

# Yue Cheng

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University of Virginia

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## Research Interests

**Distributed systems, cloud computing, serverless computing, high-performance computing, storage systems, operating systems, machine learning (ML) systems**

The overarching goal of my research is to enable practical, efficient, and easy-to-use computer systems for the growing data demands of modern high-end applications running on existing as well as emerging computing platforms. My current research focuses on: (1) designing efficient stateful serverless computing systems using a full-stack approach spanning application frameworks, platforms, operating systems, and hardware; (2) building scalable and efficient data-intensive computing systems (e.g., ML systems) and (3) utilizing ML approaches to improve the computing and storage systems.

## Professional Experience and Employment

- 08/2022–present **Assistant Professor**, *University of Virginia*, Charlottesville, VA.  
School of Data Science and SEAS Department of Computer Science
- 08/2017–08/2022 **Assistant Professor**, *George Mason University*, Fairfax, VA.  
Department of Computer Science
- 2011–2017 **Research/Teaching Assistant**, *Virginia Tech*, Blacksburg, VA.  
Department of Computer Science
- 06/2015–12/2015 **Research Intern**, *EMC*, Princeton, NJ.  
Offline flash caching
- 05/2014–08/2014 **Research Intern**, *IBM Research–Almaden*, San Jose, CA.  
Cloud analytics storage tiering
- 05/2013–08/2013 **Research Intern**, *IBM Research–Almaden*, San Jose, CA.  
Load balanced in-memory caching

## Education

- 2011–2017 **Virginia Polytechnic Institute and State University (Virginia Tech)**, *Blacksburg, VA*.  
Ph.D. in Computer Science
- 2005–2009 **Beijing University of Posts and Telecommunications (BUPT)**, *Beijing, China*.  
B.Eng. in Computer Science

## Honors & Awards

- 2022 **Best Student Paper Finalist** of The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC 2022)
- 2022 **Outstanding Teacher Award** of the Computer Science Department at George Mason University
- 2022 **Award Finalist** of Facebook (Meta) Mathematical Modeling & Optimization for Large-Scale Distributed Systems Award Competition
- 2021 **NSF CAREER Award** for the project titled “CAREER: Harnessing Serverless Functions to Build Highly Elastic Cloud Storage Infrastructure”
- 2020 **Amazon Research Award** for the project titled “Distributed Large-scale Graph Deep Learning by Gradient-free Optimization”

- 2012–2015 **Student Travel Grant:** USENIX ATC'15, ACM HPDC'15, EuroSys'15, USENIX OSDI'14, USENIX FAST'14, ACM SoCC'13, USENIX OSDI'12
- 2014 **Pratt Fellowship (Best Teaching Assistant Award)** awarded by Computer Science at Virginia Tech
- 2006–2009 **University Scholarship** awarded by Beijing University of Posts and Telecommunications, China

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## Publication

**A**: Students for whom I serve as the advisor; **M**: Students I mentor.

### Book Chapters

- [Book chapter] **SDN helps Big Data to optimize storage.**  
Big Data and Software Defined Networks, editor: Javid Taheri. IET, ISBN 978-1-78561-304-3. 2018.  
Ali R. Butt, Ali Anwar, and **Yue Cheng**.

