

Xiangming Gu

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EDUCATION

National University of Singapore

Singapore

- *PhD candidate, Integrative Sciences and Engineering Programme*
Majored in Computer Science, Advisor: Prof. Ye Wang, GPA: 4.80/5.0

2021/08 – 2025/12 (*Expected*)

Tsinghua University

Beijing, China

- *B.E. in Electronic Engineering, B.S. in Finance, GPA: 3.80/4.0*

2017/08 – 2021/06

EXPERIENCE

Google Deepmind

London, United Kindom

- *Student Researcher*
2025/05 – 2025/10
 - **Host:** *Dr. Petar Veličković and Dr. Larisa Markeeva.*
 - **Main Activity:** *Projects on (i) test-time-scaling in LRMs for math and coding domains (internal report); (ii) implementing a JAX package gemma_penzai based on penzai to support interpretability research on Gemma model series (to be released soon); (iii) extracting alignment data in open models, technical report.*

Sea AI Lab

Singapore

- *Research Intern*
2023/03 – 2025/04
 - **Host:** *Dr. Tianyu Pang and Dr. Chao Du.*
 - **Main Activity:** *Projects on (i) memorization in diffusion models, published as TMLR 2025; (ii) infectious jailbreak on (multimodal) LLMs based multi-agent systems, published as ICML 2024; (iii) understanding attention sink in LLMs, published as ICLR 2025 spotlight; (iv) developing evaluation suite for trustworthy datasets based on lm-evaluation-harness; (v) advancing recipe of reinforcement learning with verifiable reward post-training for LLMs.*

RESEARCH (GOOGLE SCHOLAR)

* denotes equal contribution, †denotes correspondence.

LLMs Pre-training and Attention

1. **Xiangming Gu**, Tianyu Pang†, Chao Du, Qian Liu, Fengzhuo Zhang, Cunxiao Du, Ye Wang†, Min Lin. When Attention Sink Emerges in Language Models: An Empirical View. *International Conference on Learning Representations (ICLR)*, 2025. (**Spotlight**)
2. Federico Barbero*†, Álvaro Arroyo*, **Xiangming Gu**, Christos Perivolaropoulos, Michael Bronstein, Petar Veličković, Razvan Pascanu. Why Do LLMs Attend to the First Token? *Conference on Language Modeling (COLM)*, 2025.
3. Tongyao Zhu, Qian Liu†, Haonan Wang, Shiqi Chen, **Xiangming Gu**, Tianyu Pang, Min-Yen Kan. SkyLadder: Better and Faster Pretraining via Context Window Scheduling. *Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2025.

Safety/Security of LLMs and Diffusion Models

1. Federico Barbero†, **Xiangming Gu**, Christopher A. Choquette-Choo, Chawin Sitawarin, Matthew Jagielski, Itay Yona, Petar Veličković, Ilia Shumailov, Jamie Hayes. Extracting Alignment Data in Open Models. *Technical Report*, 2025.
2. **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.
3. **Xiangming Gu**, Chao Du†, Tianyu Pang†, Chongxuan Li, Min Lin, Ye Wang†. On Memorization in Diffusion Models. *Transactions on Machine Learning Research (TMLR)*, 2025.

4. Hongfu Liu[†], Hengguan Huang, **Xiangming Gu**, Hao Wang, Ye Wang. On Calibration of LLM-based Guard Models for Reliable Content Moderation. *International Conference on Learning Representations (ICLR)*, 2025.

Speech/Singing and Multimodality

1. **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.
2. **Xiangming Gu**, Wei Zeng, Ye Wang[†]. Elucidating Gender Fairness in Singing Voice Transcription. *ACM International Conference on Multimedia (MM)*, 2023.
3. **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)**
4. 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.
5. 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.
6. 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.

Others

1. Hengguan Huang[†], **Xiangming Gu**, Hao Wang, Chang Xiao, Hongfu Liu, Ye Wang[†]. Extrapolative Continuous-time Bayesian Neural Network for Predictive Streaming Domain Adaptation. *Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2022.
2. 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.
3. Boyu Zhang, Penghui Yang, **Xiangming Gu**, Hongen Liao[†]. Laser Endoscopic Manipulator Using Spring-reinforced Multi-DoF Soft Actuator. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, also *IEEE Robotics and Automation Letter (RA-L)*, 2021.

HONORS AND AWARDS

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- Dean's Graduate Research Excellence Award (School of Computing, National University of Singapore) 2024
 - Research Incentive Award (School of Computing, National University of Singapore) 2023
 - Research Achievement Award (School of Computing, National University of Singapore) 2025, 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
 - Tsinghua's Friend – Zheng Geru Scholarship (Tsinghua University) 2018

TALKS OR SHARINGS

- Google Deepmind Team DL: Agent Frontier, talk on “Looking into LLMs: From Tokens to Solutions”. 2025
- Google Deepmind Team DL: Agent Frontier, talk on “Understanding Attention Sink in (Large) Language Models”. 2025
- ASAP Seminar Series, invited talk on “When Attention Sink Emerges in Language Models: An Empirical View”. 2025
- Singapore Alignment Workshop, poster presentation on “Agent Smith: A Single Image Can Jailbreak One Million Multimodal LLM Agents Exponentially Fast”. 2025
- National University of Singapore Research Week Open House, invited talk on “On the Interpretability and Safety of Generative Models”. 2025
- Global Young Scientists Summit, poster presentation on “Agent Smith: A Single Image Can Jailbreak One Million Multimodal LLM Agents Exponentially Fast”. 2025

PROFESSIONAL SERVICES

- **Conference Reviewer:** NeurIPS 2025/2024, ICML 2025, ICLR 2026/2025, CVPR 2026/2025, ICCV 2025/2023, ECCV 2024, ACL ARR 2025/2024, MM 2025/2024, IJCAI 2024, AISTATS 2026/2025/2021
- **Journal Reviewer:** TPAMI, TOMM, TASLP, RA-L

TEACHING

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|---|--|
| • 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, \LaTeX , ...
- **Libraries:** PyTorch, JAX, Transformers, VLLM, SpeechBrain, ...