Jing GONG

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Education Background

The University of Melbourne (#13 in QS 2025, #27 in U. S. News 2025) **07/2026-03/2030**
Program: Ph.D. in Engineering and IT (Full Scholarship) Supervisor: Prof. Bach Le, Prof. Cezary Kaliszyk
Sun Yat-sen University (Top 10 in China, #106 in U.S. News 2025) **09/2021-06/2025**
Program: B.E. in Software Engineering Supervisor: Prof. Yanlin Wang, Prof. Zibin Zheng (IEEE Fellow)
GPA: 3.9/4.0 (Average Score: 91/100)
Relevant courses: Principles of Compiler (97), Discrete Mathematics (96), Program Analysis (95), Java and Object-Oriented Design (94), Data Structures and Algorithms (91), Software Analysis and Design (91), etc.
Awards: Baosteel Outstanding Student Scholarship (top 1, 2023-2024); 1st Class Scholarship for Outstanding Student (top 5%, 2023-2024); Kingdomcares Scholarship (top 5, 2022-2023); 1st Class Scholarship for Outstanding Student (top 5%, 2022-2023); 3rd Class Scholarship for Outstanding Student (top 30%, 2021-2022); Mathematical Contest in Modeling (MCM), Meritorious Winner (2024); Sun Yat-sen University Programming Design Novice Competition, Second Prize (04/2023).
International academic experience: International Asian Studies Program, Chinese University of Hong Kong

Publications

1. **Jing Gong**, Yanghui Wu (co-first), Linxi Liang (co-first), Yanlin Wang, Jiachi Chen, Mingwei Liu, Zibin Zheng. "CoSQA+: Pioneering the Multi-Choice Code Search Benchmark with Test-Driven Agents." IEEE Transactions on Software Engineering, vol. 52, no. 1, pp. 206-220, Jan. 2026. DOI: 10.1109/TSE.2025.3631886. *(JCR Q1, CCF-A.)*
2. Linxi Liang, **Jing Gong (co-first)**, Mingwei Liu, Chong Wang, Guangsheng Ou, Yanlin Wang, Xin Peng, Zibin Zheng. "RustEvo^2: An Evolving Benchmark for API Evolution in LLM-based Rust Code Generation." *Preprint available at arXiv:2503.16922 [cs.SE]*.
3. **Jing Gong**. "A Study of Tennis Momentum Based on K-means++ and LightGBM Models." In *Proceedings of the 2024 2nd International Conference on Mechatronics, IoT, and Industrial Informatics (ICMIII 2024)*, pp. 298-303, Melbourne, VIC, Australia, June 12-14, 2024. Institute of Electrical and Electronics Engineers (IEEE). ISBN: 9798350386639.
4. Shiqi Xiao, Aoqi Zhang, **Jing Gong**, Yilun Chen, Shumin Chen, Weibiao Li. "An Explainable Deep Learning Method with Squeeze and Excitation Block for Nowcasting Tropical Cyclone Remote Precipitation." Journal of Geophysical Research: Machine Learning and Computation, Volume 2, Issue 3, e2025JG00675, 2025.
5. Chenlin Wu, Xiaoyu He, Zike Li, **Jing Gong**, Zibin Zheng. "A Historical Trajectory Assisted Optimization Method for Zeroth-Order Federated Learning" *Preprint available at arXiv:2409.15955 [cs.SE]*.

Work Experience

ByteDance **04/2025-10/2025**
AI Algorithm Intern *Department: Product R&D - Jianying CapCut - Multimedia - Special Effects*

- Independently developed an automated multi-AmazingFeature packaging tool. The tool optimized the previously manual process of merging two packages, which took 30 minutes, was highly difficult, and prone to errors, into a single command line operation that completes instantly, significantly improving packaging efficiency and reducing operational error rates.
- Built an automated transition generation Agent pipeline using the LangChain framework based on LumiEffects atomic capabilities and filed a patent for it. Independently created over 100 high-quality special effects, among which "Fluorescent Burst" was featured as VIP paid material and reached the popular list with 597,422 uses (data as of October 22, 2025).
- Developed an automated web scraping tool to batch crawl and automatically download resource links from the CGown platform. Subsequently, used Adobe After Effects and employed image recognition + mouse simulation click technology to batch generate over 10,000 transition effect AEP files to support model training.

