

# SHIQI HE

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## EDUCATION

### University of Michigan (UMich)

09 2023 – Now

*PhD in Computer Science and Engineering*

*Ann Arbor, USA*

- Area(s): Multimodal Language Models, Diffusion Serving Systems
- Teaching Assistant: CSE 585 Advanced Scalable Systems for Agentic AI
- Advisor: Mosharaf Chowdhury

### University of British Columbia (UBC)

09 2020 – 05 2023

*Master of Science (MSc) in Computer Science - CGPA - 88.8/100*

*Vancouver, Canada*

- Area(s): Federated Learning
- Advisors: Ivan Beschastnikh, and Mathias Lécuyer

### Hong Kong Polytechnic University (PolyU)

09 2016 – 08 2020

*BSc (HONS) Computing, Department of Computing - CGPA - 3.90/4.00*

*Hong Kong SAR*

- Outstanding Student Award (1 / 150)
- Advisor: Song Guo

### Korea Advanced Institute of Science and Technology (KAIST)

02 2019 – 06 2019

*Exchange Program, School of Computing - CGPA - 3.60/4.30*

*Daejeon, Korea*

## SELECTED PUBLICATIONS & PREPRINTS

- [1] **Shiqi He**, Yue Cui, Xinyu Ma, Yaliang Li, Bolin Ding, and Mosharaf Chowdhury. “Branch-and-Browse: Efficient and Controllable Web Exploration with Tree-Structured Reasoning and Action Memory”. In: *arXiv Preprint arXiv:2510.19838*. 2025.
- [2] **Shiqi He**, Insu Jang, and Mosharaf Chowdhury. “Mordal: Automated Pretrained Model Selection for Vision Language Models”. In: *International Conference on Learning Representations (ICLR 2026)*. 2025.
- [3] Runyu Lu, **Shiqi He**, Wenxuan Tan, Shenggui Li, Ruofan Wu, Jeff J Ma, Ang Chen, and Mosharaf Chowdhury. “TetriServe: Efficient DiT Serving for Heterogeneous Image Generation”. In: *ASPLOS 2026*. 2025.
- [4] Qifan Yan, Andrew Liu, **Shiqi He**, Mathias Lecuyer, and Ivan Beschastnikh. “FedFetch: Faster Federated Learning with Adaptive Downstream Prefetching”. In: *International Conference on Computer Communications (INFOCOM 2025)*. 2024.
- [5] Zhifeng Jiang, Peng Ye, **Shiqi He**, Ruichuan Chen Wei Wang, and Bo Li. “Lotto: Secure Participant Selection against Adversarial Servers in Federated Learning”. In: *USENIX Security Symposium 2024*. 2024.
- [6] Feijie Wu, Song Guo, Zhihao Qu, **Shiqi He**, Ziming Liu, and Jing Gao. “Anchor Sampling for Federated Learning with Partial Client Participation”. In: *International Conference on Machine Learning (ICML 2023)*. 2023.
- [7] **Shiqi He**, Qifan Yan, Feijie Wu, Lanjun Wang, Mathias Lécuyer, and Ivan Beschastnikh. “GlueFL: Reconciling Client Sampling and Model Masking for Bandwidth Efficient Federated Learning”. In: *Conference on Machine Learning and Systems (MLSys 2023)*. 2023.
- [8] Feijie Wu, **Shiqi He**, Song Guo, Zhihao Qu, Haozhao Wang, Weihua Zhuang, and Jie Zhang. “Sign Bit is Enough: A Learning Synchronization Framework for Multi-hop All-reduce with Ultimate Compression”. In: *ACM/IEEE Design Automation Conference (DAC 2022)*. 2022.
- [9] Rindranirina Ramamonjison, Timothy Yu, Raymond Li, Haley Li, Giuseppe Carenini, Bissan Ghaddar, **Shiqi He**, Mahdi Mostajabdaveh, Amin Banitalebi-Dehkordi, Zirui Zhou, et al. “NL4Opt Competition: Formulating Optimization Problems Based on Their Natural Language Descriptions”. In: *Conference on Neural Information Processing Systems (NeurIPS 2022) Competition Track*. 2022.

