

# Haoyu LI

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## EDUCATION

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Jun 2020 (Expected)   **Shanghai Jiao Tong University**, Shanghai, China  
M.E. in Software Engineering, advisor: Prof. Haibo Chen  
Gpa: 3.9 / 4.0

Jun 2018   **Shanghai Jiao Tong University**, Shanghai, China  
B.E. in Software Engineering, advisor: Prof. Bin Yu Zang  
Gpa: 3.6 / 4.3

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

## RESEARCH INTERESTS

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Performance and Reliability of Computer Systems

Managed Runtime, Programming Languages, Operating Systems, and Computer Architecture

## RESEARCH EXPERIENCES

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

Current      A Non-volatile Memory Friendly Garbage Collector  
Explore assumption mismatches between existing garbage collectors and emerging Intel Optane byte-addressable non-volatile memory. Try to improve the GC performance on NVM to a comparable level of DRAM.

Nov 2017 - Jul 2018      ScissorGC: Scalable and Efficient Compaction for Java Full Garbage Collection  
Solve the region dependency problem and improve object copying efficiency in ParOld GC with up to 5.6X GC throughput improvement and 61.8% application speedup.  
Open-sourced at [here](#), and submitted to OpenJDK at [here](#)

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 with 256X speedup at best.

Sep 2016 - Dec 2016      Tiger Programming Language Compiler  
Implement a compiler, including both front and back end, according to *Modern Compiler Implementation in C*.

Jun 2016 - Sep 2016      JOS: An Exo Kenel Lab  
Implement booting, memory management, user environments, and preemptive multitasking of an exokernel-like system.

@**Department of System 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, and leverage MPK and RTM to protect mutators' concentrated working sets from being collected. Implement a concurrent collector with low CPU consumption.

## PUBLICATIONS

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[VEE'19] Li H, Wu M, Zang B, Chen H. ScissorGC: Scalable and Efficient Compaction for Java Full Garbage Collection. Proceedings of the Fifteenth ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments.

[APSys'18] Li H, Wu M, Chen H. Analysis and Optimizations of Java Full Garbage Collection. Proceedings of the Ninth Asia-Pacific Workshop on Systems.

*Best Paper Runner Up*

[ASPLOS'18] Wu M, Zhao Z, Li H, et al. Espresso: Brewing Java For More Non-Volatility with Non-volatile Memory. Proceedings of the Twenty-Third International Conference on Architectural Support for Programming Languages and Operating Systems.

## SCHOLARSHIPS AND HONORS

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Oct	2019	National Scholarship
Jun	2018	Shanghai Jiao Tong University Excellent Graduate
Nov	2017	Xin Dong Network Inc. Scholarship
Nov	2017	Shanghai Jiao Tong University Academic Progress Scholarship
Nov	2017, 2016	National Encouragement Scholarship
Nov	2017, 2016, 2015	Shanghai Jiao Tong University Academic Excellent Scholarship

## TEACHING

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Spring	2019	Teaching Assistant of Operating System
Fall	2018	Teaching Assistant of Principle and Technology of Compiler

## SOCIAL EXPERIENCES

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