

# Jie You

University of Michigan

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## EDUCATION

- **University of Michigan** Ann Arbor, MI  
*Ph.D. candidate in Computer Science; GPA: 3.89/4.00* *Sept 2016 – Apr 2022 (expected)*
- **Shanghai Jiao Tong University** Shanghai, China  
*B.S. in Information Engineering ; GPA: 3.86/4.00* *Sept 2012 – Jun 2016*

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## SKILLS

**Programming Languages:** Java (10k LOC), C/C++ (4k LOC), Python (3k LOC), Rust (2k LOC)  
**Softwares & Tools:** Apache Hadoop, Apache Spark, OpenFlow, Linux, Bash, Git

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## PUBLICATIONS

- [1] **Jie You**, Jingfeng Wu, Xin Jin, Mosharaf Chowdhury. Ship Compute or Ship Data? Why Not Both?. NSDI 2021.
- [2] **Jie You**, Mosharaf Chowdhury. Terra: Scalable Cross-Layer GDA Optimizations. arXiv:1904.08480. 2019.
- [3] Fan Lai, **Jie You**, Xiangfeng Zhu, Harsha V. Madhyastha, Mosharaf Chowdhury. Sol: Fast Distributed Computation Over Slow Networks. NSDI 2020.
- [4] Mosharaf Chowdhury, Samir Khuller, Manish Purohit, Sheng Yang, **Jie You**. Near Optimal Coflow Scheduling in Networks. SPAA 2020.

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## RECENT PROJECTS

- **Kayak: Adaptive Compute and Storage Disaggregation** **Rust**  
*Advisor: Prof. Mosharaf Chowdhury* *Jan 2019 - Present*
  - **Motivation:** Storage functions bring back server-side computation and data locality which is not present in today's disaggregated storage systems. We observe that adaptively combining server-side and client-side processing together yields higher throughput and overall resource utilization in disaggregated in-memory KV stores.
  - **Solution:** Designed an online optimization algorithm that maximizes the request processing throughput while meeting latency SLO constraints. Implemented a prototype system and improved the throughput by 32.5%-63.4% comparing to the state-of-the-art solution.
- **Terra: Cross-Layer Optimization for Geo-Distributed Analytics** **Java**  
*Advisor: Prof. Mosharaf Chowdhury* *Jun 2017 - Dec 2018*
  - **Motivation:** Geo-distributed analytics (GDA) frameworks transfer large datasets over the wide-area network (WAN). Existing solutions decouple WAN routing and GDA application transfer scheduling, resulting in missed opportunities for cross-layer optimizations. We want to bridge this gap between application and infrastructure.
  - **Solution:** Designed an efficient heuristic to co-optimize the scheduling and multi-path routing for GDA job execution, reducing the average JCT by  $1.55\times-3.43\times$ . Implemented a WAN transfer framework that supports application-layer multi-path routing, integrated with Apache Spark and OpenFlow SDN controller.
- **Automated Android Apps QoE Measurement Tool** **Java/Python**  
*Advanced Operating System Course Project* *Sept 2016 - Jan 2017*
  - **Motivation:** Mobile apps suffer from Quality-of-Experience (QoE) issues when running under poor network/system conditions (e.g. poor cellular reception, limited CPU/RAM), which are hard to reproduce during development. This project provides an automation tool to reproduce and diagnose these QoE issues.
  - **Solution:** Implemented a system/network condition emulator that can be used to emulate poor cellular signal condition and phones with limited CPU/RAM resources, using Java, Python and Bash. Integrated with an Android UI automator that replays user behavior according to application state.
- **Sharded Fault-Tolerant Key-Value Store based on Paxos** **Java**  
*Distributed System Course Project* *Jan 2017 - Apr 2017*
  - **Paxos Consensus Protocol:** Implemented a prototype of multi-Paxos consensus protocol in Java.
  - **Sharded Fault-Tolerant Key-Value Store:** Implemented a sharded key-value store which supports: (1) linearizability for consistency; and (2) adding and removing shards for elastic scaling.

AWARDS

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**Outstanding Winner**, Interdisciplinary Contest in Modeling (**top 0.2% worldwide**)  
**China National Scholarship** (top 1% nationwide)

2015  
2013, 2014, 2015