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Education

Ph.D. student, Software Engineering, Shanghai Jiao Tong University, Shanghai, Sep 2015 - Current.

B.S. Software Engineering, Shanghai Jiao Tong University, Shanghai, Sep 2011 - Jun 2015.

Mianyang High School, Sichuan, Sep 2008 - Jun 2011.

Research Interests

Language Virtual Machine, Non-Volatile Memory, Big Data Processing Frameworks

Reseach Experience

Member of Institude of Parallel and Distributed Systems (IPADS), SJTU

Systems related researches, Supervised by Prof. Haibo Chen.

1. Jun 2018 - Current, Project Platinum: High throughput and low latency garbage collector

The garbage collector is a crucial module in language virtual machines like JVM and CLR. Prior work often makes a tradeoff between high throughput and low latency, but *Platinum* tries to find a sweet spot to achieve both of them.

2. Nov 2016 - Oct 2017, Project Espresso: Java on Non Volatile Memory

Most researches on Non-Volatile Memory (NVM) focus on C/C++ programs in native environments. *Espresso* instead builds an enhanced Java Virtual Machine (JVM) to allow Java programmers to manipulate NVM. It has also considered other issues like crash consistency and efficiency.

3. Dec 2015 - Oct 2016, Automatic cached datasets optimization

Most inefficient issues in Spark can be attributed to its cached datasets in memory. We have developed a tool to automatically analyze and optimize cached datasets and thereby improve the performance of applications.

4. Sep 2014 - Nov 2015, Optimizing Spark at a language runtime perspective

Spark is a well-known big data processing framework running atop Java Virtual Machine. Our goal is to find some deficits inside Java Virtual Machine and solve them to boost the performance of Spark. This project covers a lot of fields including Java Native Interface (JNI), memory estimation service, and data structures.

5. Jan 2014 - Aug 2014, Heap Layout Optimization in Java Virtual Machine

The origin heap layout inside OpenJDK virtual machine is not suitable under some cases, especially when there are many small java objects. We tried to adopt a new heap layout to make the locality better. This layout works for some benchmarks in Da Capo.

Publications

(**VEE 2019**) Haoyu Li, **Mingyu Wu** and Haibo Chen. ScissorGC: Scalable and Efficient Compaction for Java Full Garbage Collection. The 15th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (to appear). Providence, Rhode Island, USA, April 2019.

(**APSys 2018**) Haoyu Li, **Mingyu Wu** and Haibo Chen. Analysis and Optimization of Java Full Garbage Collection. The 9th ACM SIGOPS Asia-Paci c Workshop on Systems, Jeju Island, South Korea, August, 2018.

(**SOSE 2018**) Heting Li and **Mingyu Wu**. DwarfGC: A Space-Efficient and Crash-Consistent Garbage Collector in NVM for Cloud Computing. IEEE Symposium on Service-Oriented System Engineering, Bamberg, Germany, March, 2018.

(**ASPLOS 2018**) **Mingyu Wu**, Ziming Zhao, Haoyu Li, Heting Li, Haibo Chen, Binyu Zang and Haibing Guan. Espresso: Brewing Java For More Non-Volatility. The 23rd ACM International Conference on Architectural Support for Programming Languages and Operating Systems, Williamsburg, VA, USA, March 24th - March 28th, 2018.

(**PPoPP 2017**) **Mingyu Wu**, Haibing Guan, Binyu Zang and Haibo Chen. POSTER: Recovering Performance for Vector-based Machine Learning on Managed Runtime. Proceedings of the 22nd ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, Austin, Texas, USA, February, 2017.

Scholarship and Honors

Oct, 2018, National Scholarship of China

Jun, 2015, Outstanding Graduates in Shanghai

Oct, 2014, Shanghai Jiao Tong University Xin Dong Scholarship

Oct, 2014, Shanghai Jiao Tong University Second Prize Scholarship

Oct, 2013, National Scholarship of China