

SHIQI HE

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EDUCATION

University of Michigan (UMich)

PhD in Computer Science and Engineering

09 2023 – Now

Ann Arbor, USA

- Area(s): Multimodal Language Models, Large Model Systems
- Advisor: Mosharaf Chowdhury

University of British Columbia (UBC)

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

09 2020 – 05 2023

Vancouver, Canada

- Area(s): Federated Learning
- Thesis: GlueFL: Reconciling Client Sampling and Model Masking for Bandwidth Efficient Federated Learning
- Advisors: Ivan Beschastnikh, and Mathias Lécuyer

Hong Kong Polytechnic University (PolyU)

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

09 2016 – 08 2020

Hong Kong SAR

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

Korea Advanced Institute of Science and Technology (KAIST)

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

02 2019 – 06 2019

Deajeon, Korea

PUBLICATIONS & PREPRINTS

- [1] **Shiqi He**, Insu Jang, and Mosharaf Chowdhury. “Mordal: Automated Pretrained Model Selection for Vision Language Models”. In: *Submission*. 2024.
- [2] 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.
- [3] 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.
- [4] 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.
- [5] **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.
- [6] Rindranirina Ramamonjison, Haley Li, Timothy T. Yu, **Shiqi He**, Vishnu Rengan, Amin Banitalebi-Dehkordi, Zirui Zhou, and Yong Zhang. “Augmenting Operations Research with Auto-Formulation of Optimization Models from Problem Descriptions”. In: *Empirical Methods in Natural Language Processing - Industry Track (EMNLP 2022)*. 2022.
- [7] 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.
- [8] Feijie Wu, **Shiqi He**, Yutong Yang, Haozhao Wang, Zhihao Qu, Song Guo, and Weihua Zhuang. “On the Convergence of Quantized Parallel Restarted SGD for Central Server Free Distributed Training”. In: *arXiv e-prints*. 2020, arXiv–2004.09125.

WORK EXPERIENCE

Hong Kong University of Science and Technology (HKUST) <i>Research Assistant, Supervised by Prof. Wei Wang</i>	06 2023 – 08 2023 <i>Hong Kong SAR</i>
<ul style="list-style-type: none">(USENIX Security 2024) Lotto: Secure Participant Selection against Adversarial Servers in Federated Learning<ul style="list-style-type: none">* Enabling verifiable randomness for random selection* Approximating informed selection through a refined process	
Huawei Canada <i>Support Researcher (Part-Time), Big Data and Intelligence Platform Lab</i>	06 2022 – 11 2022 <i>Vancouver, Canada</i>
<ul style="list-style-type: none">(NeurIPS 2022 Competition) NL4Opt: Natural Language for Optimization Modeling<ul style="list-style-type: none">* 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) <i>Research Assistant, Edge Intelligence Lab, Supervised by Prof. Song Guo</i>	06 2021 – 09 2021 <i>Hong Kong SAR</i>
<ul style="list-style-type: none">(DAC 2022) Sign Bit is Enough: A Learning Synchronization Framework for Multi-hop All-reduce with Ultimate Compression<ul style="list-style-type: none">* A sign-bit compression-based learning synchronization framework for decentralized machine learning* Attended the conference in San Francisco for oral presentation	
University of British Columbia (UBC) <i>Teaching Assistant</i>	01 2021 – 04 2021 <i>Vancouver, Canada</i>
<ul style="list-style-type: none">CPSC416 Distributed Systems. Instructor: Ivan Beschastnikh	
Microsoft Research Asia (MSRA) <i>Research Intern, System Research Group, Supervised by Dr. Yang Chen</i>	06 2019 – 09 2019 <i>Beijing, China</i>
<ul style="list-style-type: none">(Microsoft Hackathon 2019 Beijing) Confirmation Time Prediction in Ethereum(SOSP 2021) Forerunner: Constraint-based Speculative Transaction Execution for Ethereum<ul style="list-style-type: none">* A computing framework to accelerate Ethereum transaction processing through speculative execution* Mentioned in acknowledgements	
Hong Kong Polytechnic University (PolyU) <i>Research Assistant, Alibaba-PolyU Research Group, Supervised by Prof. Jiannong Cao</i>	01 2019 – 03 2019 <i>Hong Kong SAR</i>
<ul style="list-style-type: none">Food Traceability System: A Web App based on Hyperledger Fabric (Nodejs SDK) for food traceability<ul style="list-style-type: none">* 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 (SELECTED) & SKILLS

Graduate Course - Security and Privacy Term Paper <i>“An Analysis of Existing Spectre Mitigations in eBPF”</i>	2021 <i>UBC</i>
Graduate Course - Distributed System Term Paper <i>“Time-Bounded API Energy Minimization Offloading Strategy in Mobile OCR Applications”</i>	2019 <i>KAIST</i>

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