### Refereed Journals

- [TNNLS] **Towards Quantized Model Parallelism for Graph-Augmented MLPs Based on Gradient-Free ADMM Framework.**  
IEEE Transactions on Neural Networks and Learning Systems (*TNNLS*) (*Under review*).  
Junxiang Wang, Hongyi Li, Zheng Chai<sup>A</sup>, Yongchao Wang, **Yue Cheng**, Liang Zhao.
- [TNNLS] **Community-based Distributed Training of Graph Convolutional Networks via ADMM.**  
IEEE Transactions on Neural Networks and Learning Systems (*TNNLS*) (*Under review*).  
Hongyi Li, Junxiang Wang, Yongchao Wang, **Yue Cheng**, Liang Zhao.
- [TPDS] **Customizable Scale-Out Key-Value Stores.**  
IEEE Transactions on Parallel and Distributed Systems (*TPDS*), Volume: 31, Issue: 9, Pages: 2081-2096, Apr. 25 2020, (Impact Factor = 3.402).  
Ali Anwar, **Yue Cheng**, Hai Huang, Jingoo Han, Hyogi Sim, Dongyoon Lee, Fred Dougliis, Ali R. Butt.
- [TPDS] **MOANA: Modeling and Analyzing I/O Variability in Parallel System Experimental Design.**  
IEEE Transactions on Parallel and Distributed Systems (*TPDS*), Volume: 30, Issue: 8, Pages: 1843-1856, Aug. 1 2019, (Impact Factor = 3.402).  
Kirk Cameron, Ali Anwar, **Yue Cheng**, Li Xu, Bo Li, Uday Ananth, Yili Hong, Layne T. Watson, and Ali R. Butt.
- [Internet Computing] **Provider versus Tenant Pricing Games for Hybrid Object Stores in the Cloud.**  
IEEE Internet Computing's special issue on Cloud Storage: May/June 2016, Pages: 28-35, vol. 20.  
**Yue Cheng**, M. Safdar Iqbal, Aayush Gupta, and Ali R. Butt.

### Refereed Conferences and Workshops

★: Top venues (13).

- [SC '22]★ **Smarter OS Scheduling for Serverless Functions.**  
The International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC'22*) (*To appear - Best Student Paper Award Finalist*).  
Yuqi Fu<sup>A</sup>, Li Liu<sup>M</sup>, Haoliang Wang, **Yue Cheng**, Songqing Chen.
- [SoCC '21]★ **Mind the Gap: Broken Promises of CPU Reservations in Containerized Multi-tenant Clouds.**  
ACM Symposium on Cloud Computing (*SoCC'21*), (AR: 46/145 = 31.7%).  
Li Liu<sup>M</sup>, Haoliang Wang, An Wang, Mengbai Xiao, **Yue Cheng**, Songqing Chen.
- [SC '21]★ **FedAT: A High-Performance and Communication-Efficient Federated Learning System with Asynchronous Tiers.**  
The International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC'21*), (AR: 86/365 = 23.6%).  
Zheng Chai<sup>A</sup>, Yujing Chen, Ali Anwar, Liang Zhao, **Yue Cheng**, Huzefa Rangwala.

