

Chang Lou

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EDUCATION *Ph.D. Student in Computer Science* September 2017 - Present
Johns Hopkins University, MD, United States

Bachelor in Computer Science September 2012 - June 2016
Shanghai Jiao Tong University, Shanghai, P.R.China

RESEARCH INTEREST I am broadly interested in research related to **systems**. In particular, I am especially interested to improve **availability** and **reliability** of distributed systems. I also did some work on improving performance scalability and reliability of systems during undergraduate study.

GRADUATE RESEARCH *Research Assistant* September 2017 - Present
OrderLab, Johns Hopkins University, MD, United States

- Led the project AutoWatchdog, a tool automatically constructs stateful failure detectors from source codes of large systems to improve system observability and availability. The primary findings of this work were published on HotOS'19 and the complete work was accepted by NSDI'20.

UNDERGRAD RESEARCH *Research Intern* July 2016 - August 2017
Institute of Parallel and Distributed Systems, Shanghai Jiao Tong University, Shanghai, P.R.China

- Led the project Wukong+G, a linked-data query system accelerated by RDMA-assisted GPU processing. This work was accepted by ATC'18.
- Advised by **Prof. Haibo Chen** and **Prof. Rong Chen**.

Research Intern October 2015 - June 2016
Microsoft Research Asia, Beijing, P.R.China

- Provided profiling and diagnosing support for Robust Distributed System Nucleus (rDSN), an open distributed system framework from Microsoft Research.
- Built a toolkit (WebStudio) that retrieves critical runtime information of services (e.g. RPC latency, task queue, task call graph), analyze and visualize, to assist developers to do fine-grained performance tuning and troubleshooting.
- Advised by lead researcher **Zhenyu Guo**.

Visiting Student July 2015 - September 2015
Software System Lab, Columbia University, NY, U.S.

- Worked on an experimental project to enable Valgrind to detect data races in Linux kernels.
- Advised by **Prof. Junfeng Yang**.

Research Assistant April 2014 - July 2015
Advanced Network Lab, Shanghai Jiao Tong University, Shanghai, P.R.China

- Proposed a scheme for modeling the energy utilization in multi-hop clustered wireless sensor networks, optimizing sensor state distribution and message dissemination, cutting energy consumption, and ultimately prolonging lifetime of such networks. This work was accepted by WASA'15.
- Advised by **Prof. Xiaofeng Gao**.

- PUBLICATIONS** [1] **Chang Lou**, Ryan Huang, Scott Smith. “Understanding, Detecting and Localizing Partial Failures in Large System Software”, **NSDI’20 Best Paper Award**.
- [2] **Chang Lou**, Ryan Huang, Scott Smith. “Comprehensive and Efficient Runtime Checking in System Software through Watchdogs”, **HotOS’19**.
- [3] Siyuan Wang, **Chang Lou**, Rong Chen, Haibo Chen. “Fast and Concurrent Distributed RDF Queries using RDMA-assisted GPU Graph Exploration”, **ATC’18**.
- [4] **Chang Lou**, Xiaofeng Gao, Fan Wu, Guihai Chen. “Energy-Aware Clustering and Routing Scheme in Wireless Sensor Network”, **WASA’15**.

PATENTS [1] **Chang Lou**, Siyuan Qiao, Weichen Li, Xiaoxin Fang, Bing Sheng. “Beautifying Algorithm on QR Code”, Chinese Patent No. CN104850814A, Aug 19th, 2015.

SKILLS languages: fluent in Java, C++ and Python

tools: Soot, CUDA

others: familiar with popular cloud systems (Zookeeper, Cassandra, HDFS and etc), common failure patterns and related techniques (debugging, testing, configuring, and monitoring); hardware acceleration techniques including GPU and RDMA

REFERENCES **Ryan (Peng) Huang (Ph.D. advisor)**
Assistant Professor, Johns Hopkins University, United States
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Haibo Chen (undergrad advisor)
Professor, Shanghai Jiao Tong University, China
Director of Institute of Parallel and Distributed Systems
Associate Director of Shanghai Key Laboratory of Scalable Computing and Systems
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Rong Chen (undergrad advisor)
Associate Professor, Shanghai Jiao Tong University, China
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Zhenyu Guo (intern advisor)
Senior Staff Engineer, Ant Financial
Former Lead Researcher, Microsoft Research Asia, China
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Junfeng Yang (intern advisor)
Associate Professor, Columbia University, United States
Co-director of Software Systems Lab
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Xiaofeng Gao (undergrad advisor)
Associate Professor, Shanghai Jiao Tong University, China
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Cheng Li (intern collaborator)
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