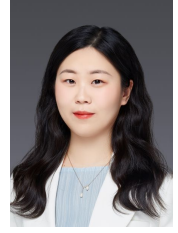


# Jing Wang, Ph.D.

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🌐 <https://wangjing-home.github.io/>

📖 **Research Area:** graph processing, disaggregated memory, resource scheduling, heterogeneous architecture, parallel computing, programming environment, etc.



## Education

- 2018.9 – 2023.7    📖 **Ph.D. Candidate, Computer science, Shanghai Jiao Tong University** in Shanghai.  
Sustainable Architectures and Infrastructure Laboratory (SAIL) Lab.  
Emerging Parallel Computing Center (EPCC) Lab.  
GPA: 3.85%
- 2014.9 – 2018.7    📖 **B.S., Software Engineering, Northwestern Polytechnical University** in Xi'an.  
School of Software and Microelectronics  
Rank: Top 6%



## Research Publications

### Conference Proceedings

- 1 Chuanming Shao, Jinyang Guo, Pengyu Wang, **Jing Wang**, Chao Li, and Minyi Guo, “Oversubscribing gpu unified virtual memory: Implications and suggestions,” in *Proceedings of the 2022 ACM/SPEC on International Conference on Performance Engineering (ICPE, CORE B)*, 2022, pp. 67–75. 🔗 URL: <https://dl.acm.org/doi/10.1145/3489525.3511691>.
- 2 **Jing Wang**, Chao Li, Junyi Mei, Hao He, Taolei Wang, Pengyu Wang, *et al.*, “Hyfarm: Task orchestration on hybrid far memory for high performance per bit,” in *IEEE International Conference on Computer Design (ICCD, CCF B)*, 2022, pp. 1–9.
- 3 **Jing Wang**, Chao Li, Taolei Wang, Lu Zhang, Pengyu Wang, Junyi Mei, *et al.*, “Excavating the potential of graph workload on rdma-based far memory architecture,” in *2022 IEEE International Parallel and Distributed Processing Symposium (IPDPS, CCF B)*, IEEE, 2022, pp. 1029–1039. 🔗 URL: <https://ieeexplore.ieee.org/document/9820708/>.
- 4 Pengyu Wang, Chao Li, **Jing Wang**, Taolei Wang, Lu Zhang, Jingwen Leng, *et al.*, “Skywalker: Efficient alias-method-based graph sampling and random walk on gpus,” in *2021 30th International Conference on Parallel Architectures and Compilation Techniques (PACT, CCF B)*, IEEE, 2021, pp. 304–317. 🔗 URL: <https://ieeexplore.ieee.org/document/9563020>.

### Journal Articles

- 1 Jinyang Guo, Chuanming Shao, **Jing Wang**, Chao Li, Haojin Zhu, and Minyi Guo, “Programming and developing environment for fpga graph processing: Survey and exploration,” *Journal of Computer Research and Development (JCRD, CCF A)*, 2019. 🔗 URL: <https://crad.ict.ac.cn/CN/10.7544/issn1000-1239.2020.20200106>.
- 2 José Romero Hung, Chao Li, Taolei Wang, Jinyang Guo, Pengyu Wang, Chuanming Shao, *et al.*, “Dragon: Dynamic recurrent accelerator for graph online convolution,” *ACM Trans. Des. Autom. Electronic System (TODAES, CCF B)*, 2022, ISSN: 1084-4309. 🔗 URL: <https://doi.org/10.1145/3524124>.
- 3 **Jing Wang**, Chao Li, Taolei Wang, Lu Zhang, Pengyu Wang, Junyi Mei, *et al.*, “Fargraph+: Excavating the parallelism of graph computing workload on rdma-based far memory system,” *Journal of Parallel and Distributed Computing (JPDC, CCF B)*, pp. 144–159, 2023. 🔗 URL: <https://doi.org/10.1016/j.jpdc.2023.02.015>.

- 4 **Jing Wang**, Lu Zhang, Pengyu Wang, Xiaodong Xu, Chao Li, Haojin Zhu, *et al.*, “Memory system optimization for graph processing: A survey,” *Science China Information Science (SCIS, CCF A)*, 2019.  URL: <https://www.sciengine.com/SSI/doi/10.1360/N112018-00281>.
- 5 Pengyu Wang, **Jing Wang**, Chao Li, Jianzong Wang, Haojin Zhu, and Minyi Guo, “Grus: Toward unified-memory-efficient high-performance graph processing on gpu,” *ACM Transactions on Architecture and Code Optimization (TACO, CCF A)*, vol. 18, no. 2, pp. 1–25, 2021.  URL: <https://dl.acm.org/doi/10.1145/3444844>.
- 6 Lu Zhang, Weiqi Feng, Chao Li, Xiaofeng Hou, Pengyu Wang, **Jing Wang**, *et al.*, “Tapping into nfv environment for opportunistic serverless edge function deployment,” *IEEE Transactions on Computers (TC, CCF A)*, 2021.  URL: <https://ieeexplore.ieee.org/document/9638338>.