- [ATC '21]★ **FaaSNet: Scalable and Fast Provisioning of Custom Serverless Container Runtimes at Alibaba Cloud Function Compute.**  
2021 USENIX Annual Technical Conference (*ATC'21*), (AR: 64/341 = 18.8%).  
Ao Wang<sup>A</sup>, Shuai Chang, Huangshi Tian, Hongqi Wang, Haoran Yang, Huiba Li, Rui Du, **Yue Cheng**.
- [OPT '21] **Community-based Layerwise Distributed Training of Graph Convolutional Networks.**  
NeurIPS 2021 Workshop on Optimization for Machine Learning (*OPT'21*).  
Hongyi Li, Junxiang Wang, Yongchao Wang, **Yue Cheng**, Liang Zhao.
- [ICDM '20] **Toward Model Parallelism for Deep Neural Network based on Gradient-free ADMM Framework.**  
20<sup>th</sup> IEEE International Conference on Data Mining (*ICDM'20*), (AR: 91/930 = 9.8%).  
Junxiang Wang, Zheng Chai<sup>A</sup>, **Yue Cheng**, Liang Zhao.
- [SoCC '20]★ **Wukong: A Scalable and Locality-Enhanced Framework for Serverless Parallel Computing.**  
ACM Symposium on Cloud Computing (*SoCC'20*), (AR: 35/143 = 24.5%).  
Benjamin Carver<sup>A</sup>, Jingyuan Zhang<sup>A</sup>, Ao Wang<sup>A</sup>, Ali Anwar, Panruo Wu, **Yue Cheng**.
- [ICML WS '20] **Tunable Subnetwork Splitting for Model-parallelism of Neural Network Training.**  
ICML 2020 Workshop on Beyond First-Order Methods in ML systems (*ICML WS'20*).  
Junxiang Wang, Zheng Chai<sup>A</sup>, **Yue Cheng**, Liang Zhao.
- [HPDC '20]★ **TiFL: A Tier-based Federated Learning System.**  
ACM Symposium on High-Performance Parallel and Distributed Computing (*HPDC'20*), (AR: 16/71 = 22.5%).  
Zheng Chai<sup>A</sup>, Ahsan Ali, Syed Zawad, Ali Anwar, Stacey Truex, Nathalie Baracaldo, Yi Zhou, Heiko Ludwig, Feng Yan, **Yue Cheng**.
- [FAST '20]★ **InfiniCache: Exploiting Ephemeral Serverless Functions to Build a Cost-Effective Memory Cache.**  
USENIX Conference on File and Storage Techniques (*FAST'20*), (AR: 23/138 = 16.7%).  
Ao Wang<sup>A</sup>, Jingyuan Zhang<sup>A</sup>, Xiaolong Ma, Ali Anwar, Vasily Tarasov, Lukas Rupprecht, Dimitrios Skourtis, Feng Yan, **Yue Cheng**.
- [PDSW '19] **In Search of a Fast and Efficient Serverless DAG Engine.**  
The 4<sup>th</sup> International Parallel Data Systems Workshop (*PDSW'19*).  
Benjamin Carver<sup>A</sup>, Jingyuan Zhang<sup>A</sup>, Ao Wang<sup>A</sup>, **Yue Cheng**.
- [Cloud '19] **Bolt: Towards a Scalable Docker Registry.**  
The IEEE International Conference on Cloud Computing (*Cloud'19*), (AR: 20.8%).  
Michael Littley, Ali Anwar, Hannan Fayyaz<sup>M</sup>, Zeshan Fayyaz<sup>M</sup>, Vasily Tarasov, Lukas Rupprecht, Dimitrios Skourtis, Mohamed Mohamed, Heiko Ludwig, **Yue Cheng**, Ali R. Butt.
- [OpML '19] **Towards Taming the Resource and Data Heterogeneity in Federated Learning.**  
2019 USENIX Conference on Operational Machine Learning (*OpML'19*), (AR: 16/30 = 53.3%).  
Zheng Chai<sup>A</sup>, Hannan Fayyaz<sup>M</sup>, Zeshan Fayyaz<sup>M</sup>, Ali Anwar, Yi Zhou, Nathalie Baracaldo, Heiko Ludwig, **Yue Cheng**.
- [VEE '19] **vCPU as a Container: Towards Accurate CPU Allocation for VMs.**  
The 15<sup>th</sup> ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (*VEE'19*), (AR: 15/33 = 45.5%).  
Li Liu<sup>M</sup>, Haoliang Wang, An Wang, Mengbai Xiao, **Yue Cheng**, Songqing Chen.
- [BigData '18] **Analyzing Alibaba's Co-located Datacenter Workloads.**  
IEEE International Conference on Big Data (*BigData'18*), (AR: 38.8%).  
**Yue Cheng**, Ali Anwar, Xuejing Duan.
- [SC '18]★ **BespoKV: Application Tailored Scale-Out Key-Value Stores.**  
The International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC'18*), (AR: 68/288 = 23.6%).  
Ali Anwar, **Yue Cheng**, Hai Huang, Jingoo Han, Hyogi Sim, Dongyoon Lee, Fred Douglass, and Ali R. Butt.

