Dr. Amelie Chi Zhou

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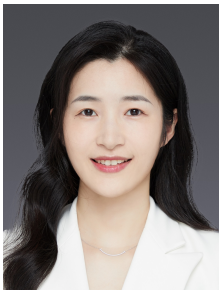

Education

Nanyang Technological University 08/2011 - 04/2016
Ph.D. in Computer Science Singapore, Singapore

Beihang University 09/2009 - 01/2012
M.S. in Electrical and Information Engineering Beijing, China

Beihang University 09/2005 - 07/2009
B.S. in Electrical and Information Engineering Beijing, China

Professional Experience

Hong Kong Baptist University 08/2023 - present
Assistant Professor Hong Kong, China

Shenzhen University 07/2022 - 07/2023
Associate Professor Shenzhen, China

Shenzhen University 10/2017 - 06/2022
Assistant Professor Shenzhen, China

Inria Research Centre 05/2016 - 08/2017
Postdoctoral Fellow Rennes, France

Hornors and Awards

- **Shenzhen Young Scientist Award** 2023
- **Outstanding Editors Award** of the FGCS journal 2022
- **TPDS Best Paper Award** 2022
  For our paper "An Efficient Parallel Secure Machine Learning Framework on GPUs".
- **IEEE-CS TCHPC Early Career Researchers Award** 2021
  The award recognizes up to three individuals worldwide who have made outstanding, influential, and potentially long-lasting contributions in the field of high-performance computing within five years of receiving their PhD.
- **ACM SIGHPC China Rising Star** 2021
  The award recognizes the research achievements of young scholars in the field of Computer Science in China. I'm one of the three recipients of this award in the subfield of High Performance Computing.
- **Distinguished Young Faculty** of Shenzhen University 2021
  The highest research award of Shenzhen University. At most one faculty in each discipline will receive this award each year in recognize to her achievements and research potential.
- **Best Reviewers Award of CIKM** 2021
  The award was given to 30 reviewers out of more than 1,600 reviewers during the conference of CIKM 2021.
- **Tencent "Rhino-bird" Open-Funded Young Researcher Award** 2020
  The award is jointly initiated by Tencent and Shenzhen University to recognize outstanding young scholars in different disciplines (two recipients in computer science in 2020) carrying out frontier scientific research.
- **Outstanding Student Advisor** of Shenzhen University 2020
  Recognized as the head student advisor of the "special class in high performance computing" (30 students).

- **IEEE Outstanding Leadership Award** 2019
  Recognized as Program Co-Chair of the 5th IEEE International Conference on Smart Data (SmartData-2019), Atlanta, USA, 14-17 July 2019.
- **Shenzhen Overseas High-Caliber Personnel** 2018
- **Inria Postdoctoral Research Fellowship** 2016
- **Spotlight Article of the issue** 2014
  For paper "Transformation-Based Monetary Cost Optimizations for Workflows in the Cloud" published on IEEE Transactions on Cloud Computing.
- **Best PhD Consortium Award** 2014
  The award is given at IEEE CloudCom 2014 for the presentation: "Simplified Resource Provisioning for Workflows in IaaS Clouds", Singapore, Dec. 2014.
- **Research Scholarship** of Nanyang Technological University 2011

