Maozheng Zhao

CS PhD at Stony Brook University (Ranked 23 in the US by CSRankings.org)

Expertise

My PhD research focuses on multi-modal human-computer interaction, specifically on combining modalities such as touch, voice, and eye gaze with AI for a more natural and efficient interaction experience on mobile devices. Apart from expertise in HCI, I also have extensive experience with computer vision and LLMs from my previous publications and internships.

Available starting date

January 15, 2024 or later. I'll graduate in December 2023.

Education

Ph.D., Stony Brook University, Stony Brook, USA

August 2016 — Present

Major: Computer Science. Advisor: Prof. Xiaojun Bi. GPA: 3.78

M.S., Beijing University of Posts and Telecommunications, Beijing, China

August 2013 — March 2016

Major: Information and Communication Engineering. GPA: 3.80

B.S., Harbin Engineering University, Harbin, China

August 2009 — July 2013

Major: Electronic and Information Engineering. GPA: 3.79

Internship Experience

Student researcher at Google, Mountain View, CA

December 2022 — May 2023

Enabled Android settings search to understand natural language queries by LLMs. Created a dataset with pairs of natural language queries and answers by prompt engineering using LLMs, fine-tuned the LaMDA LLM with the dataset, evaluated the fine-tuned model with real user queries collected from a user study. The fine-tuned model significantly outperforms traditional search algorithms such as TF-IDF, and sentence encoding.

Research Intern at Google, Mountain View, CA

October 2022 — December 2022

(Same as the Google student researcher project above)

Research Scientist Intern at Meta, Redmond, WA

May 2022 — September 2022

Contact information

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Links

Personal Webpage

Linkedin

Google scholar

Skills

Deep learning with Pytorch or TensorFlow

Android development with Java

iOS development with Swift

Unity development with C#

Reduced users' physical burden in gesture typing in virtual reality by utilizing eye tracking information. Published a conference paper in IUI2024 from the intern project.

★ Papers under review

Zhao, Maozheng, Nathan Huang, Rui Liu, Shumin Zhai, I. V. Ramakrishnan and Xiaojun Bi. "Beyond Autocorrect: LLM-based Multi-modal Text Correction on Smartphones with Voice and Touch Input." Submitted at CHI 2024 conference on Human Factors in Computing Systems. (Project webpage)

★ Selected Publications

[1] **Zhao, Maozheng**, Wenzhe Cui, I. V. Ramakrishnan, Shumin Zhai, and Xiaojun Bi. "Voice and Touch Based Error-tolerant Multimodal Text Editing and Correction for Smartphones." In *The 34th Annual ACM Symposium on User Interface Software and Technology (UIST)*, pp. 162-178. 2021. (Project webpage)

[2] **Zhao, Maozheng**, Henry Huang, Zhi Li, Rui Liu, Wenzhe Cui, Kajal Toshniwal, Ananya Goel et al. "EyeSayCorrect: Eye Gaze and Voice Based Hands-free Text Correction for Mobile Devices." In *27th International Conference on Intelligent User Interfaces (IUI)*, pp. 470-482. 2022. (Project webpage)

[3] **Zhao, Maozheng**, Alec M. Pierce, Ran Tan, Ting Zhang, Tianyi Wang, Tanya R. Jonker, Hrvoje Benko, and Aakar Gupta. "Gaze Speedup: Eye Gaze Assisted Gesture Typing in Virtual Reality." In *Proceedings of the 28th International Conference on Intelligent User Interfaces (IUI)*, pp. 595-606. 2023. (Project webpage)

[4] Li, Zhi, **Maozheng Zhao**, Dibyendu Das, Hang Zhao, Yan Ma, Wanyu Liu, Michel Beaudouin-Lafon, Fusheng Wang, Iv Ramakrishnan, and Xiaojun Bi. "Select or Suggest? Reinforcement Learning-based Method for High-Accuracy Target Selection on Touchscreens." In *CHI Conference on Human Factors in Computing Systems (CHI)*, pp. 1-15. 2022.

[5] Li, Zhi, **Maozheng Zhao**, Yifan Wang, Sina Rashidian, Furqan Baig, Rui Liu, Wanyu Liu et al. "BayesGaze: A Bayesian Approach to Eye-Gaze Based Target Selection." In *Proceedings. Graphics Interface (GI)*, vol. 2021, p. 231. NIH Public Access, 2021.

[6] Nguyen, Vu, Tomas F. Yago Vicente, **Maozheng Zhao**, Minh Hoai, and Dimitris Samaras. "Shadow detection with conditional generative adversarial networks." In *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, pp. 4510-4518. 2017.

[7] Fassler, Danielle J., et al. "Deep learning-based image analysis methods for brightfield-acquired multiplex immunohistochemistry images." *Diagnostic pathologymedical* 15.1 (2020): 1-11.

[8] **Zhao, Maozheng**, Le Hou, Han Le, Dimitris Samaras, Nebojsa Jojic, Danielle Fassler, Tahsin Kurc et al. "Label Super Resolution with Inter-Instance Loss." *arXiv preprint arXiv:1904.04429* (2019).

[9] **Zhao, Maozheng**, Qin Tu, Yanping Lu, Yongyu Chang, and Bo Yang. "No-reference image quality assessment based on phase congruency and spectral entropies." In *2015 Picture Coding Symposium (PCS)*, pp. 302-306. IEEE, 2015.

[10] Liu, Jun, Ran Gao, Maozheng Zhao, Yanping Lu, and Aidong Men. "Video saliency detection based on mutual information and background prior in compressed domain." In *2015 IEEE/CIC International Conference on Communications in China (ICCC)*, pp. 1-6. IEEE, 2015.

[11] Lu, Yanping, et al. "Gradient magnitude similarity for tone-mapped image quality assessment." *2015 Visual Communications and Image Processing (VCIP)*. IEEE, 2015.

[12] Mu, Linlin, **Maozheng Zhao**, and Chaozhu Zhang. "Quantum particle swarm optimisation based on chaotic mutation for automatic parameters determination of pulse coupled neural network." *International Journal of Computing Science and Mathematics* 4.4 (2013): 354-362.

★ Teaching Experience

Teaching Assistance

CSE323 Human-computer Interaction

CSE214 Data Structures

CSE215 Foundations of Computer Science.