- [APSys '18] **Characterizing Co-located Datacenter Workloads: An Alibaba Case Study.**  
The 9<sup>th</sup> ACM SIGOPS Asia-Pacific Workshop on Systems (*APSys'18*), (AR: 21/50 = 42%).  
**Yue Cheng**, Zheng Chai\*, Ali Anwar.
- [IPDPS '18] **Chameleon: An Adaptive Wear Balancer for Flash Clusters.**  
IEEE International Parallel & Distributed Processing Symposium (*IPDPS'18*), (AR: 113/461 = 24.5%).  
Nannan Zhao, Ali Anwar, **Yue Cheng**, Mohammed Salman, Daping Li, Jiguang Wan, Changsheng Xie, Xubin He, Feiyi Wang, and Ali R. Butt.
- [FAST '18]★ **Improving Docker Registry Design based on Production Workload Analysis.**  
USENIX Conference on File and Storage Techniques (*FAST'18*), (AR: 23/140 = 16.4%).  
Ali Anwar, Mohamed Mohamed, Vasily Tarasov, Michael Littley, Lukas Rupprecht, **Yue Cheng**, Nannan Zhao, Dimitrios Skourtis, Amit S. Warke, Heiko Ludwig, Dean Hildebrand, Ali R. Butt.
- [ATC '16]★ **Erasing Belady's Limitations: In Search of Flash Cache Offline Optimality.**  
The 2016 USENIX Annual Technical Conference (*ATC'16*), (AR: 47/266 = 17.7%).  
**Yue Cheng**, Fred Douglass, Philip Shilane, Michael Trachtman, Grant Wallace, Peter Desnoyers, and Kai Li.
- [HotStorage '16] **ClusterOn: Building Highly Configurable and Reusable Clustered Data Services using Simple Data Nodes.**  
The 8<sup>th</sup> USENIX Workshop on Hot Topics in Storage and File Systems (*HotStorage'16*), (AR: 24/65 = 36.9%).  
Ali Anwar, **Yue Cheng**, Hai Huang, and Ali R. Butt.
- [HPDC '16]★ **MOS: Workload-aware Elasticity for Cloud Object Stores.**  
The 25<sup>th</sup> ACM Symposium on High-Performance Parallel and Distributed Computing (*HPDC'16*), (AR: 20/129 = 15.5%).  
Ali Anwar, **Yue Cheng**, Aayush Gupta, and Ali R. Butt.
- [VarSys '16] **Towards Managing Variability in the Cloud.**  
The 1<sup>st</sup> IEEE International Workshop on Variability in Parallel and Distributed Systems (*VarSys'16*).  
Ali Anwar, **Yue Cheng**, and Ali R. Butt.
- [PDSW '15] **Taming the Cloud Object Stores with MOS.**  
The 10<sup>th</sup> ACM Parallel Data Storage Workshop (*PDSW'15*), (AR: 9/25 = 36%).  
Ali Anwar, **Yue Cheng**, Aayush Gupta, and Ali R. Butt.
- [HotCloud '15] **Pricing Games for Hybrid Object Stores in the Cloud: Provider vs. Tenant.**  
The 7<sup>th</sup> USENIX Workshop on Hot Topics in Cloud Computing (*HotCloud'15*), (AR: 21/64 = 32.8%).  
**Yue Cheng**, M. Safdar Iqbal, Aayush Gupta, and Ali R. Butt.
- [HPDC '15]★ **Cast: Tiering Storage for Data Analytics in the Cloud.**  
The 24<sup>th</sup> ACM Symposium on High-Performance Parallel and Distributed Computing (*HPDC'15*), (AR: 19/116 = 16.4%).  
**Yue Cheng**, M. Safdar Iqbal, Aayush Gupta, and Ali R. Butt.
- [EuroSys '15]★ **An In-Memory Object Caching Framework with Adaptive Load Balancing.**  
The 10<sup>th</sup> ACM European Conference on Computer Systems (*EuroSys'15*), (AR: 32/154 = 20.8%).  
**Yue Cheng**, Aayush Gupta, and Ali R. Butt.
- Technical Reports**
- [VT technical report] **MOANA: Modeling and Analyzing I/O Variability in Parallel System Experimental Design.**  
Kirk Cameron, Ali Anwar, **Yue Cheng**, Li Xu, Bo Li, Uday Ananth, Yili Hong, Layne T. Watson, and Ali R. Butt.
- Posters and Demos**
- [NSDI '19] **HyperFaaS: A Truly Elastic Serverless Computing Framework.**  
USENIX Symposium on Networked Systems Design and Implementation (*NSDI'19*), (Poster).  
Jingyuan Zhang\*, Ao Wang\*, Min Li, Yuan Chen, **Yue Cheng**.