Research Projects

Total funding over **¥5.6M*

- **NSFC General Program**, *Single PI* 2022 – 2025
  Geo-distributed graph computing systems suffer from large computing scale, complex communication patterns, and data movement constraints due to privacy concerns. This project aims to design and implement effective and efficient optimization methods to improve the performance of graph applications in geo-distributed environments. (*Budget: ¥580,000, funding rate 17.4% nationwide*)
- **Tencent "Rhino-bird" Research Fund**, *Single PI* 2020 – 2022
  This project is granted to the recipients of Tencent "Rhino-bird" Open-Funded Young Researcher Award to support young faculties exploring innovative ideas in different disciplines. There are only two recipients in computer science in 2020. (*Budget: ¥60,000*)
- **NSFC Young Scientists Fund**, *Single PI* 2019 – 2021
  This project aims at tackling the challenges of optimizing the performance and cost of scientific applications in the cloud, including both single cloud region and multiple geo-distributed cloud regions. (*Budget: ¥260,000, funding rate 25.5% nationwide*)
- **Shenzhen Overseas High-Caliber Personnel**, *Single PI* 2019 – 2021
  The Shenzhen Overseas High-Caliber Personnel is an individual research project granted to researchers with high quality research records and good research potential. This project aims at addressing the performance variation problem in large-scale distributed systems, in order to provide predictable and stable performance optimization for big data applications. (*Budget: ¥2.7M + ¥1.6M compensation*)
- **Shenzhen STI Free Exploration Project**, *Single PI* 2019 – 2021
  This project targets at the system challenges in wide area network and aims at designing new method to improve system efficiency for graph-like applications. (*Budget: ¥300,000*)
- **NSFC-Guangdong Young Scientists Fund**, *Single PI* 2018 – 2020
  This project targets at the timely and important data privacy issues. It aims at optimizing the resource management problem for large-scale big data applications in geo-distributed clouds, where the network performance heterogeneity and privacy constraints are the main challenges. (*Budget: ¥100,000*)

Publications

**Full publication list: DBLP, Google Scholar*

Refereed Journal Articles

[TPDS] **Amelie Chi Zhou**, Jianming Lao, Zhoubin Ke, Yi Wang and Rui Mao. *FarSpot: Optimizing Monetary Cost for HPC Applications in the Cloud Spot Market*. IEEE Trans. Parallel Distributed Syst. 33(11): 2955-2967, 2022.

[TPDS] **Amelie Chi Zhou**, Weilin Xue, Yao Xiao, Bingsheng He, Shadi Ibrahim and Reynold Cheng.*Taming System Dynamics on Resource Optimization for Data Processing Workflows: A Probabilistic Approach*. IEEE Trans. Parallel Distributed Syst. 33(1): 231-248, 2022.

[FGCS] Yao Xiao, **Amelie Chi Zhou**, Xuan Yang, Bingsheng He. *Privacy-preserving workflow scheduling in geo-distributed data centers*. Future Gener. Comput. Syst. 130: 46-58, 2022.

[TPDS] Feng Zhang, Zheng Chen, Chenyang Zhang, **Amelie Chi Zhou**, Jidong Zhai, Xiaoyong Du. *An Efficient Parallel Secure Machine Learning Framework on GPUs*. IEEE Trans. Parallel Distributed Syst. 32(9): 2262-2276, 2021. (Best Paper Award)

[TPDS] **Amelie Chi Zhou**, Bingkun Shen, Yao Xiao, Shadi Ibrahim, Bingsheng He. *Cost-Aware Partitioning for Efficient Large Graph Processing in Geo-Distributed Datacenters*. IEEE Trans. Parallel Distrib. Syst. 31(7): 1707-1723, 2020.

[TPDS] **Amelie Chi Zhou**, Yao Xiao, Yifan Gong, Bingsheng He, Jidong Zhai, Rui Mao. *Privacy Regulation Aware Process Mapping in Geo-Distributed Cloud Data Centers*. IEEE Trans. Parallel Distrib. Syst. 30(8): 1872-1888, 2019.

[FGCS] Orcun Yildiz, **Amelie Chi Zhou**, Shadi Ibrahim. *Improving the Effectiveness of Burst Buffers for Big Data Processing in HPC Systems with Eley*. Future Gener. Comput. Syst. 86: 308-318, 2018.

[TPDS] **Amelie Chi Zhou**, Bingsheng He, Xuntao Cheng, Chiew Tong Lau. *A Declarative Optimization Engine for Resource Provisioning of Scientific Workflows in Geo-Distributed Clouds*. IEEE Trans. Parallel Distrib. Syst. 28(3): 647-661, 2017.

