

Xiangming Gu

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EDUCATION

- National University of Singapore** Singapore
• *PhD candidate, Integrative Sciences and Engineering Programme* 2021/08 – Present
Majored in Computer Science, Advisor: Prof. Ye Wang, GPA: 4.80/5.0
- Tsinghua University** Beijing, China
• *B.E. in Electronic Engineering, B.S. in Finance, GPA: 3.80/4.0* 2017/08 – 2021/06

EXPERIENCE

- Sea AI Lab (Shopee's parent company)** Singapore
• *Research Intern* 2023/03 – Present
 - **Host:** Dr. Tianyu Pang and Dr. Chao Du.
 - **Activity:** Conduct research projects on (i) memorization in diffusion models; (ii) infectious jailbreak on (multimodal) large language models based multi-agent systems; (iii) interpretability and bias of large language models.
- National University of Singapore** Singapore
• *Exchange Student* 2020/01 – 2020/05
 - **Host:** Department of Electrical and Computer Engineering
 - **Activity:** Take undergraduate courses with a GPA of 4.88/5.00.

RESEARCH INTERESTS

- **Machine Learning:** Fundamental research for generative models, (multimodal) large language models and AI agents.
- **Singing/Speech:** Application of machine learning, e.g. multimodal learning, multi-distribution learning (domain adaptation, fairness), to singing/speech techniques.

PREPRINTS

* denotes equal contribution, †denotes correspondence.

1. **Xiangming Gu**, Chao Du†, Tianyu Pang†, Chongxuan Li, Min Lin, Ye Wang†. On Memorization in Diffusion Models. *arXiv preprint arXiv:2310.02664*, 2023

PUBLICATIONS (GOOGLE SCHOLAR)

* denotes equal contribution, †denotes correspondence.

1. **Xiangming Gu***, Xiaosen Zheng*, Tianyu Pang*†, Chao Du, Qian Liu, Ye Wang†, Jing Jiang†, Min Lin. Agent Smith: A Single Image Can Jailbreak One Million Multimodal LLM Agents Exponentially Fast. *International Conference on Machine Learning (ICML)*, 2024.
2. **Xiangming Gu**, Longshen Ou, Wei Zeng, Jianan Zhang, Nicholas Wong, Ye Wang†. Automatic Lyric Transcription and Automatic Music Transcription from Multimodal Singing. *ACM Transactions on Multimedia Computing Communications and Applications (TOMM)*, 2024.
3. **Xiangming Gu**, Wei Zeng, Ye Wang†. Elucidate Gender Fairness in Singing Voice Transcription. *ACM International Conference on Multimedia (MM)*, 2023.
4. **Xiangming Gu***, Longshen Ou*, Danielle Ong, Ye Wang†. MM-ALT: A Multimodal Automatic Lyric Transcription System. *ACM International Conference on Multimedia (MM)*, 2022. (**Oral, Top Paper Award**)
5. Hengguan Huang†, **Xiangming Gu**, Hao Wang, Chang Xiao, Hongfu Liu, Ye Wang†. Extrapolative Continuous-time Bayesian Neural Network for Predictive Streaming Domain Adaptation. *Conference on Neural Information Processing Systems (NeurIPS)*, 2022.

6. Longshen Ou*, **Xiangming Gu***, Ye Wang†. Transfer Learning of wav2vec 2.0 for Automatic Lyric Transcription. *International Society for Music Information Retrieval Conference (ISMIR)*, 2022.
7. Yixin Wang, Wei Wei, **Xiangming Gu**, Xiaohong Guan, Ye Wang†. Disentangled Adversarial Domain Adaptation for Phonation Mode Detection in Singing and Speech. *IEEE Transactions on Audio, Speech and Language Processing (TASLP)*, 2023.
8. Wei Wei*, Hengguan Huang*, **Xiangming Gu**, Hao Wang, Ye Wang†. Unsupervised Mismatch Localization in Cross-Modal Sequential Data with Application to Mispronunciations Localization. *Transactions on Machine Learning Research (TMLR)*, 2022.
9. Youze Xue, Jiansheng Chen†, **Xiangming Gu**, Huimin Ma, Hongbing Ma. Boosting Monocular 3D Human Pose Estimation with Part Aware Attention. *IEEE Transactions on Image Processing (TIP)*, 2022.
10. Boyu Zhang, Penghui Yang, **Xiangming Gu**, Hongen Liao†. Laser Endoscopic Manipulator Using Spring-reinforced Multi-DoF Soft Actuator. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, also in *IEEE Robotics and Automation Letter (RA-L)*, 2021.

HONORS AND AWARDS

• Research Incentive Award (School of Computing, National University of Singapore)	2023
• Research Achievement Award (School of Computing, National University of Singapore)	2022
• MM’22 Top Paper Award (Association for Computing Machinery)	2022
• MM’22 Student Travel Grant (Association for Computing Machinery)	2022
• President’s Graduate Fellowship (National University of Singapore)	2021
• Visiting Undergraduate Student Scholarship (Tsinghua University)	2020
• Zheng Geru Scholarship (Tsinghua University)	2018

PROFESSIONAL SERVICES

- **Conference Reviewer:** NeurIPS 2024, MM 2024, ECCV 2024, IJCAI 2024, ICCV 2023, AISTATS 2021
- **Journal Reviewer:** TASLP, RA-L

TEACHING

• Teaching Assistant <i>CS4347/CS5647, Sound and Music Computing</i>	National University of Singapore <i>Fall 2024</i>
• Teaching Assistant <i>CS6212, Topics in Media</i>	National University of Singapore <i>Spring 2024</i>
• Teaching Assistant <i>CS5242, Neural Networks and Deep Learning</i>	National University of Singapore <i>Spring 2023</i>
• Teaching Assistant <i>CS3244: Machine Learning</i>	National University of Singapore <i>Fall 2022</i>
• Teaching Assistant <i>CS4243: Computer Vision and Pattern Recognition</i>	National University of Singapore <i>Spring 2022</i>

TECHNICAL SKILLS

- **Coding:** Python, Matlab, Shell, C/C++, HTML, Verilog, Assembly language, L^AT_EX, ...
- **Libraries:** PyTorch, Tensorflow, Huggingface, SpeechBrain, ...