Haoyu Li

Phone: (+86) 176-2180-8964 Homepage: lei-houjyu.github.io UserID: haoyu.li@sjtu.edu.cn

Education

Sep 2018 - Jun 2020 (Expected) **Shanghai Jiao Tong University**, Shanghai, China
M.E. in Software Engineering, Advisor: Prof. Haibo Chen
GPA: 3.86 / 4.0

Sep 2014 - Jun 2018 **Shanghai Jiao Tong University**, Shanghai, China
B.E. in Software Engineering, Advisor: Prof. Haibo Chen
Overall GPA: 3.61 / 4.0, Major GPA: 3.91 / 4.0

Sep 2013 - Jun 2014 **Shanghai Jiao Tong University**, Shanghai, China
Undergraduate majoring in Biotechnology

Sep 2010 - Jun 2013 **The First High School of Changsha**, Hunan, China

Research Interests

I am intrigued by building efficient and reliable systems for real-world applications. In particular, my previous research focuses on memory management in the Java Virtual Machine.

Research Experiences

Institute of Parallel and Distributed Systems, SJTU, Advisor: Prof. Haibo Chen

Current — A Non-volatile Memory Friendly Garbage Collector
- Attempt to bridge the performance gap of the garbage collection on Intel Optane DC persistent memory and DRAM.

Nov 2017 - Jul 2018 — ScissorGC: Scalable and Efficient Compaction for Java Full Garbage Collection
- Address the region dependency problem and improve object copying efficiency in Parallel Scavenge full GC.
- Manage all aspects of this project.
- Increase GC throughput by 5.6X and accelerate applications by 61.8% at best.
- **Source Code:** ***https://ipads.se.sjtu.edu.cn:1312/opensource/scissorgc***
- **OpenJDK Patch:** ***https://bugs.openjdk.java.net/browse/JDK-8220465***

Oct 2016 - Oct 2017 — Espresso: Brewing Java For More Non-Volatility with Non-volatile Memory
- Provide a general persistent heap design to manage persistent data in Java runtime, and a safe persistence programming model to persist application data.
- Implement interfaces of the persistent heap with 256X speedup at best.
- Design benchmarks and conducted evaluation against Intel PCJ.

Sep 2016 - Dec 2016 — Tiger Programming Language Compiler
- Implement a compiler that compiles the Tiger language into x86 assemble code.

Jul 2016 - Aug 2016 — JOS: An Exokernel Lab
- Implement booting, memory management, user environments, and preemptive multitasking of an exokernel-like system.

Department of Systems Software, Alibaba Group, Advisor: Sanhong Li

Sep 2018 - Jul 2019 — Platinum: A CPU-Efficient Concurrent Garbage Collector for Tail-Reduction of Interactive Services
- Utilize idle cores to run mutator threads during Parallel Scavenge GC by leveraging MPK and RTM.
- Discover a skew memory write behavior of workloads in Alibaba.
- Implement the scheduling policy of mutator threads during GC.
- Implement part of the isolation between mutators and the collector.

Publications

1. **Haoyu Li**, Mingyu Wu, Binyu Zang, and Haibo Chen. ScissorGC: scalable and efficient compaction for Java full garbage Collection. In *Proceedings of the 15th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments*, Providence, RI, April 2019. **VEE'19.**
   Integrated into OpenJDK
2. **Haoyu Li**, Mingyu Wu, and Haibo Chen. Analysis and Optimizations of Java Full Garbage Collection. In *Proceedings of the 9th ACM SIGOPS Asia-Pacific Workshop on Systems*, Jeju Island, South Korea, August 2018. **APSys'18.**
   Best Paper Runner Up
3. Mingyu Wu, Ziming Zhao, **Haoyu Li**, Heting Li, Haibo Chen, Binyu Zang, and Haibing Guan. Espresso: Brewing Java For More Non-Volatility with Non-volatile Memory. In *Proceedings of the 23rd ACM International Conference on Architectural Support for Programming Languages and Operating Systems*, Williamsburg, VA, March 2018. **ASPLOS'18.**

Scholarships and Honors

Oct	2019	National Scholarship, Ministry of Education of China
Jun	2018	Outstanding Graduate, Shanghai Jiao Tong University
Nov	2017	Xin Dong Network Inc. Scholarship
Nov	2017	Academic Progress Scholarship, Shanghai Jiao Tong University
Nov	2017	National Encouragement Scholarship, Ministry of Education of China
Nov	2016	National Encouragement Scholarship, Ministry of Education of China
Nov	2017	Academic Excellent Scholarship, Shanghai Jiao Tong University
Nov	2016	Academic Excellent Scholarship, Shanghai Jiao Tong University
Nov	2015	Academic Excellent Scholarship, Shanghai Jiao Tong University
Nov	2012	Second Prize of National Olympiad in Informatics in Provinces, CCF

Teaching Experience

Spring	2019	Teaching Assistant of Operating System (SE315) • Instructor: Prof. Haibo Chen and Prof. Yubin Xia • Website: *http://ipads.se.sjtu.edu.cn/courses/os*
Fall	2018	Teaching Assistant of Principle and Technology of Compiler (SE302) • Instructor: Prof. Binyu Zang • Website: *http://ipads.se.sjtu.edu.cn/courses/compilers*

Social Experiences

Nov 2017	Volunteer in Symposium on Operating Systems Principles, Shanghai
Jun 2016 - Sep 2017	Vice-minister of Library Students' Administration Committee, SJTU
Jun 2014 - Jun 2015	Cofounder and President of Martial Arts Association, SJTU

Standard Tests

TOEFL: Reading 30, Listening 30, Speaking 22, Writing 28, and Total 110.
GRE: Verbal 153 (60%), Quantitative 170 (96%), and Analytical Writing 3.5 (39%).