

Qizhen Zhang

Contact

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Research Interests

I am broadly interested in data management, computer systems, and networking. My long-term goal is to make the processing of data in any form efficient at any scale. To that end, I have researched and published across the data processing stack, from novel data science applications to large-scale cloud data processing systems and their underlying infrastructure such as data center networks.

Professional Experience

Department of Computer Science, University of Toronto

Assistant Professor, starting August 2023

Data Systems group, Microsoft Research, Redmond

Post-doc Researcher, August 2022 – August 2023

Department of Computer and Information Science, University of Pennsylvania

Research Assistant, August 2016 – August 2022

Data Systems group, Microsoft Research, Redmond

Research Intern, June 2021 – August 2021

Data Management, Exploration and Mining (DMX) group, Microsoft Research, Redmond

Research Intern, June 2020 – August 2020

Data Management, Exploration and Mining (DMX) group, Microsoft Research, Redmond

Research Intern, May 2019 – August 2019

NEC Labs, America

Research Intern, May 2018 – August 2018

Department of Computer Science and Engineering, Chinese University of Hong Kong

Research Assistant, October 2015 – June 2016

Microsoft Research Asia

Research Intern, October 2014 – June 2015

Education

University of Pennsylvania

Ph.D., Computer and Information Science, 2016 – 2022

Thesis: “Hyperscale Data Processing with Network-centric Designs”

Morris and Dorothy Rubinoff Award (Best Computer Science Ph.D. Thesis)

Advisors: Vincent Liu, Boon Thau Loo

Harbin Institute of Technology

B.E., Software Engineering, 2009 – 2013

Best Bachelor’s Thesis

Publications

Templating Shuffles

Qizhen Zhang, Jiacheng Wu, Ang Chen, Vincent Liu, Boon Thau Loo
Conference on Innovative Data Systems Research, CIDR 2023

FlexChain: An Elastic Disaggregated Blockchain

Chenyuan Wu, Mohammad Javad Amiri, Jared Asch, Heena Nagda, Qizhen Zhang, Boon Thau Loo
International Conference on Very Large Data Bases, VLDB 2023

Optimizing Data-intensive Systems in Disaggregated Data Centers with TELEPORT

Qizhen Zhang, Xinyi Chen, Sidharth Sankhe, Zhilei Zheng, Ke Zhong, Sebastian Angel, Ang Chen, Vincent Liu, Boon Thau Loo
ACM International Conference on Management of Data, SIGMOD 2022

Redy: Remote Dynamic Memory Cache

Qizhen Zhang, Philip A. Bernstein, Daniel S. Berger, Badrish Chandramouli
International Conference on Very Large Data Bases, VLDB 2022

CompuCache: Remote Computable Caching using Spot VMs

Qizhen Zhang, Philip A. Bernstein, Daniel S. Berger, Badrish Chandramouli, Vincent Liu, Boon Thau Loo
Conference on Innovative Data Systems Research, CIDR 2022

MimicNet: Fast Performance Estimates for Data Center Networks with Machine Learning

Qizhen Zhang, Kelvin K.W. Ng, Charles W. Kazer, Shen Yan, João Sedoc, Vincent Liu
Annual Conference of the ACM Special Interest Group on Data Communication, SIGCOMM 2021

Understanding the Effect of Data Center Resource Disaggregation on Production DBMSs

Qizhen Zhang, Yifan Cai, Xinyi Chen, Sebastian Angel, Ang Chen, Vincent Liu, Boon Thau Loo
International Conference on Very Large Data Bases, VLDB 2020

Rethinking Data Management Systems for Disaggregated Data Centers

Qizhen Zhang, Yifan Cai, Sebastian Angel, Ang Chen, Vincent Liu, Boon Thau Loo
Conference on Innovative Data Systems Research, CIDR 2020

Optimizing Declarative Graph Queries at Large Scale

Qizhen Zhang, Akash Acharya, Hongzhi Chen, Simran Arora, Ang Chen, Vincent Liu, Boon Thau Loo
ACM International Conference on Management of Data, SIGMOD 2019

Predicting Startup Crowdfunding Success through Longitudinal Social Engagement Analysis

Qizhen Zhang, Tengyuan Ye, Meryem Essaidi, Shivani Agarwal, Vincent Liu, Boon Thau Loo
ACM International Conference on Information and Knowledge Management, CIKM 2017

Architectural Implications on the Performance and Cost of Graph Analytics Systems

Qizhen Zhang, Hongzhi Chen, Yan Da, James Cheng, Boon Thau Loo, Purushotham Bangalore
ACM Symposium on Cloud Computing, SoCC 2017

Quegel: A General-Purpose System for Querying Big Graphs

Qizhen Zhang, Da Yan, James Cheng
ACM International Conference on Management of Data, SIGMOD 2016 Demo

A General-Purpose Query-Centric Framework for Querying Big Graphs

Da Yan, James Cheng, M. Tamer Özsu, Fan Yang, Yi Lu, John C. S. Lui, Qizhen Zhang, Wilfred Ng
International Conference on Very Large Data Bases, VLDB 2016