## Short Papers

- 1 Weixin Deng, Pengyu Wang, **Jing Wang**, and Chao Li, “Exploiting parallelism, sparsity and locality to accelerate matrix factorization on x86 platforms,” in *International Symposium on Benchmarking, Measuring and Optimizing (BenchCouncil First Prize)*, BenchCouncil, 2019.
- 2 **Jing Wang**, Chao Li, Taolei Wang, Lu Zhang, Pengyu Wang, Junyi Mei, *et al.*, “Fargraph: Optimizing graph workload on rdma-based far memory architecture,” in *International Conference for High Performance Computing, Networking, Storage, and Analysis (SC’21, CCF A)*, Research Poster, 2021.
- 3 Cheng Xu, Chao Li, Pengyu Wang, Xiaofeng Hou, **Jing Wang**, Shixuan Sun, *et al.*, “Cowalker: High-throughput gpu random walk with fine-tuned concurrent query processing,” in *International Conference for Principles and Practice of Parallel Programming (PPoPP’22, CCF A)*, Research Poster, 2022.

## Patents



- 1 Chao Li, **Jing Wang**, Hao He, Junyi Mei, Taolei Wang, and Minyi Guo, “Hybrid far memory scheduling strategy on disaggregated architecture,” Chinese Patent, CN202211212624.0, 2022-09-30.
- 2 Chao Li, **Jing Wang**, Pengyu Wang, Haojin Zhu, and Minyi Guo, “Graph sampling and random walk acceleration method and system,” Chinese Patent, CN202010332908.8, 2020-04-24.
- 3 Chao Li, **Jing Wang**, Taolei Wang, and Minyi Guo, “A method and system for far memory access optimization on disaggregated architecture,” Chinese Patent, CN202110209483.6, 2021-01-24.
- 4 Chao Li, **Jing Wang**, Taolei Wang, Haojin Zhu, and Minyi Guo, “A method and system for working set partition of graph processing on disaggregated architecture,” Chinese Patent, CN202110209494.4, 2021-02-14.
- 5 Chao Li, Pengyu Wang, Chuanming Shao, **Jing Wang**, Jinyang Guo, Haojin Zhu, *et al.*, “An strategy and system for adaptive unified memory management on graph processing,” Chinese Patent, CN202011244031.3, 2020-11-10.
- 6 Chao Li, Pengyu Wang, **Jing Wang**, Haojin Zhu, and Minyi Guo, “A method for data preprocessing and scheduling strategy of concurrent fpga graph processing,” Chinese Patent, CN202110318094.7, 2021-03-25.
- 7 Chao Li, Cheng Xu, **Jing Wang**, Taolei Wang, and Junyi Mei, “Concurrent graph sampling and random walk optimization method and system on gpu,” Chinese Patent, CN202211536501.2, 2022-12-2.

## HONORS AND AWARDS





- 2022          **First price in Shanghai**, China International College Students 'Internet+' Innovation and Entrepreneurship Competition  
                 **First price in China**, James Dyson Award
- 2021          **Outstanding League Member**, Shanghai Jiao Tong University
- 2020          **Excellent completion**, Young Marxist Party School in Shanghai Jiao Tong University
- 2019          **Second price**, The 2nd Winning Health Intelligent Medical System Design Competition in China  
                 **First price**, BenchCouncil International Artificial Intelligence System Challenges  
                 **Second price**, CCF TCARCH Computer Architecture Challenge
- 2018          **Outstanding Undergraduate Thesis Award**, Northwestern Polytechnical University
- 2017          **Honorable Mention**, COMAP's Mathematical Contest in Modeling  
                 **Outstanding Students Scholarship**, Northwestern Polytechnical University  
                 **Excellence Award**, National College Student Innovative and Entrepreneurship Competition in Northwestern Polytechnical University
- 2016          **Outstanding Students Scholarship**, Northwestern Polytechnical University  
                 **National Encouragement Scholarship**, Ministry of Education of China
- 2015          **Outstanding Students Scholarship**, Northwestern Polytechnical University  
                 **National Encouragement Scholarship**, Ministry of Education of China
- 2013          **First Prize**, National High School Chemistry Olympiad, Chinese Physical Society in Henan

## Research Experience

### Research Thesis


- 2018.08-present          **Ph.D. Thesis** (*On-going*)  
                 "Building Application-Aware Far Memory System for High Performance-Per-Bit"
- 2018.01-2018.06          **Bachelor Thesis** (*Outstanding Undergraduate Thesis Award*)  
                 "Programming graph algorithms on heterogeneous architecture"

