

Chang Lou

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EDUCATION	<i>Ph.D. Student in Computer Science</i>	September 2017 - Present
	Johns Hopkins University , MD, United States	
	<i>Bachelor in Computer Science</i>	September 2012 - June 2016
	Shanghai Jiao Tong University , Shanghai, P.R.China	
RESEARCH INTEREST	My research mainly focuses on improving software system reliability, in particular, understanding, detecting and troubleshooting failures of newly arising modes on cloud-scale systems. I am also interested in exploring new solutions for traditional reliability issues in cloud scenarios.	
RESEARCH EXPERIENCE	<i>Research Assistant</i>	July 2019 - Present
	OrderLab, Johns Hopkins University, MD, United States	
	<ul style="list-style-type: none">• Worked on solutions for semantic failures on cloud systems	
	<i>Research Assistant</i>	September 2017 - November 2019
	OrderLab, Johns Hopkins University, MD, United States	
	<ul style="list-style-type: none">• Worked on solutions for partial failures on cloud systems	
	* OmegaGen, a static analysis tool that automatically constructs stateful failure detectors from source codes of large systems to improve system observability and availability. The position paper of watchdog abstraction were published on HotOS'19 and the full paper of generation framework was accepted by NSDI'20 and won Best Paper Award .	
INTERNSHIP EXPERIENCE	<i>Data Science Intern</i>	June 2021 - December 2021
	Microsoft Azure (Remote), WA, United States	
	<ul style="list-style-type: none">• Enhance the accuracy of profiling data collection and diagnosis for Azure host memory leaks.• Mentored by Cong Chen and Yingnong Dang.	
	<i>Data Science Intern</i>	June 2020 - September 2020
	Microsoft Azure (Remote), WA, United States	
	<ul style="list-style-type: none">• Developed solutions for memory leaks on Azure hosts, in particular, built workflows that automatically collect profiling data and analyze for leaking instances and generate reports for developers.• Mentored by Cong Chen and Yingnong Dang.	
UNDERGRAD PROJECTS	<i>Research Intern</i>	July 2016 - August 2017
	Institute of Parallel and Distributed Systems, Shanghai Jiao Tong University, Shanghai, P.R.China	
	<ul style="list-style-type: none">• Led the project Wukong+G, a graphbased distributed RDF query processing system that efficiently exploits the hybrid parallelism of CPU and GPU with RDMA-assisted graph exploration. This work was accepted by ATC'18 and open-sourced as part of Wukong framework: https://github.com/SJTU-IPADS/wukong.• Advised by Prof. Haibo Chen and Prof. Rong Chen.	
	<i>Research Intern</i>	October 2015 - June 2016
	Microsoft Research Asia, Beijing, P.R.China	

- Worked on profiling and visualization toolkits for rDSN, an open distributed system framework developed by Microsoft Research, to assist developers to do fine-grained performance tuning and troubleshooting. The parent project is open-sourced under <https://github.com/microsoft/rDSN>.
- 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 develop Valgrind extensions 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**.

PROFESSIONAL SERVICES [1] *Reviewer* for ACM Transactions on Computer Systems (TOCS) 2021

[2] *Student Volunteer* for Symposium on Operating Systems Principles (SOSP) 2017

TEACHING [1] *Teaching Assistant* for Johns Hopkins CS318/418/618 Operating System 2018

SKILLS languages: Java, C++ and Python

techniques: static/dynamic analysis and instrumentation; hardware acceleration

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