- [APSys '15] **Taming the Cloud Object Stores with MOS**.  
The 6<sup>th</sup> ACM SIGOPS Asia-Pacific Workshop on Systems (*APSys'15*), (Poster).  
Ali Anwar, **Yue Cheng**, Aayush Gupta, and Ali R. Butt.
- [SoCC '13] **High Performance In-Memory Caching through Flexible Fine-Grained Services**.  
2013 ACM Symposium on Cloud Computing (*SoCC'13*), (Poster).  
**Yue Cheng**, Aayush Gupta, Anna Povzner, and Ali R. Butt.

## Research Grants

**15 awarded grants (5 NSF grants + 1 REU grant + 3 industry gifts)**  
**Total grant amount: \$3.8 M; Total personal share: \$1.5 M.**

- Adobe Gift **"Serverless GPU and Storage Management for Large-scale, Interactive Machine Learning Training Workloads"**. Total: \$30,000; My personal share: \$30,000; Role: PI: Yue Cheng (UVA); Duration: 05/2022—present.
- Adobe Gift **"Serverless GPU and Storage Management for Large-scale, Interactive Machine Learning Training Workloads"**. Total: \$10,000; My personal share: \$10,000; PI: Yue Cheng (UVA); Duration: 09/2021—present.
- NSF: **"FMSG: Cyber: Federated Deep Learning for Future Ubiquitous Distributed Additive Manufacturing"**. Grant amount: \$498,762; My personal share: \$189,949 (38% share); PI: Jia Liu (Auburn); Co-PI: Yue Cheng (UVA); Duration: 10/01/2021—9/30/2023.
- Adobe Gift **"Achieving Predictable Performance for FaaS Workloads via OS-Transparent Serverless Function Scheduling"**. Total: \$10,000; My personal share: \$10,000; PI: Yue Cheng (UVA); Duration: 03/2021—present
- NSF: **"CAREER: Harnessing Serverless Functions to Build Highly Elastic Cloud Storage Infrastructure"**. Grant amount: \$572,897 + \$16,000 REU; My personal share: \$572,897 + \$16,000 REU (100% share); PI: Yue Cheng (UVA); Duration: 02/15/2021—02/14/2026.
- IBM Cloud **"InfiniStore: Elastic Serverless Cloud Storage"**. Total: \$4,000; PI: Yue Cheng (UVA); Duration: 12/30/2020—12/29/2021.
- Amazon Research Award **"Distributed Large-scale Graph Deep Learning by Gradient-free Optimization"**. Grant amount: \$75,000; My personal share: \$36,000; PI: Liang Zhao (Emory); Co-PI: Yue Cheng (UVA); Duration: 11/01/2020—10/31/2022.
- Google Cloud Platform **"Building a Purely Serverless Parallel Computing Framework"**. Total: \$5,000; PI: Yue Cheng (UVA); Duration: 08/10/2020—08/09/2021.
- NSF: MRI-2018631 **"MRI: Acquisition of an Adaptive Computing Infrastructure to Support Compute- and Data-Intensive Multidisciplinary Research"**. Grant amount: \$750,000; PI: Elise Miller-Hooks (GMU); Co-PIs: Jayshree Sarma, Yue Cheng, Shobita Satyapal, Maria Emelianenko (GMU); Involved in designing Hopper, GMU's next-generation on-campus HPC Infrastructure; Duration: 08/01/2020—7/31/2023.
- NSF: OAC-2007976 **"OAC Core: SMALL: DeepJIMU: Model-Parallelism Infrastructure for Large-scale Deep Learning by Gradient-Free Optimization"**. Grant amount: \$498,609; My personal share: \$249,302 (50% share); PI: Liang Zhao (Emory); Co-PI: Yue Cheng (UVA); Duration: 10/01/2020—9/30/2023.
- Amazon Web Services **"LambDAG: A Lambda-aware DAG Engine"**. Total: \$36,000; PI: Yue Cheng (UVA); Duration: 10/01/2019—10/31/2020.
- NSF: CCF-1919075 **"SPX: Collaborative Research: Cross-stack Memory Optimizations for Boosting I/O Performance of Deep Learning HPC Applications"**. Grant amount: \$1,273,487; UVA share: \$320,603 (25% share); Role: PI: Yue Cheng (UVA); Duration: 10/01/2019—9/30/2023.
- Google Cloud Platform **"Building a Generic Serverless DAG Engine"**. Total: \$10,000; PI: Yue Cheng (UVA); Duration: 08/20/2019—02/19/2020.
- Google Cloud Platform **"Towards Serverless Computational Science"**. Total: \$5,000; PI: Yue Cheng (UVA); Duration: 10/01/2018—07/31/2019.
- Amazon Web Services **"Building a Virtual Serverless Cloud OS"**. Total: \$36,000; PI: Yue Cheng (UVA); Duration: 08/01/2018—07/31/2019.