[TCC] **Amelie Chi Zhou**, Bingsheng He, Cheng Liu. *Monetary Cost Optimizations for Hosting Workflow-as-a-Service in IaaS Clouds*. IEEE Trans. Cloud Comput. 4(1): 34-48, 2016.

[TPDS] Bingsheng He, Jeffrey Xu Yu, **Amelie Chi Zhou**. *Improving Update-Intensive Workloads on Flash Disks through Exploiting Multi-Chip Parallelism*. IEEE Trans. Parallel Distrib. Syst. 26(1): 152-162, 2015.

[TCC] **Amelie Chi Zhou**, Bingsheng He. *Transformation-Based Monetary Cost Optimizations for Workflows in the Cloud*. IEEE Trans. Cloud Comput. 2(1): 85-98, 2014. (Spotlight article of the issue, invited presentation at IEEE CloudCom 2014)

Refereed Conference Papers

[ICS] **Amelie Chi Zhou**, Zhoubin Ke, Jianming Lao. *DyVer: Dynamic Version Handling for Array Databases*. International Conference on Supercomputing, 2023.

[SoCC] **Amelie Chi Zhou**, Ruibo Qiu, Thomas Lambert, Tristan Allard, Shadi Ibrahim, Amr El Abbadi. *Geo-Pregel: An End-to-End System for Privacy-Preserving Graph Processing in Geo-Distributed Data Centers*. ACM Symposium on Cloud Computing, 2022.

[ICDE] **Amelie Chi Zhou**, Juanyun Luo, Ruibo Qiu, Haobin Tan, Bingsheng He, Rui Mao. *Adaptive Partitioning for Large-Scale Graph Analytics in Geo-Distributed Data Centers*. IEEE International Conference on Data Engineering, 2022.

[ICPP] Zheng Chen, Feng Zhang, **Amelie Chi Zhou**, Jidong Zhai, Chenyang Zhang, Xiaoyong Du. *ParSecureML: An Efficient Parallel Secure Machine Learning Framework on GPUs*. International Conference on Parallel Processing, 2020.

[DATE] Jing Chen, Yi Wang, **Amelie Chi Zhou**, Rui Mao, Tao Li. *PATCH: Process-Variation-Resilient Space Allocation for Open-Channel SSD with 3D Flash*. Design, Automation and Test in Europe Conference, 2019.

[DATE] Shangyu Wu, Yi Wang, **Amelie Chi Zhou**, Rui Mao, Zili Shao, Tao Li. *Towards Cross-Platform Inference on Edge Devices with Emerging Neuromorphic Architecture*. Design, Automation and Test in Europe Conference, 2019.

[ICPP] **Amelie Chi Zhou**, Yao Xiao, Bingsheng He, Shadi Ibrahim, Reynold Cheng. *Incorporating Probabilistic Optimizations for Resource Provisioning of Data Processing Workflows*. The 48th International Conference on Parallel Processing, 2019.

[SIGMOD] Shuhao Zhang, Jiong He, **Amelie Chi Zhou**, Bingsheng He. *BriskStream: Scaling Data Stream Processing on Shared-Memory Multicore Architectures*. ACM Special Interest Group on Management of Data Conference, 2019.

[ICPP] **Amelie Chi Zhou**, Tien-Dat Phan, Shadi Ibrahim, Bingsheng He. *Energy-Efficient Speculative Execution using Advanced Reservation for Heterogeneous Clusters*. The 47th International Conference on Parallel Processing, 2018.

[Cluster] Orcun Yildiz, **Amelie Chi Zhou**, Shadi Ibrahim. *Eley: On the Effectiveness of Burst Buffers for Big Data Processing in HPC systems*. IEEE International Conference on Cluster Computing, 2017.

[ICDCS] **Amelie Chi Zhou**, Shadi Ibrahim, Bingsheng He. *On Achieving Efficient Data Transfer for Graph Processing in Geo-Distributed Datacenters*. The 37th IEEE International Conference on Distributed Computing Systems, 2017.

