Mingzhe Du

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Research Interests

Code Generation / Preference Alignment / Bias Evaluation and Mitigation

Education

Nanyang Technological University — Singapore
PhD Candidate in Computer Science, College of Computing and Data Science — *Aug. 2022 – Present*
- Advisor: *Prof. Anh Tuan Luu*

The University of Melbourne — Melbourne, Australia
Master of Information Technology, Faculty of Engineering — *Oct. 2017 – Dec. 2019*
- Advisor: *Prof. Richard O. Sinnott*
- Specialization: Distributed Computing (Honorable Dissertation)

Central South University — Changsha, China
Bachelor of Information Security, School of Computer Science and Engineering — *Sep. 2013 – Jun. 2017*
- Excellent Scholarships *(GPA: 3.7/4.0)*

Professional Experience

National University of Singapore, *Institute of Data Science* — *Aug. 2021 – Present*
- Research Associate (Advisor: *Prof. See-Kiong Ng*)
- Affiliated with Cisco-NUS Accelerated Digital Economy Corporate Laboratory.

ByteDance, *Tiktok Search* — *Dec. 2019 – Aug. 2021*
- Software Architect (Full Time)
- Architected a scalable, general-purpose search engine (*Search Eternal*) that now powers core search services for major ByteDance platforms, including *Douyin*, *TikTok* and *TouTiao*.

Microsoft, *Asia-Pacific Research and Development Group* — *Nov. 2018 – Mar. 2019*
- Research Intern (Mentor: *Wei Liu*)
- Designed and implemented a Transformer-based model for text-to-image synthesis, generating visually coherent images from textual descriptions.

Alibaba, *Ant Finance Core Clearing Team* — *Jul. 2016 – Oct. 2016*
- Software Engineer Intern
- Developed components for a core system in Alipay's payment clearing flow, enabling the aggregation of millions of orders at minute-level latency for data exchange with banking partners.

Tencent, *Social Network Group* — *Mar. 2016 – Jun. 2016*
- Software Engineer Intern
- Built and deployed a URL analysis platform to process and detect suspicious content in high-volume public message traffic, significantly improving the filtering of malicious information to enhance content security.

Academic Services

- **Conference Reviewer:** *NeurIPS (24,25), ICLR (24,25,26), ICML (25,26), AISTATS (24,26), AAAI'26, AISI'26, CIKM'25, ECAI'25, NAACL'24, EMNLP'24, ECAI'24, CLEF'23.*
- **Journal Reviewer:** *ACM Computing Survey, Frontiers in Artificial Intelligence.*
- **Volunteer:** *NeurIPS'25, ACL'25, WWW'24, EMNLP'24, AAAI'23.*
- **STEM Mentor:** *The University of Melbourne (2019-Present).*

Selected Publications

[NeurIPS'25] Afterburner: Reinforcement Learning Facilitates Self-Improving Code Efficiency Optimization.
Mingzhe Du, Luu Anh Tuan, Yue Liu, Yuhao Qing, Dong Huang, Xinyi He, Qian Liu, Zejun Ma, See-kiong Ng

[ACL'25] CodeArena: A collective evaluation platform for LLM code generation.
Mingzhe Du, Luu Anh Tuan, Bin Ji, Xiaobao Wu, Dong Huang, Terry Yue Zhuo, Qian Liu, See-Kiong Ng

[NeurIPS'24] Mercury: A Code Efficiency Benchmark for Code Large Language Models.
Mingzhe Du, Luu Anh Tuan, Bin Ji, Qian Liu, See-Kiong Ng

Publications

[Preprint] Nexus: Execution-Grounded Multi-Agent Test Oracle Synthesis
Dong Huang, **Mingzhe Du**[†], Jie M. Zhang, Zheng Lin, Meng Luo, Qianru Zhang, See-kiong Ng.

[Preprint] SWE-Perf: Can Language Models Optimize Code Performance on Real-World Repositories?
Xinyi He, Qian Liu, **Mingzhe Du**, Lin Yan, Zhijie Fan, Yiming Huang, Zejian Yuan, and Zejun Ma.

[Preprint] Benchmarking LLMs for Unit Test Generation from Real-World Functions.
Dong Huang, Jie M. Zhang, Mark Harman, Qianru Zhang, **Mingzhe Du**[†], and See-Kiong Ng.

[EACL'26] Pro-QuEST: Prompt-chaining Quiz Engine for testing Specialized Technical Product Knowledge
Sujatha Das Gollapalli, Mouad Hakam, **Mingzhe Du**, See-Kiong Ng, and Mohammed Hamzeh.

[AMIYA'26] Improving Arabic Dialectness in LLMs with Reinforcement Learning
Sujatha Das Gollapalli, Mouad Hakam, **Mingzhe Du**, See-Kiong Ng, and Mohammed Hamzeh.

[ICLR'26] Beyond Prompt-Induced Lies: Investigating LLM Deception on Benign Prompts. (Oral)
Zhaomin Wu, **Mingzhe Du**, See-Kiong Ng, and Bingsheng He.

[EMNLP'25] On Assigning Product and Software Codes to Service Requests with Large Language Models.
Sujatha Das Gollapalli, Mouad Hakam, **Mingzhe Du**, See-Kiong Ng, and Mohammed Hamzeh.

[NeurIPS'25] EffiBench-X: A Multi-Language Benchmark for Measuring Efficiency of LLM-Generated Code.
Yuhao Qing*, Boyu Zhu*, **Mingzhe Du***, Zhijiang Guo, Terry Yue Zhuo, Qianru Zhang, Jie M. Zhang, Heming Cui, Siu-Ming Yiu, Dong Huang, See-Kiong Ng, and Luu Anh Tuan.