Service

Program Committee: SIGMOD 2024, EDBT 2024, ICDE 2023, SoCC 2022, CIKM 2022

Session Chair: SoCC 2022, SIGMOD 2022

Journal Reviewer: IEEE Transactions on Knowledge and Data Engineering 2023, IEEE/ACM Transactions on Networking 2022, IEEE Transactions on Parallel and Distributed Systems 2022, IEEE Transactions on Knowledge and Data Engineering 2022

Organizer: Distributed Systems Laboratory Seminar at the University of Pennsylvania, Spring 2017 and Fall 2017

Selected Awards

Morris and Dorothy Rubinoff Award (Best Computer Science Ph.D. Thesis), University of Pennsylvania, 2022

Jonathan M. Smith Fellow, University of Pennsylvania, 2019-2020

Student Grants: SIGMOD Student Travel Award 2019, NSDI Student Travel Grant 2018, SIGIR Student Travel Grant 2017, CIKM Travel Award 2017

Ph.D. Fellowship, University of Pennsylvania, 2016

MSRA Excellent Intern Award: Star of Tomorrow, Microsoft Research Asia, 2014

Best Bachelor's Thesis Award, Harbin Institute of Technology, 2013

National Scholarship, Chinese Ministry of Education, 2013

Meritorious Award for Interdisciplinary Contest in Modeling, COMAP: the Consortium for Mathematics and Its Applications, 2012

National Scholarship, Chinese Ministry of Education, 2012

Recent Talks

Redy: Remote Dynamic Memory Cache

VLDB 2022, Virtual, September 2022

Optimizing Data-intensive Systems in Disaggregated Data Centers with TELEPORT

SIGMOD 2022, Philadelphia, Pennsylvania, United States, June 2022

Hyperscale Data Processing with Network-centric Designs (Invited Talk 2022)

Carnegie Mellon University

Hong Kong University of Science and Technology

National University of Singapore

Ohio State University

Simon Fraser University

University of California, Irvine

University of Illinois at Urbana-Champaign

University of Minnesota, Twin Cities

University of Toronto

University of Virginia

University of Waterloo

CompuCache: Remote Computable Caching using Spot VMs

CIDR 2022, Virtual, January 2022

MimicNet: Fast Performance Estimates for Data Center Networks with Machine Learning

SIGCOMM 2021, Virtual, August 2021

Understanding the Effect of Data Center Resource Disaggregation on Production DBMSs

VLDB 2020, Virtual, September 2020

Microsoft Research, Virtual, August 2020

Rethinking Data Management Systems for Disaggregated Data Centers

CIDR 2020, Amsterdam, Netherlands, January 2020

Optimizing Declarative Graph Queries at Large Scale

Microsoft Research, Redmond, Washington, United States, August 2019

SIGMOD 2019, Amsterdam, Netherlands, July 2019

Predicting Startup Crowdfunding Success through Longitudinal Social Engagement Analysis

CIKM 2017, Singapore, November 2017

Architectural Implications on the Performance and Cost of Graph Analytics Systems

SoCC 2017, Santa Clara, California, United States, September 2017

Teaching

Teaching Assistant for MCIT Online 595: Computer Systems Programming

University of Pennsylvania, Fall 2019

Course Designer and Teaching Assistant for MCIT Online 595: Computer Systems Programming

University of Pennsylvania, Spring 2019

Teaching Assistant for CIS 553: Networked Systems

University of Pennsylvania, Spring 2019

Teaching Assistant for CIS 553: Networked Systems

University of Pennsylvania, Spring 2018

Mentoring

Xinyi Chen (Ph.D. student at Penn), 2019 – Present

Chenyuan Wu (Ph.D. student at Penn), 2021 – 2022

Tej Bade (senior high school student at Phillips Exeter Academy), 2021

Sidharth Sankhe (undergraduate at Penn), 2020 – 2021

Kelvin K.W. Ng (Ph.D. student at Penn), 2018 – 2020

Shen Yan (undergraduate at Peking University), 2020, now Ph.D. student at Peking University

Zhilei Zheng (undergraduate at Penn), 2020, now Ph.D. student at Penn

Ke Zhong (Ph.D. student at Penn), 2020

Yifan Cai (undergraduate at Shanghai Jiao Tong University), 2019, now Ph.D. student at Penn

Jiacheng Wu (graduate student at Tsinghua University), 2018, now Ph.D. student at University of Washington

Akash Acharya (graduate student at Penn), 2017

Simran Arora (undergraduate at Penn), 2017, now Ph.D. student at Stanford University

Hongzhi Chen (graduate student at the Chinese University of Hong Kong), 2017

Yucheng Lu (undergraduate at Shanghai Jiao Tong University), 2017, now Ph.D. student at Cornell University

Meryem Essaidi (undergraduate at Penn), 2016, now Ph.D. student at Princeton University

Tengyuan Ye (graduate student at Penn), 2016