ZHENG ZIYUE

+86-15521010105 | zzheng989@connect.hkust-gz.edu.cn | mrwater98.github.io

EDUCATION

PhD | *Microelectronics*   Sept. 2024 – Present

The Hong Kong University of Science and Technology (Guangzhou)
  – Supervised by Yangdi Lyu; Gain Full Scholarship

Redbird MPhil | *Microelectronics*   Sept. 2022 – Aug. 2024

The Hong Kong University of Science and Technology (Guangzhou)
  – Supervised by Yangdi Lyu; Acc GPA: 4.014/4.3 (Full Scholarship)

Bachelor of Science | *Digital Media Technology*   Oct. 2017 – Aug. 2021

Xiamen University
  – Acc GPA: 3.54/4.0

SELECTED PUBLICATIONS

Conference Papers:

Fine-Grained Code Analysis for Processor Fuzzing   2026
Ziyue Zheng, Zhi Qu, Yangdi Lyu   DATE

Hot-FV: A Semi-Formal Test Generation Framework for RTL Functional Coverage   2025
Ziyue Zheng, Zhiyuan Yan, Xiangchen Meng, Guangyu Hu, Hongce Zhang, Yangdi Lyu   ICCD

APE-FV: Concolic Testing for RTL Functional Verification Using Adaptive Path Exploration 2024
Ziyue Zheng, Xiangchen Meng, Yangdi Lyu   ICCD

FlattenRTL: An Open Source Tool for Flattening Verilog Module at RTL Level   2024
Xiangchen Meng*, Ziyue Zheng*, Yangdi Lyu   ISEDA

STSearch: State Tracing-based Search Heuristics for RTL Validation   2023
Ziyue Zheng, Yangdi Lyu   DATE

Journal Papers:

DeepVerifier: Learning to Update Test Sequences for Coverage-Guided Verification   2025
Yuntao Lu, Chen Bai, Yuxuan Zhao, Ziyue Zheng, Yangdi Lyu, Bei Yu   *TODAES*

State-of-the-Art Advances, Development, and Challenges of Metal Oxide Semiconductor Nanomaterials for Photothermal Solar Steam Generation   2022
Kar Woon Tan, Chun Man Yap, Ziyue Zheng, et al.   *Adv. Sustainable Syst.*

Biosynthesis of Zinc Oxide Nanomaterials from Plant Extracts and Future Green Prospects: A Topical Review   2021
Yajing Huang, Choon Yian Haw, Ziyue Zheng, et al.   *Adv. Sustainable Syst.*

WORK EXPERIENCE

Research Intern   Feb. 2026 – Aug. 2026

Huawei NoahArk Lab: Agentic EDA   Supervisor: Siyuan XU
  – Research & Project: Agentic Placement for 3DIC, 3DIC Placement Optimization with AI.

Research Assistant   Sept. 2021 – Sept. 2022

HKUST Fok Ying Tung Research Institute   Guangzhou, China
  – Research & Project: Optimization Algorithms, Hardware Formal Verification & Testing.

Research Assistant   Mar. 2021 – Sept. 2021

Oxford-Hainan Blockchain Research Institution   Hainan, China
  – Research & Project: Concolic Testing for Smart Contract; Random Number in Blockchain.

Algorithm Engineer   Mar. 2020 – Sept. 2020

China Mobile Online Service Company   Guangzhou, China
  – Research & Project: Deep Semantic Structured Model; English Chatbot through Click-through Data.

HONORS AND AWARDS

Third Place — EDAthon 2025
Highest Score in Problem from Candence for Hardware Simulator

Bronze Medal — 2025 ICT* LLM for Processor Chip Design Competition
CPU Microarchitecture Exploration

Bronze Medal — 2025 ICT* LLM for Processor Chip Design Competition
PPA optimization

4th Place — 2019 Malaysia National International Collegiate Programming Contest (ACM-ICPC)
Rank: 4/36

Second Prize — 2019 China Undergraduate Mathematical Contest in Modeling (CUMCM)
Top 3.26%

SERVICE

HWMCC2024 Benchmark Contributor
https://hwmcc.github.io/2024/

Sub-Reviewer & Student Reviewer
DATE 2024, DAC 2024, HOST 2025, GLSVLSI

Teaching Assistant for C++, Embedded System
2023, 2025, 2026

Huawei "Spark Award" Project Contributor (71st Challenge)
Research on semi-formal modeling for SAT-based hardware verification in EDA topics.

Primarius Verisim RTL Simulator Verification
Verisim simulator Validation and testing.

Univista RTL Simulator (UVS) Testing and Verification
Validation and testing of UVS RTL simulator for hardware verification.

ICT* ECOS Team Processor Verification Collaboration
Verification of CL1 (ARM M0-class) core using self-designed coverage-based testing tools.

