

Ming Zhong



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EDUCATION

The Chinese University of Hong Kong, Hong Kong SAR

Aug.2025 – Now

Ph.D Student. in Computer Science and Engineering

- U.S. News 2024 Global Computer Science Rankings: 7
- Research Topic: Quantum Compilers and Software Engineering.

Institute of Computing Technology, Chinese Academy of Sciences, China

Sep.2021 – Jun.2024

M.S. in Computer System and Architecture

- U.S. News 2024 Global Computer Science Rankings: 13
- GPA: 91.34 / 100, Rank: 2 / 344 (Top 1%)
- Research Topic: LLMs for Compilers and Software Engineering.

Beijing University of Posts and Telecommunications, China

Sep.2017 – Jun.2021

B.S. in Computer Science and Technology

- U.S. News 2024 Global Computer Science Rankings: 46
- GPA: 91.29 / 100, Rank: 10 / 383 (Top 3%)
- Research Topic: Rule-Based Construction of Compiler Backends.

PROJECTS

I have led some projects on leveraging LLMs for compiler construction, focusing on both infrastructures and methodologies, resulting in some top-tier publications and additional papers currently under review (UR).

Domain-Specific LLM Infrastructures for Compiler Backend Development.

- A data processing framework for generating backend code data for different compiler infrastructures [UR].
- An open-source, large-scale, and comprehensive compiler backend code dataset, ComBack(++) [1,4].
- Two open-source LLMs tailored for compiler backend development tasks, BePilot-1.5B and 7B [1].

Automated Compiler Backend Generation and Testing Methodologies.

- A compiler backend auto-generation method based on template synthesis and feature selection [2].
- A RAG method for compiler backend generation that incorporates graph representation learning [UR].
- A prediction approach for compiler backend correctness without running regression tests [5].

Generalizability to Various System Software.

- A study on generalizing the proposed methodologies to different types of system software [3].

I have also participated in several compiler-related projects, such as LLMs for compiler optimization [6,7], recognition of compiler optimization options [8], and rule-based compiler constructions [9].

PUBLICATIONS

- [1] M. Zhong, X. Sun, F. Lv, L. Wang, H. Geng, L. Qiu, H. Cui, X. Feng.
BePilot: An AI Programming Assistant for Compiler Backend Development.
TOSEM 2025; CORE-A*.
- [2] M. Zhong, F. Lv, L. Wang, L. Qiu, Y. Wang, Y. Liu, H. Cui, X. Feng, J. Xue.
VEGA: Automatically Generating Compiler Backends Using a Pre-Trained Transformer Model.
CGO 2025; CORE-A.
- [3] M. Zhong, F. Lv, L. Wang, L. Qiu, H. Geng, H. Cui, X. Feng.
Boosting Large Language Models for System Software Retargeting: A Preliminary Study.
SANER 2025; CORE-A.
- [4] M. Zhong, F. Lv, L. Wang, H. Geng, L. Qiu, H. Cui, X. Feng.
ComBack: A Versatile Dataset for Enhancing Compiler Backend Development Efficiency.
NeurIPS 2024; CORE-A*.
- [5] M. Zhong, X. Sun.
Towards Function-Level Correctness Assessment of System Software with LLMs: A Case Study.
APSEC 2025; CORE-C.
- [6] Z. Yang, L. Qiu, F. Lv, M. Zhong, Z. Chai, H. Zhou, H. Cui, X. Feng.
IR-OptSet: An Optimization-Sensitive Dataset for Advancing LLM-Based IR Optimizer.
NeurIPS 2025; CORE-A*.
- [7] L. Qiu, F. Lv, M. Zhong, L. Wang, X. Feng. **RELOPT: A Retriever-Augmented Framework for Optimizing Code with Long-range Dependencies.**
ICONIP 2025; CORE-B.
- [8] H. Geng, M. Zhong, P. Zhang, F. Lv, X. Feng.
OPTango: Multi-central Representation Learning against Innumerable Compiler Optimization for Binary Diffing.
ISSRE 2023; CORE-A.
- [9] H. Geng, F. Lv, M. Zhong, H. Cui, J. Xue, X. Feng.
Automatic Target Description File Generation.
JCST 2023; CORE-B.

AWARDS

- [1] **National Scholarship** (*Annual Rank 1st in the department of CS in BUPT*) Oct. 2020
- [2] First Class Academic Scholarship in Chinese Academy of Sciences Sep. 2022
- [3] Distinguished Bachelor Thesis in Beijing (*Top 1% in Beijing*) Dec. 2021

WORKING EXPERIENCE

Institute of Computing Technology, Chinese Academy of Sciences, China Sep.2024 – May.2025
Research Assistant in AI for Compilers and Software Engineering.

MISCELLANEOUS

- English: **IELTS 8.0 (Listening 9.0, Reading 8.5, Writing 7.5, Speaking 6.0)**