### Government Funded Research






- 2021.08-present          **"Resource management on scalable data center"**  
                 Supported by National Natural Science Foundation of China  
                 –Optimizing performance of graph processing on RDMA-based far memory  
                 –Improving efficiency of hybrid far memory environment
- 2020.07-present          **"Heterogeneous resource management of multi-program graph processing"**  
                 Supported by National Natural Science Foundation of China  
                 –Co-locating applications with memory oversubscription on GPU  
                 –Accelerating graph random walk and sampling on GPU
- 2018.08-2021.07          **"Graph programming environment and library on FPGA accelerator"**  
                 Supported by National Key Research and Development Program of China  
                 –Implementation of HLS tools that translates high-level languages to HDL  
                 –Design of Graph DSL and libraries for programming graph applications on FPGA
- 2016.05-2017.11          **"Design and Implementation of Discrete Event Diagnosis System"**  
                 Supported by National Innovative and Entrepreneurship Research Program of China  
                 –Designing an error-diagnosed algorithm on event-driven finited state system

## Research Experience (continued)






### Cooperative Company Project

- 2021.9-present     **"Disaggregated Memory Resource Allocation for Cloud Video Processing"**  
Sponsored by Alibaba Innovative Research (AIR) Project  
–Scheduling cloud games and video applications for high GPU utilization  
–Scheduling data-intensive applications on hybrid disaggregated memory

## Professional Activities

- Reviewer     *Journal & Conference Reviewer*  
– International Symposium on Microarchitecture ( MICRO 2020, 2021, 2022)  
– International Symposium on High-Performance Computer Architecture (HPCA 2021)  
– International Symposium on Computer Architecture (ISCA 2021)  
– International Conference for High Performance Computing, Networking, Storage, and Analysis (SC 2021)  
– International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2021, 2022)  
– International Conference on Big Data (Big Data 2022)  
– International Conference on Computer Design (ICCD 2022)
- Volunteer     *Web & Submission co-Chair of APPT'21*  
– the 14th CCF International Symposium on Advanced Parallel Processing Technology Online Host of ACA'20  
– The 13th Annual conference of CCF Advanced Computer Architecture, Zoom Online Student Volunteer of CIIF'20, NPC'19, YOCSEF'19  
– China International Industry Fair in Shanghai in China, 2020  
– Annual IFIP International Conference on Network and Parallel Computing, 2019  
– CCF YOCSEF Shanghai 20th Anniversary Forum in Shanghai in China, 2019
- Teaching     *Teaching Assistant*  
Computer Ethics @ CS 415, Fall 2021, Shanghai Jiao Tong University  
Computer Architecture @ CS 236, Spring 2020, Shanghai Jiao Tong University  
Cloud Computing Technology @ SE 346, Fall 2019, Shanghai Jiao Tong University
- Mentoring     *Mentoring Experience*  
Undergraduate PhD students for research study, Taolei Wang, Junyi Mei, etc.  
Undergraduate master students for research study, Hanzhang Yang, Yibo Liu, Yuancheng Li, Hao He, Cheng Xu, etc.  
Graduated students, Jinyang Guo(2022), Chuanming Shao(2022), etc.  
Undergraduate students for summer/winter/gap internship, Kunyun Wang(2022), Yiming Zhuansun(2021), Juechu Dong(2020), Yuqiao He(2019), Hongyu Yan(2019).  
Undergraduate students for bachelor thesis, Yiming Zhuansun(2023), Junyi Mei(2020).
- Membership     Student member of China Computer Federation (CCF)  
Student member of Association for Computing Machinery (ACM)  
Student member of Institute of Electrical and Electronics Engineers (IEEE)

## Technical Skills

- Languages     Strong reading, writing and speaking competencies for English.
- Coding     C/C++, Java, Python, Cuda, Verilog, Chisel, MPI, OpenMP, MATLAB, HTML, ...
- Databases     MySQL, PostgreSQL, Noe4j, ...
- Software     Eclipse, Dreamwaver, AxureRP, Idea, Hadoop, Docker, Linux, Gem5, Quaturs II, Vivado, ...
- Hardware     CPU, GPU, FPGA, cache, memory, SSD, NVM, RDMA, ...

## Graduate Level Courses

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2018.09 – 2020.01

▀ Advanced Computer Architecture; Parallel Computing and Algorithms; Large-Scale Data Processing; Neural Network Principles and Application; Natural Language Understanding; Modern Cryptographic Algorithms; Applied Algebraic; Advanced Database Techniques; Image Processing and Machine Vision; Coding and Information Theory

## Advisors

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Dr. Chao Li

▀ Professor in the School of Electronic Information and Electrical Engineering  
Shanghai Jiao Tong University

Dr. Minyi Guo

▀ Professor in the School of Electronic Information and Electrical Engineering  
Shanghai Jiao Tong University

Dr. Haojin Zhu

▀ Professor in the School of Electronic Information and Electrical Engineering  
Shanghai Jiao Tong University