## WORK EXPERIENCE

### Alibaba

*Research Intern, Tongyi Lab*

**05 2025 – 08 2025**

*Hangzhou, China*

- AgentScope 1.0: A Developer-Centric Framework for Building Agentic Applications
  - \* Enabling controllable web agent exploration with tree-structured reasoning
  - \* Storing and reusing past actions via action memory to reduce repeated interactions

### Hong Kong University of Science and Technology (HKUST)

*Research Assistant, Supervised by Prof. Wei Wang*

**06 2023 – 08 2023**

*Hong Kong SAR*

- (USENIX Security 2024) Lotto: Secure Participant Selection against Adversarial Servers in Federated Learning
  - \* Enabling verifiable randomness for random selection
  - \* Approximating informed selection through a refined process

### Huawei Canada

*Support Researcher (Part-Time), Big Data and Intelligence Platform Lab*

**06 2022 – 11 2022**

*Vancouver, Canada*

- (NeurIPS 2022 Competition) NL4Opt: Natural Language for Optimization Modeling
  - \* Formulating optimization problems based on their natural language descriptions
  - \* Helped host the competition. A total monetary prize of \$22,000 USD

### Hong Kong Polytechnic University (PolyU)

*Research Assistant, Edge Intelligence Lab, Supervised by Prof. Song Guo*

**06 2021 – 09 2021**

*Hong Kong SAR*

- (DAC 2022) Sign Bit is Enough: A Learning Synchronization Framework for Multi-hop All-reduce with Ultimate Compression
  - \* A sign-bit compression-based learning synchronization framework for decentralized machine learning
  - \* Attended the conference in San Francisco for oral presentation

### Microsoft Research Asia (MSRA)

*Research Intern, System Research Group, Supervised by Dr. Yang Chen*

**06 2019 – 09 2019**

*Beijing, China*

- (Microsoft Hackathon 2019 Beijing) Confirmation Time Prediction in Ethereum
- (SOSP 2021) Forerunner: Constraint-based Speculative Transaction Execution for Ethereum
  - \* A computing framework to accelerate Ethereum transaction processing through speculative execution

### Hong Kong Polytechnic University (PolyU)

*Research Assistant, Alibaba-PolyU Research Group, Supervised by Prof. Jiannong Cao*

**01 2019 – 03 2019**

*Hong Kong SAR*

- Food Traceability System: A Web App based on Hyperledger Fabric (Nodejs SDK) for food traceability
  - \* Conducted performance testing and debugging for the system and the Ionic frontend interface
  - \* Assisted in setting up Hyperledger Fabric service in multi-node using Docker and debugging Fabric smart contract

## OTHER PROJECTS & SKILLS

### Graduate Course - Security and Privacy | Term Paper

**2021**

*"An Analysis of Existing Spectre Mitigations in eBPF"*

*UBC*

### Graduate Course - Distributed System | Term Paper

**2019**

*"Time-Bounded API Energy Minimization Offloading Strategy in Mobile OCR Applications"*

*KAIST*

## AWARDS & SCHOLARSHIPS

HKSAR Government Scholarship Fund - Talent Development Scholarship

Scholarship **2020**

The Hong Kong Polytechnic University Scholarship

Scholarship **2019**

Microsoft Research Asia Stars of Tomorrow Internship Program

Award of Excellence **2019**

Bright Future Charitable Foundation Asian Exchange Scholarship

Scholarship **2019**

2018 ACM-ICPC Asia Regional Contest Shen Yang Site

Silver Medal **2018**

2018 EY (Ernst & Young) Cyber Asia Case Competition

First Runner-up Team (HK\$10,000) **2018**

24-Hour IEEE Xtreme Programming Competition 11.0

World Top 30 (3%) **2017**

PolyU COMP Freshman Project Competitions

First Runner-up Team **2016**

China National Olympiad in Informatics in Provinces (NOIP)

First Prize (Hunan Province) **2014**