SKILLS & RESEARCH INTERESTS

Languages: Verilog/SystemVerilog (SVA), Python, C++, Chisel
EDA & Hardware Verification: Symbolic Execution, Concolic Testing, Hardware Simulation & Emulation, LLM-based Testing, SMT Solver, Model Checking, Hardware Security
Optimization & AI: Reinforcement Learning (Multi-agent), Meta-heuristic Optimization, Genetic Algorithm, LLM-driven EDA Optimization
Tools & Frameworks: Cadence JasperGold, Synopsys Formality, Verilator, Yosys, Pono, Cocotb, iverilog, Vcs

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*ICT: Institute of Computing Technology, Chinese Academy of Sciences

郑子越

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教育背景

博士｜微电子学   2024.09 – 至今

香港科技大学（广州）

　– 导师：吕杨迪；累计 GPA: 4.15/4.3（全额奖学金）

红鸟硕士 (MPhil)｜**微电子学**   2022.09 – 2024.08

香港科技大学（广州）

　– 导师：吕杨迪；累计 GPA: 4.014/4.3（全额奖学金）

理学学士｜数字媒体技术   2017.10 – 2021.08

厦门大学

　– 累计 GPA: 3.54/4.0

代表性论文

会议论文：

Fine-Grained Code Analysis for Processor Fuzzing   2026

Ziyue Zheng, Zhi Qu, Yangdi Lyu   DATE

Hot-FV: A Semi-Formal Test Generation Framework for RTL Functional Coverage   2025

Ziyue Zheng, Zhiyuan Yan, Xiangchen Meng, Guangyu Hu, Hongce Zhang, Yangdi Lyu   ICCD

APE-FV: Concolic Testing for RTL Functional Verification Using Adaptive Path Exploration   2024

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FlattenRTL: An Open Source Tool for Flattening Verilog Module at RTL Level   2024

Xiangchen Meng*, Ziyue Zheng*, Yangdi Lyu   ISEDA

STSearch: State Tracing-based Search Heuristics for RTL Validation   2023

Ziyue Zheng, Yangdi Lyu   DATE

期刊论文：

DeepVerifier: Learning to Update Test Sequences for Coverage-Guided Verification   2025

Yuntao Lu, Chen Bai, Yuxuan Zhao, Ziyue Zheng, Yangdi Lyu, Bei Yu   TODAES

State-of-the-Art Advances, Development, and Challenges of Metal Oxide Semiconductor   2022
Nanomaterials for Photothermal Solar Steam Generation

Kar Woon Tan, Chun Man Yap, Ziyue Zheng, et al.   Adv. Sustainable Syst.

Biosynthesis of Zinc Oxide Nanomaterials from Plant Extracts and Future Green Prospects: A   2021
Topical Review

Yajing Huang, Choon Yian Haw, Ziyue Zheng, et al.   Adv. Sustainable Syst.

工作/科研经历

研究助理（实习） 2026.02 – 2026.08
华为诺亚方舟实验室（EDA 方向） 主管：Siyuan XU
- 研究方向：3DIC 智能布局布线，基于 AI 的 3DIC 布局优化。

研究助理 2021.09 – 2022.09
香港科技大学霍英东研究院 中国，广州
- 研究方向：优化算法、硬件形式化验证与测试。

研究助理 2021.03 – 2021.09
牛津海南区块链研究院
- 项目：智能合约的混合执行测试（Concolic Testing）；区块链中的随机数生成。

算法工程师 2020.03 – 2020.09
中国移动在线营销服务中心
- 项目：深度语义匹配模型（DSSM）；基于点击数据的英文聊天机器人。

荣誉奖项

第三名 EDAthon 2025
Cadence 硬件仿真器赛题最高分

铜奖 2025 中科院计算所大模型处理器设计大赛
处理器微架构探索赛道

铜奖 2025 中科院计算所大模型处理器设计大赛
PPA 优化赛道

第四名 2019 ACM-ICPC 国际大学生程序设计竞赛 (马来西亚国家赛区)
排名：4/36

二等奖 2019 全国大学生数学建模竞赛 (CUMCM)
Top 3.26%

学术服务

华为"火花奖"项目贡献者 (第 71 期难题揭榜)
针对 EDA 领域基于 SAT 的硬件验证半形式化建模研究。

中科院计算所 ECOS 团队处理器验证合作
利用自研覆盖率测试工具对 CL1 (ARM M0 级) 处理器核进行验证。

概伦电子 Verisim 仿真软件验证与测试
Verisim 仿真软件的验证和测试。

合见工软 (Univista) UVS 仿真器测试与验证
针对硬件仿真流程的 UVS RTL 仿真器进行验证与测试。

HWMCC2024 基准测试集 (Benchmark) 贡献者
https://hwmcc.github.io/2024/

子评审人及学生评审人

DATE 2024, DAC 2024, HOST 2025, GLSVLSI

C++ 及嵌入式系统助教

2023, 2025, 2026

专业技能与研究兴趣

编程语言: Verilog/SystemVerilog (SVA), Python, C++, Chisel

EDA 与硬件验证: 符号执行, 混合执行 (Concolic Testing), 硬件模糊测试, SMT 解算器, 模型检测, RTL 静态分析, 硬件安全

优化算法: 元启发式算法, 遗传算法

工具与框架: Cadence JasperGold, Synopsys Formality, Verilator, Yosys, Pono, Cocotb, iverilog