

# SHIQI HE

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## EDUCATION

### University of Michigan (UMich)

*PhD in Computer Science and Engineering*

- Area(s): Distributed System, Machine Learning
- Advisor: Mosharaf Chowdhury

09 2023 – Now

Vancouver, Canada

### University of British Columbia (UBC)

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

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

09 2020 – 05 2023

Vancouver, Canada

### Hong Kong Polytechnic University (PolyU)

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

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

09 2016 – 08 2020

Hong Kong SAR

### 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] 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.
- [2] **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.
- [3] 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.
- [4] 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.
- [5] 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

### Huawei Canada

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

- (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

06 2022 – 11 2022

Vancouver, Canada

### Hong Kong Polytechnic University (PolyU)

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

- (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

06 2021 – 09 2021

Hong Kong SAR

## University of British Columbia (UBC)

Teaching Assistant

- CPSC416 Distributed Systems. Instructor: Ivan Beschastnikh

01 2021 – 04 2021

Vancouver, Canada

## 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 parallel framework to accelerate Ethereum block validation reusing pre-executed smart contracts
  - \* Mentioned in acknowledgements

## 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

## Rylink Science and Technology

Engineer Intern, Data Service Group

06 2018 – 08 2018

Shenzhen, China

- EOS Blockchain Data Synchronizer and Cold Wallet

## OTHER PROJECTS (SELECTED) & 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

### BOOX | Course Group Project - An Online Book Exchange Platform

2018

HTML | CSS + Bootstrap | Nodejs Express | Mongo dB | Mixins | Google Books API

PolyU

### Monopoly — Course Group Project - A Simplified Monopoly Game with GUI

2017

Java | JavaFX

PolyU

## 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

## EXTRACURRICULAR

Cultural Exchange Program at Kochi University of Technology

Japan 2017

Service-Learning Program

Cambodia 2017

- Build Solar Panels in a Rural Area

Zonta International Golden Z Club Tutoring

Hong Kong SAR 2017

- Aided with South Asian children's homework

The 15<sup>th</sup> Heart Fire Winter Volunteer Teaching

Hainan, China 2016