.

**Shenzhen Yimian Network Technology Co., Ltd., Shenzhen, China** *July 2020 - September 2021*  
*AI Development Engineer (Full-time Intern)*  
Maintained and improved the company's industry-leading sentiment analysis system. Developed aspect-based sentiment analysis solutions customized for multiple clients. Participated in AI infrastructure and workflow utility development with Python (Flask), Go, JavaScript (Vue), etc. I also mentored some of the team's new employees.

**ICBC Product Research and Development Center, Beijing, China** *July 2017 - July 2018*  
*Assistant Product Manager (Full-time)*  
Took a leading role in the research, design and integration of payment and settlement products for businesses and institutions. Wrote product requirement documents with detailed user cases and interfaces.

## PART-TIME AND INTERNSHIPS

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**University of Maryland, College Park, United States** *March 2019 - May 2019*  
*Part-time Research Assistant*  
Participated in the early stage of "Teachable Machine for Older Adults" research project. Did exploratory research on devices, systems and machine learning algorithms for self-tracking. Built a light prototype for smartwatch based self-tracker with Python and WeChat API.

**Bohai Life Insurance Co. Ltd., Beijing, China** *July 2015 - August 2015*  
*Product Design Intern*  
Worked on the initial design of an SNS mobile application for policyholders. Did research about related products. Participated in the development of lo-fi paper prototype and hi-fi interactive prototype.

**Sankuai Technology Co. Ltd. (Meituan), Beijing, China**

*May 2013 - August 2013*

*Marketing Intern*

Participated in the operation and content production of Meituan official Weibo account. Assisted in the design of a personalized mascot of Meituan. Proposed a prototype for Weibo content management portal improvement.

## OTHER PROJECTS

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### **VIBING: Visual INTuition-Based Interaction for Natural Generation from Painters and Artists**

*September 2024 -*

In this group project, we aimed to design and evaluate a text-to-image tool that better supports art practitioners refine their ideas and create more satisfactory images. From the pilot study we found that artists, as visual thinkers, prefer to conceptualize ideas visually and express themselves through sketches, facing challenges in “translating” mental images into text-based prompts. Based on these findings, we are designing and evaluating a system with dialog and in-place sketching features to better support artists’ visual thinking and reduce their cognitive load in text edition.

### **Planning ahead for future tokens in LLMs**

*February 2024 - May 2024*

With collaborators from Brown and MIT, we worked to evaluate whether LLMs plan for future tokens when predicting the next token. We formalized our research question mathematically and experimented on the OPT 125M models with DOLMA as the training set. A notable different result from a published concurrent study was that the pre-caching effect was significantly more pronounced in models trained to converge.

### **Multimodal PowellReader: Analyzing Market Response to FOMC Press Conferences**

*March 2023 - May 2023*

Our team built a novel, multimodal dataset that matches the transcript, audio, and video of Federal Reserve chair press conferences after Federal Open Market Committee meeting statement releases with high-frequency movements in Federal Funds Futures (FFF) prices at the sentence level. We extracted embeddings of different modalities with models such as CLIP and FINBERT, and built multiple FFF price prediction models. Interpretability was also explored by corrupting the input of each modality.

### **Image Reconstruction with Multiple Inputs Using Pix2Pix Model**

*March 2019 - May 2019*

Individually implemented a modified pix2pix (a conditional GAN model featured by skip connections and Markovian discriminator) model that takes multiple low-quality input images to reconstruct high-quality output, with the Keras framework. I also ran experiments to compare different hyperparameters and input images, in terms of both quantitative indicators (PSNR, SSIM) and perceptual realism.

### **Pairbnb: Analysis and Visualization on Airbnb Listings Data**

*March 2019 - May 2019*

Cleaned and analyzed the data of Airbnb listings in NYC with Spark, including home features and about 1.1 million reviews. The analysis was at the level of neighborhoods, including exploratory analysis and feature extraction from reviews with LDA model by Amazon Comprehend. Plotly was used to visualize the data on a city map.

### **Deep-learning Based Question Answering System**

*November 2018 - December 2018*

Collaboratively developed a question answering system with QANTA dataset and PyTorch framework. Techniques used and explored include TF-IDF, LSTM, deep averaging network, keyword analysis, clustering, etc. The accuracy of the model of best performance was 68%, higher than most teams in the graduate level NLP class.

## TEACHING EXPERIENCE

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### **Brown University, Providence, United States**

*Undergraduate Teaching Assistant: CSCI1951A (Data Science)*

*2023 Spring*

*Undergraduate Teaching Assistant: CSCI1410 (Artificial Intelligence)*

*2023 Fall*

*Joint Undergraduate TA and Socially Responsible Computing TA: CSCI1470 (Deep Learning)*

*2024 Spring*

Undergraduate TA responsibilities include hosting office hours about course materials and the development and grading of assignments. Joint UTA-STAs also participate in the development of socially responsible computing components (e.g. discussion sessions) of the course in addition.

## EXTRACURRICULAR ACTIVITIES

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### **Maker Space of Peking University Co-founder and Director**

*December 2014 - July 2017*

Participated in establishing the association and assisted in the design of the organization framework and activities.

Worked with the management team in the planning of activities like mini-courses about Arduino and 3D printing.

## SKILLS

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### **Programming Languages**

C/C++, Python, Java, HTML/css, JavaScript, SQL

### **Frameworks, Libraries and Tools**

PyTorch, TensorFlow, Pandas, MATLAB, Stata, Flask, Vue, MongoDB, L<sup>A</sup>T<sub>E</sub>X