[ICDE] Shuhao Zhang, Bingsheng He, Daniel Dahlmeier, **Amelie Chi Zhou**, Thomas Heinze. *Revisiting the Design of Data Stream Processing Systems on Multi-Core Processors*. The 33rd IEEE International Conference on Data Engineering, 2017.

[SC] **Amelie Chi Zhou**, Yifan Gong, Bingsheng He, Jidong Zhai. *Efficient process mapping in geo-distributed cloud data centers*. International Conference for High Performance Computing, Networking, Storage and Analysis, 2017.

[HPDC] **Amelie Chi Zhou**, Bingsheng He, Xuntao Cheng, Chiew Tong Lau. *A Declarative Optimization Engine for Resource Provisioning of Scientific Workflows in IaaS Clouds*. The 24th International Symposium on High-Performance Parallel and Distributed Computing, 2015.

[SC] Yifan Gong, Bingsheng He, **Amelie Chi Zhou**. *Monetary cost optimizations for MPI-based HPC applications on Amazon clouds: checkpoints and replicated execution*. The 2015 International Conference for High Performance Computing, Networking, Storage and Analysis, 2015.

[CloudCom] **Amelie Chi Zhou**, Bingsheng He. *Simplified Resource Provisioning for Workflows in IaaS Clouds*. The 6th IEEE International Conference on Cloud Computing Technology and Science, 2014. (Best PhD Consortium)

Professional Service Activities

Journal Editorship

- *Associate Editor* of IEEE Transactions on Parallel and Distributed Computing
- *Editor* of Future Generation Computer Systems
- *Guest Editor* of Concurrency and Computation: Practice and Experience

Conference/Workshop Organizers and Chairs

- *BoF Chair* of IEEE/ACM International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC 2024*)
- *Track Co-Chair* of IEEE International Conference on Cluster Computing (*CLUSTER 2024*)
- *Track Co-Chair* of IEEE International Parallel & Distributed Processing Symposium (*IPDPS 2024*)
- *General Chair* of 8th International Parallel Data Systems Workshop (*PDSW@SC2023*)
- *Program Co-Chair* of 15th International Workshop on Parallel Programming Models and Systems Software for High-End Computing (*P2S2@ICPP2022,ICPP2023*)
- *Track Vice-Chair* of IEEE/ACM International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC 2022*)
- *Student Program Co-Chair* of International Conference on Parallel Processing (*ICPP 2022*)
- *Publicity Co-Chair* of IEEE International Symposium on Computer Architecture and High Performance Computing (*SBAC-PAD 2022*)
- *Program Co-Chair* of 6th&7th International Parallel Data Systems Workshop (*PDSW@SC2021,SC2022*)
- *Panel Vice-Chair* of IEEE/ACM International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC 2021*)

- *Track Co-Chair* of 27th IEEE International Conference on High Performance Computing, Data, and Analytics (*HiPC 2020*)
- *Posters and Demo Co-Chair* of International Conference on Distributed Computing Systems (*ICDCS 2020*)
- *Program Co-Chair* of IEEE International Conference on Smart Data (*SmartData-2019*)
- *Track Co-Chair* of IEEE BigData Congress 2018
- *Local Co-Chair* of International Conference on Cloud Computing Technology and Science (*CloudCom 2014*)