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## Talks

- 2022 **Scaling Data Analytics on Serverless Clouds**  
Invited talk: McDaniel College, MD (03/2022)
- 2018 **Analyzing Alibaba's Co-located Datacenter Workloads**  
Conference talk: IEEE BigData 2018, Seattle, WA (12/2018)
- 2018 **The hardware, they are a-changin**  
Breakout summary talk: Workshop on Data Storage Research 2025, San Jose, CA (05/2018)
- 2018 **Breaking the Monolith: Rethinking Storage System Design**  
Invited talk: Virginia Tech Northern Virginia Center, Falls Church, VA (03/2018)
- 2018 **Erasing Belady's Limitations: In Search of Flash Cache Offline Optimality**  
Invited talk: HPDC'18 TPC Workshop, Berkeley, CA (03/2018)
- 2017 **Breaking the Monolith: Rethinking Storage System Design**  
George Mason University, Fairfax, VA (11/2017)  
George Mason University, Fairfax, VA (04/2017)
- 2016 **Erasing Belady's Limitations: In Search of Flash Cache Offline Optimality**  
Conference talk: USENIX ATC'16, Denver, CO (06/2016)  
Internship talk: The CTO Office of EMC CTD, Princeton, NJ (06/2016)
- 2015 **Pricing Games for Hybrid Object Stores in the Cloud: Provider vs. Tenant**  
Conference talk: USENIX HotCloud'15, Santa Clara, CA (06/2015)  
The CTO Office of EMC CTD, Princeton, NJ (05/2015)
- 2015 **CAST: Tiering Storage for Data Analytics in the Cloud**  
Conference talk: ACM HPDC'15, Portland, OR (06/2015)
- 2015 **An In-Memory Object Caching Framework with Adaptive Load Balancing**  
Conference talk: ACM EuroSys'15, Bordeaux, France (04/2015)
- 2014 **An In-Memory Object Caching Framework with Adaptive Load Balancing**  
Internship talk: IBM Almaden Research Center, San Jose, CA (08/2014)
- 2013 **High Performance, Flexible Memory Caching**  
Internship talk: IBM Almaden Research Center, San Jose, CA (08/2013)

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## Teaching

### At George Mason University

- Spring 2022 **CS571 Operating Systems**  
Enrollment: 23, Instructor rating: 4.6/5, course rating: 4.5/5
- Fall 2021 **CS475 Concurrent & Distributed Systems**  
Enrollment: 58, Instructor rating: 4.36/5, course rating: 4.16/5
- Spring 2021 **CS571 Operating Systems**  
Enrollment: 18, Instructor rating: 4.93/5, course rating: 4.64/5
- Fall 2020 **Teaching leave**
- Spring 2020 **CS675 Distributed Systems**  
Enrollment: 9 (formal teaching evaluation cancelled due to COVID-19)
- Spring 2020 **CS571 Operating Systems**  
Enrollment: 34 (formal teaching evaluation cancelled due to COVID-19)
- Fall 2019 **CS471 Operating Systems**  
Enrollment: 68, Instructor rating: 4.33/5, Course rating: 3.98/5
- Spring 2019 **CS471 Operating Systems**  
Enrollment: 66, Instructor rating: 4.63/5, Course rating: 4.06/5
- Fall 2018 **CS795 Cloud Computing**  
Enrollment: 8, Instructor rating: 4.88/5, Course rating: 4.88/5