Research Experience

REU: LLM-Orchestrated Bayesian Optimization for AutoML, University of Notre Dame **04/2024-02/2025**
Project leader, supervised by Prof. Xiangliang Zhang

- Led a comprehensive study on Bayesian optimization parameter selection, demonstrating how large language models (LLMs) can dynamically select appropriate components based on optimization iteration history and expert knowledge.
- Utilized greedy algorithms and LLM analysis to automatically construct a high-quality dataset for Supervised

Fine-Tuning (SFT) and Direct Preference Optimization (DPO).

- Fine-tuned the open-source large language model Vicuna, achieving state-of-the-art (SOTA) performance that surpasses existing Bayesian optimization tools on the HPOBench benchmark.

RustEvo^2: An Evolving Benchmark for API Evolution in LLM-based Rust Code Generation **09/2024-03/2025**

Co-first Author, supervised by Prof. Mingwei Liu

- Introduced a two-phase framework, EvoEval, which synthesizes 588 API changes to construct the RustEvo2 dataset, designed to evaluate LLMs' adaptability to evolving Rust APIs.
- Revealed significant performance variations among SOTA LLMs, with an average success rate of 65.8% on stabilized APIs but only 38.0% on behavioral changes.
- Demonstrated that knowledge cutoff dates strongly influence model performance, with models scoring 56.1% on pre-cutoff APIs compared to 32.5% on post-cutoff tasks.
- Evaluated the effectiveness of RAG, showing it improves model performance by an average of 13.5% for APIs released after the model's training cutoff.

SYSU Innovation Project: Code Search Optimization Techniques Base on Large Model Query Optimization and Code Optimization **02/2024-03/2025**

Project leader, supervised by Prof. Yanlin Wang

- Completed a prestudy on the optimization of datasets based on large models and researched the cause of model misselection in the code search, as well as existing errors in the dataset through error analysis.
- Conducted a survey of 102 experienced Python programmers reveals that developers typically reference 2.64 code examples per query and perform 8.31 code searches per day on average. This data supports the need for a multi-choice code search benchmark.
- Developed the first Multiagent annotator with 92.0% accuracy for code search dataset.
- Constructed CoSQA$^+$ which is the first benchmark designed for evaluating multi-choice code search.

SYSU Innovation Project: Gradient-free Federated Learning **12/2022-12/2023**

Key member, supervised by Prof. Xiaoyu He

- Developed a scalable federated learning framework that involves randomly selecting clients, placing the model on the server-side, training the clients on the client-side, and uploading the training results.
- Benchmarked optimization methods, such as gradient descent and minibatch-SGD, on datasets like mmist and rcv1 to evaluate their efficiency in logistic regression contexts.

Project Experience

2024 Mathematical Contest in Modeling **02/2024-02/2024**

Project Leader

- Awarded Meritorious Winner.
- Utilized LightGBM to predict game outcomes with over 80% accuracy. Quantified momentum's impact using exponentially weighted moving leverage and K-Means++ clustering.

SSE_MARKET for the School of Software Engineering **03/2022-03/2024**

Project Leader

- Developed the back-end framework using Go and the front-end framework using Vue to implement various features.
- Liaised with faculty and student to collect demands and requirements, prioritized user feedback, and improved the platform’s features.
- Utilized by over two-thirds of the college's students and faculty, making it the largest communication center in the school, with an average of over 6,000 daily views and more than 500 daily active users within a community of fewer than 900 individuals. Website at https://ssemarket.cn/.

Skills & Others

Language Skills: English (proficient); Mandarin (native speaker); Cantonese (native speaker)

Computer Skills: Proficient in Python, C++, and Java; Intermediate in Go and JavaScript; Basic in MATLAB

Patent: LumiAI - A Production Tool for Transition Effects Based on Large Models

Teaching Assistant: Software Engineering Training (Intermediate)

Software Copyright: TC Remote Precipitation Deep Learning Intelligent Prediction Software