[NeurIPS'25] Guardreasoner-VL: Safeguarding VLMs via Reinforced Reasoning.
Yue Liu, Shengfang Zhai, **Mingzhe Du**, Yulin Chen, Tri Cao, Hongcheng Gao, Cheng Wang, Xinfeng Li, Kun Wang, Junfeng Fang, Jiaheng Zhang, and Bryan Hooi.

[PRAL@ICML'25] Afterburner: Reinforcement Learning Facilitates Self-Improving Code Efficiency Optimization.
Mingzhe Du, Luu Anh Tuan, Yue Liu, Yuhao Qing, Dong Huang, Xinyi He, Qian Liu, Zejun Ma, and See-kiong Ng.

[CFAgentic@ICML'25] Collective Bias Mitigation via Model Routing and Collaboration.
Mingzhe Du, Luu Anh Tuan , Xiaobao Wu, Yichong Huang, Yue Liu, Dong Huang, Huijun Liu, Bin Ji, Jie M. Zhang, and See-Kiong Ng.

[ICSE'25] Measuring the Influence of Incorrect Code on Test Generation.
Dong Huang, Jie M. Zhang, Mark Harman, **Mingzhe Du**[†], and Heming Cui.

[ACL'25] AntiLeakBench: Preventing Data Contamination by Automatically Constructing Benchmarks with Updated Real-World Knowledge. (Oral and SAC Highlight Award)
Xiaobao Wu, Liangming Pan, Yuxi Xie, Ruiwen Zhou, Shuai Zhao, Yubo Ma, **Mingzhe Du**, Rui Mao, Anh Tuan Luu, and William Yang Wang.

[**ICML'25**] Position: Current Model Licensing Practices are Dragging Us into a Quagmire of Legal Noncompliance. (Oral)
Moming Duan*, **Mingzhe Du***, Rui Zhao, Mengying Wang, Yinghui Wu, Nigel Shadbolt, and Bingsheng He.

[**AAAI'25**] Towards Verifiable Text Generation with Generative Agent. (Oral)
Ji, Bin, Huijun Liu, **Mingzhe Du**, Shasha Li, Xiaodong Liu, Jun Ma, Jie Yu, and See-Kiong Ng.

[**SAC'25**] Curriculum Demonstration Selection for In-Context Learning.
Duc Anh Vu, Cong-Duy Nguyen, Xiaobao Wu, Nhat Hoang, **Mingzhe Du**, Thong Nguyen, and Anh Tuan Luu.

[**JMIR'25**] Unraveling Online Mental Health Through the Lens of Early Maladaptive Schemas: AI-Enabled Content Analysis of Online Mental Health Communities.
Beng Heng Ang, Sujatha Das Gollapalli, **Mingzhe Du**, and See-Kiong Ng.

[**AAAI'24**] From Static to Dynamic: Knowledge Metabolism for Large Language Models.
Mingzhe Du, Anh Tuan Luu, Bin Ji, and See-Kiong Ng.

[**AAAI'24**] Chain-of-Thought Improves Text Generation with Citations in Large Language Models.
Bin Ji, Huijun Liu, **Mingzhe Du**, and See-Kiong Ng.

[**ECAI'24**] Counseling Responses for Mental Health Forum Questions with Early Maladaptive Schema Prediction.
Sujatha Das Gollapalli, Beng Heng Ang, **Mingzhe Du**, and See-Kiong Ng.

[**TLDK'23**] Constituency-Informed and Constituency-Constrained Extractive Question Answering with Heterogeneous Graph Transformer.
Mingzhe Du, Mouad Hakam, See-Kiong Ng, and Stéphane Bressan.

[**WWW'23**] Identifying Checkworthy Cure Claims on Twitter.
Sujatha Das Gollapalli, **Mingzhe Du**, and See-Kiong Ng.

[**AAAI'23**] Generating Reflective Questions for Engaging Gallery Visitors in ArtMuse.
Sujatha Das Gollapalli, **Mingzhe Du**, and See-Kiong Ng.

[**CLEF'22**] NUS-IDS at CheckThat! 2022: Identifying Check-worthiness of Tweets using CheckthaT5.
Mingzhe Du, Sujatha Das Gollapalli, and See-Kiong Ng.

† *Corresponding Author, ∗ Equal Contribution.*

Awards

- **Staff Research Award 2025** at **Institute of Data Science, National University of Singapore**.
- **First Runner-Up Award** at the **Singapore Healthcare AI Datathon 2022**: *Identifying ICU Patient with Central Lines at Risk of CLABSI.*
- **First Prize** at **Catalyst 2019**: *A Path Recommendation System based on Data Aggregation and Analysis.*
- **First Prize** at **Codebrew 2019**: *After Dark* (Finding Safe and Fast Routes for Pedestrians at Night).
- **First Prize** at the **Mathematical Contest in Modeling (MCM, 2014)**: *Study on the Wreckage Position of Malaysia Airlines Flight MH370.*
- **Second Prize** at the **8th National Information Security Competition (2015)**: *An Efficient Express Label System Based on Hierarchical Encryption.*
- **Technology Pioneer Award** at the **Cyberspace Security Talent Development and Entrepreneurship Forum (2015)**.
- **First Prize** at the **National Internet of Things Competition (2015)**.

Miscellaneous

- **LinkedIn:** *https://www.linkedin.com/in/dumingzhe*   **WeChat:** *spirit_song*
- **GitHub:** *https://www.github.com/elfsong*   **Language:** *Mandarin (native) | English (professional)*