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## Student Advising

### PhD Dissertation Advisor

1. Zheng Chai, PhD, CS@GMU, *6 papers published, 1 paper under review*, started 2018, expected to graduate Fall 2022  
Topic: Distributed machine learning systems  
Internships:
  - HPE, Summer 2021.
2. Jingyuan Zhang, PhD, CS@GMU, *3 papers published*, started 2018  
Topic: Stateful serverless computing  
Internships:
  - ByteDance, Summer 2022.
  - Adobe Research, Summer 2021.
  - NetApp, Summer 2020.
3. Ao Wang, PhD, CS@GMU, *4 papers published*, started 2018  
Topic: Efficient serverless infrastructure  
Internships:
  - Alibaba Cloud, Summer 2020.
4. Yuqi Fu, PhD, CS@GMU, co-advised w/ Prof. Songqing Chen; started 2020  
Topic: Serverless resource scheduling  
Internships:
  - ByteDance, Summer 2022.
5. Benjamin Carver, PhD, CS@GMU, *2 papers published*, started 2021  
Topic: General-purpose serverless supercomputing  
Internships:
  - Microsoft Research, Summer 2022.
6. Zhaoyuan (Alex) Su, PhD, CS@GMU, started 2021  
Topic: Algorithmic and systems support for large-scale federated learning  
Internships:
  - Argonne National Laboratory, Summer 2022.
7. Rui Yang, PhD, CS@GMU, started 2021  
Topic: Learned data storage systems

### Master Research

1. Benjamin Carver, Accelerated BS/MS Program@GMU, *2 papers published*  
Topic: Designing a Serverless Data Analytics Framework
2. Rafael Madrid MS, CS,  
Topic: Designing NVM Storage for Serverless Workloads
3. Anne Martine Augustin (MS, SWE, Spring'19–Summer'19)

### Undergraduate Research

Michael Somarriba, CS@GMU

Daniel Meneses, CS@GMU

Yuanqi Du, CS@GMU

Benjamin Carver, CS@GMU

Isaiah King, CS@GMU

Dawen Yang, CS@GMU

Mark Boehen, ECE@GMU

Hannan Fayyaz, CS, York University, Canada  
Zeshan Fayyaz, CS, Ryerson University, Canada  
**PhD Dissertation Committee Member**  
Redwan Ibne Seraj Khan, PhD, CS@VT  
Samuel S. Ogden, PhD, CS@WPI  
Hengrun Zhang, PhD, CS@GMU  
Li Liu, PhD, CS@GMU  
Robert Lorentz, PhD, ECE@GMU

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## Professional Services

### University, College, and Department Service

- 2021–2022 Faculty search committee, Computer Science, GMU
- 2017–2019 Computer Science Ph.D. admissions committee, GMU

### Conference Organizer and Community Services

- 2022 **HotStorage**, Publication chair, ACM Workshop on Hot Topics in Storage and File Systems
- 2021-present **IEEE STCOS**, Co-chair, IEEE Special Technical Community on Operating Systems
- 2021 **ICDCS**, Local arrangement chair, IEEE International Conference on Distributed Computing Systems
- 2019 **SEC**, Local arrangement chair, ACM/IEEE Symposium on Edge Computing