Membership in Technical Program Committees

- IEEE/ACM International Conference for High Performance Computing, Networking, Storage, and Analysis (*SC*): 2018 (Posters), 2019 (Panels), 2020 (Papers), 2023 (BoF, Posters, Reproducibility).
- IEEE International Conference on Cluster Computing (*Cluster*): 2020, 2021, 2022, 2023.
- International Conference on Information and Knowledge Management (*CIKM*): 2019, 2020, 2021, 2022 (senior PC), 2023 (senior PC).
- International Conference on Parallel Processing (*ICPP*): 2022, 2023.
- USENIX Conference on File and Storage Technologies (*FAST*): 2022.
- IEEE International Parallel & Distributed Processing Symposium (*IPDPS*): 2022 (Best paper selection).
- IEEE International Conference on Distributed Computing Systems (*ICDCS*): 2021, 2022.
- ACM Workshop on Hot Topics in Storage and File Systems (*HotStorage*): 2022.
- ACM International Symposium on High-Performance Parallel and Distributed Computing (*HPDC*): 2018 (Posters), 2021 (Papers).
- IEEE International Conference on High Performance Computing, Data, and Analytics (*HiPC*): 2021.
- International Symposium on Cluster, Cloud and Internet Computing (*CCGrid*): 2017, 2019, 2020, 2021.
- IEEE International Conference on Big Data (*BigData*): 2018, 2019, 2020, 2021.
- International Conf. on High Performance Computing in Asia Pacific Region (*HPCAsia*): 2019, 2020, 2021.
- Supercomputing Frontiers Asia (*SCFA*): 2020.
- Supercomputing Asia (*SCA*): 2018, 2020.
- IFIP International Conference on Network and Parallel Computing (*NPC*): 2018, 2019.
- IEEE International Conference on Data Science and Systems (*DSS*): 2019.
- IEEE International Congress on Big Data (*BigData Congress*): 2019.
- The International Conference on Progress in Informatics and Computing (*PIC*): 2018.
- The IEEE International Conference on Parallel and Distributed Systems (*ICPADS*): 2017, 2018.

Invited Reviewer for Journals

- IEEE Transactions on Parallel and Distributed Systems (*TPDS*)
- IEEE Transactions on Cloud Computing (*TCC*)
- IEEE Transactions on Big Data (*TBD*)
- IEEE Transactions on Knowledge and Data Engineering (*TKDE*)
- IEEE Transactions on Network Science and Engineering (*TNSE*)
- ACM Transactions on Internet Technology (*TOIT*)
- ACM Transactions on Autonomous and Adaptive Systems (*TAAS*)
- ACM Computing Surveys (*CSUR*)
- Elsevier Journal of Parallel and Distributed Computing (*JPDC*)
- Future Generation Computer Systems (*FGCS*)
- Springer Journal of Supercomputing (*SUPE*)
- International Journal of High Performance Computing and Networking (*IJHPCN*)
- Concurrency and Computation: Practice and Experience (*CCPE*)

Teaching Experience

Undergraduate Courses (*Average teaching evaluation within top 14% of the school*)

- Parallel Computing 2018 - 2019 Spring, 2019 - 2020 Fall
  Typical class size: 30 – 60, designed for the special class in high performance computing.
  Textbook: *Parallel Computing - Structures, Algorithms, Programming*, CHEN Guoliang.
- Computer Systems (II) 2019 - 2020 Spring, 2020 - 2022 Spring
  Typical class size: 30 – 60, designed for year 2 CS students.
  Textbook: *Computer Systems: A Programmer's Perspective*, Randal E. Bryant.
- Computer Systems (III) 2018 - 2019 Fall, 2020 - 2021 Fall
  Typical class size: 30 – 60, designed for year 3 CS students.
  Textbook: *Computer Organization and Design: The Hardware/Software Interface*, Patterson, Hennessy.
- Cloud Computing Engineering 2020 - 2021 Fall, 2021 - 2022 Fall
  Typical class size: 30 – 60, designed for the AI specialization program in collaboration with Tencent Cloud.

Graduate Courses

- Combinatorial Mathematics 2018 - 2019 Spring, 2019 - 2020 Spring
  Typical class size: 100 – 200, core course for year one master students.
  Textbook: *Introductory Combinatorics*, Richard A.Brualdi.

Student Competitions

- Build and lead the *SZU-HPC Team* which won the *3rd prize* in the Optimization track of the Parallel Application Challenge (PAC) 2017 and 2018; *2nd prize* in ASC Student Supercomputer Challenge 2022.
- Awarded *Outstanding Student Challenge Advisor* by PAC 2021.