Yibo(Bobo) Huang

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Birthdate: 1995-02

RESEARCH INTERESTS

- Interested Areas: RDMA networking and RDMA-enabled applications, data center networking, cloud computing and distributed system, Hybrid Computing

EDUCATION

Fudan University Sep 2016
Computer Application Technology | Ph.D. Student | School of Computer Science Shanghai, China

- Advisor: Prof. Jie Wu | GPA: 3.6 / 4.0 (Top 5%)
- Honors/Awards: Doctoral Student Research Promotion Program(2019), Excellent Ph.D. Candidate Scholarship(2018), Excellent Academic Scholarship(2018), Second Place-NVIDIA Proposition Group in the 2th Fudan Hackathon Contest(2017)

Central South University Sep 2012 - Jun 2016
Software Engineering | Bachelor | School of Software Changsha, Hunan, China

- GPA: 3.7 / 4.0 (Top 5%)
- Honors/Awards: Excellent Thesis Award for Bachelor Students(2016), Outstanding Graduate Award for Bachelor Students(2016), Top Ten College Student Award(2016), National Inspirational Scholarship(2015), National Scholarship(2014), First Level Scholarship(2013-2015), Excellent Student Award(2013-2016), Excellent Paper and Project Award for College Students' Innovation Training Program(2015)

SELECTED AWARDS

The Second Prize in the 8th Asia-Pacific Student RDMA Programming Competition	2020
Fudan University Fanhai Scholar	2020
Intel Scholarship	2020
The Second Prize in the 7th Asia-Pacific Student RDMA Programming Competition	2019
Excellent Teaching Assistant and Excellent Student of Fudan University	2019
Merit Prize in the 2nd Asia Pacific HPC-AI Competition	2019
The Second Prize in the 6th Student RDMA Programming Competition	2018
Fudan University Ph.D. Candidate Scholarship	2018
Fudan University Graduate Fellowship	2017-2018
The Third Prize in the 14th National Graduate Mathematical Contest in Modeling	2017
Fellow of Guangyun Innovation and Entrepreneur Fellowship, Central South University	2016
Central South University Top Ten College Student Award (10 out of 255 candidates)	2016
The 3rd Outotec Sustainable Development Award, Central South University	2015
The First Place in the Intel Cup 7th National Software Innovation Competition	2014

SELECTED PUBLICATIONS/PATENTS (Published or Under Review)

- Bobo Huang, Jiayu Hu, Jingqi Li, Jie Wu, Jokul Li, Ming Yan, Wenxiong Zou, Yiming Zhang, Steve Liang, Kai Zhang. "NTSocks: A Generic and High-Performance Sockets over Modern NTB Hardware for Rack-Scale Communication." Under Submitting.
- Bobo Huang, Rui Zhang, Zhihui Lu, Jie Wu, Ming Yan, Patrick CK Hung. "RPS: A General RDMA-Driven Pub/Sub communication model for large-scale data streaming pipeline in Edge Cloud." Under Submitting.
- Bobo Huang, Rui Zhang, Zhihui Lu, Yiming Zhang, Jie Wu, Lu Zhan, Patrick CK Hung. "BPS: A Reliable and Efficient Pub/Sub communication model with Blockchain-enhanced Paradigm in Multi-Tenant Edge Cloud." Journal of Parallel and Distributed Computing (2020).
- Bobo Huang, Li Jin, Zhihui Lu, Ming Yan, Jie Wu, Patrick CK Hung, and Qifeng Tang. "RDMA-Driven MongoDB: An Approach of RDMA Enhanced NoSQL Paradigm for Large-Scale Data Processing." Information Sciences (2019).
- Bobo Huang, Li Jin, Zhihui Lu, Xin Zhou, Jie Wu, Qifeng Tang, and Patrick CK Hung. "BoR: Toward High-Performance Permissioned Blockchain in RDMA-Enabled Network." IEEE Transactions on Services Computing (2019).
- Jie Wu, Ming Yan, Chengrong Wu, Wenwei Li, Guangsheng Luo, Bobo Huang. "A Approach of Protocol-Independent Double Congestion Control." 201811062808.7, (actual review).

RESEARCH EXPERIENCE

RDMA-Based Hybrid Computing for HPC and AI Fusion System Dec 2018 - Present

We explore how to design and optimize general, iterative and distributed matrix computing (i.e., distribute machine learning) in mixed linear-relational algebra workflow via RDMA-enabled HPC-AI fusion platform. Specifically,

- Supervised by Prof. Sean Xiaoyang Wang, Prof. Jie Wu, Prof. Kai Zhang.
- Explore how to offload Matrix-based iterative linear algebra tasks into MPI-based HPC system via RDMA, and return the computing immediate results to general Ethernet-based DAG-enabled streaming computing platform.
- Explore the relationship between MPI-based matrix computing efficiency, matrix storage layout and RDMA-based transfer overhead.

- Explore how to efficiently transfer and distribute immediate matrix data into MPI-based workers located at HPC system through powerful RDMA primitives according to the matrix input demand of MPI-based matrix computing.

Intel® DPDK and SPDK technology accelerate Hybrid Cloud services Jan 2019 - Present

In collaboration with Intel NPG Team, we leverage Intel® NTB technology to accelerate networking stream inference analysis.

- Supervised by Prof. Jie Wu, Prof. Ming Yan, and Jokul Xuefeng Li (Intel), Jiayu Hu (Intel), Steve Cunming Liang(Intel).
- Design efficient transport protocol for modern Intel NTB hardware and complete prototype.
- Combining with a typical case, evaluate the data channel performance.
- Prepare one paper named *"NTSocks: A High-Performance and Compatible Sockets over Modern NTB Hardware for Rack-Scale Cluster."*

Research on Data-Driven CDN Edge Computing Resource Scheduling and Deployment Mechanism Jan 2019 - Present

This work is supported by National Natural Science Foundation of China under Grant No.61572137.

- Supervised by Prof. Zhihui Lu, Prof. Jie Wu.
- Design and implement CDN edge computing resource scheduling algorithm based on reinforcement learning.

TEACHING EXPERIENCES

Teaching Assistant at School of Computer Science, Fudan University Sep 2020 - Dec 2020

- “Frontier Network Technology” taught by Prof. Jie Wu.

Teaching Assistant at School of Computer Science, Fudan University Sep 2019 - Dec 2019

- "Advanced Network" taught by Prof. Zhihui Lu, teaching DPDK analysis and programming.

Teaching Assistant at School of Computer Science, Fudan University. Sep 2017 - Feb 2018

- "Calculus" taught by Prof. Yitong Wang.

Teaching Assistant at School of Computer Science, Fudan University. Sep 2017 - Feb 2018

- "Introduction to Python Programming" taught by Prof. Xueping Wang.

INDUSTRIAL EXPERIENCES

Networking Research Intern: Bytedance, Shanghai May 2020 - Sep 2020

Mentor: Yibo Zhu, Yi Cui

Project: Rdma-driven High-Performance I/O framework and RPC, Rdma-based Optimization for Network Issues on Graph Computing.

Software Engineer Intern: Intel Asia Pacific R&D Center, Shanghai Mar 2015 - Jun 2015

Mentor: Yongkang You

Project: Development and maintenance of crosswalk-app-tool-deb packaging tool in Crosswalk.

Software Engineer Intern: Intel Asia Pacific R&D Center, Shanghai Jul 2015 - Nov 2015

Mentor: Shane Wang, Lianhao Lu

Project: Data Collection, Measurement and Distribution for Neutron/Swift Component in Openstack Ceilometer.