### Technical Program Committee

- 2022 **NAS** (storage track), IEEE International Conference on Networking, Architecture, and Storage
- 2022 **KDD** (ERC), ACM SIGKDD International Conference on Data Mining
- 2022 **HiPS**, Workshop on High Performance Serverless Computing@HPDC 2022
- 2022 **SEC**, ACM/IEEE Symposium on Edge Computing
- 2022 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2021 **REX-IO**, Workshop on Re-envisioning Extreme-Scale I/O for Emerging Hybrid HPC Workloads
- 2021 **ICDCS**, 41<sup>st</sup> IEEE International Conference on Distributed Computing Systems
- 2021 **SEC**, ACM/IEEE Symposium on Edge Computing
- 2021 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2020 **PDSW-DISCS**, 5<sup>th</sup> International Parallel Data Systems Workshop
- 2020 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2020 **ICDCS**, 40<sup>th</sup> IEEE International Conference on Distributed Computing Systems
- 2020 **SC**, International Conference for High Performance Computing, Networking, Storage, and Analysis
- 2020 **MSST**, 36<sup>th</sup> International Conference on Massive Storage Systems and Technology
- 2020 **CCGrid**, IEEE/ACM International Symposium in Cluster, Cloud, and Grid Computing
- 2019 **PDSW-DISCS**, 4<sup>th</sup> International Parallel Data Systems Workshop
- 2019 **MASCOTS**, 27<sup>th</sup> IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems
- 2019 **IPDPS** (ERC), IEEE International Parallel and Distributed Processing Symposium
- 2019 **CCGrid** (ERC), IEEE/ACM International Symposium in Cluster, Cloud, and Grid Computing
- 2019 **BlockDM**, First IEEE International Workshop on Blockchain and Data Management
- 2019 **MSST**, 35<sup>th</sup> International Conference on Massive Storage Systems and Technology
- 2019 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2018 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2018 **ICS** (ERC), ACM International Conference on Supercomputing



- 2018 **IPDPS** (ERC), IEEE International Parallel and Distributed Processing Symposium
- 2018 **ICCCN**, International Conference on Mobile Systems and Pervasive Computing
- 2018 **MobiSPC**, International Conference on Computer Communications and Networks
- 2017 **BDCAT**, IEEE/ACM International Conference on Big Data Computing, Applications and Technologies

#### Proposal Review Panels

- 2021 **NSF**, Computer Systems Research (CSR) under the division of Computer and Network Systems (CNS)
- 2020 **NSF**, Computer Systems Research (CSR) under the division of Computer and Network Systems (CNS)
- 2019 **NSF**, Computer Systems Research (CSR) under the division of Computer and Network Systems (CNS)
- 2019 **NSF**, Software and Hardware Foundations (SHF) under the division of Computing and Communication Foudations (CCF)

#### Shadow Technical Program Committees

- 2018 **EuroSys**, ACM European Conference on Computer Systems
- 2017 **EuroSys**, ACM European Conference on Computer Systems
- 2016 **EuroSys**, ACM European Conference on Computer Systems

#### Journal Reviews

- 2019 **TC**, IEEE Transactions on Computers
- 2019 **JPDC**, Journal of Parallel and Distributed Computing
- 2019 **TPDS**, IEEE Transactions on Parallel and Distributed Systems
- 2019 **TCC**, IEEE Transactions on Cloud Computing
- 2018 **TPDS**, IEEE Transactions on Parallel and Distributed Systems
- 2018 **TOS**, ACM Transactions on Storage
- 2018 **TCC**, IEEE Transactions on Cloud Computing
- 2017 **TOS**, ACM Transactions on Storage
- 2017 **TC**, IEEE Transactions on Computers
- 2017 **TAAS**, ACM Transactions on Autonomous and Adaptive Systems
- 2017 **JPDC**, Journal of Parallel and Distributed Computing
- 2016 **TPDS**, IEEE Transactions on Parallel and Distributed Systems
- 2015 **TPDS**, IEEE Transactions on Parallel and Distributed Systems

#### Conference Reviews

- 2017 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2017 **Cluster**, IEEE Cluster Conference
- 2017 **NAS**, International Conference on Networking, Architecture, and Storage
- 2017 **ICS**, ACM International Conference on Supercomputing
- 2017 **ICDCS**, IEEE International Conference on Distributed Computing Systems
- 2016 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2016 **ICDCS**, IEEE International Conference on Distributed Computing Systems
- 2016 **SC**, International Conference for High Performance Computing, Networking, Storage, and Analysis
- 2016 **BigData**, IEEE International Conference on Big Data
- 2016 **ICPP**, International Conference on Parallel Processing
- 2015 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2015 **SC**, International Conference for High Performance Computing, Networking, Storage, and Analysis
- 2014 **HPDC**, ACM International Symposium on High-Performance Parallel and Distributed Computing
- 2014 **BigData**, IEEE International Conference on Big Data