Jingyuan Zhu

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Research Interests

My research interests are in the areas of Distributed Systems, Networking, and Web. I'm generally interested in designing and improving network systems that provide high efficiency and availability.

Education

University of Michigan, Ann Arbor, MI
Ph.D in Computer Science — Sep 2019 – Present

University of Michigan, Ann Arbor, MI
M.S.E in Computer Science — Sep 2019 – Apr 2022

University of Michigan, Ann Arbor, MI — GPA: 3.9/4.0
B.S.E in Computer Science (Dual Degree) — Sep 2017 – Apr 2019

Shanghai JiaoTong University, Shanghai, China — GPA: 3.6/4.0
B.S.E in Electrical & Computer Engineering (Dual Degree) — Sep 2015 – Aug 2019

Research Experience

University of Michigan — May 2020 - Present
Graduate Student Research Assistant

Reviving Dead Links on the Web with FABLE

- Studied why URLs become dysfunctional after years. Discovered that a sizeable number of URLs were broken because of the reorganization of their pages to new URLs, instead of the pages being deleted.
- Derived and implemented FABLE: a system automatically discovers reorganized new URLs of a broken one.
- Achieved great efficiency (saved 95% of the live web pages crawls), with good coverage (50% more than existed solutions) and accuracy ($\geq$86%).

Work Experience

Meta — Menlo Park, CA
Software Engineer Intern — *May-Aug 2024*

LLM Runtime Benchmark Framework

- Built a benchmark framework for measuring performance across various components of Llama's inference runtime.
- Integrated this benchmark into Meta's performance testing platform, enabling the detection of an actual performance regression triggered by specific code changes.
- Utilized the benchmark framework for detailed performance analysis. Pinpointed bottlenecks in real-world runtime instructed by theoretical analysis.

Google — Seattle, WA
Software Engineer Intern — *May-Aug 2023*

Critical Path Aggregation and Visualization for Chrome

- Derived and implemented a novel algorithm to aggregate critical paths for Chrome page navigation traces. Implemented a clear and informative interactive visualization using D3.
- Designed and developed a "what-if" analysis method for Chrome, offering an actionable estimation to pinpoint high-value optimization opportunities.
- Applied the aggregation on hundreds of Chrome traces, identifying speedup potential for 1,000+ tasks and aiding optimization prioritization.

Teaching Experience

University of Michigan — Jan 2021 - Apr 2021, Sep 2021 - Dec 2021
Graduate Student Instructor

- Instructed class EECS 491: Distributed Systems.
- Responsible for teaching lab section. Involved in the creation and grading of exams.

Publications

Sprinter: Speeding Up High-Fidelity Crawling of the Modern Web
Ayush Goel, Jingyuan Zhu, Ravi Netravali, and Harsha V. Madhyastha
21st USENIX Symposium on Networked Systems Design and Implementation (NSDI'24)

Reviving Dead Links on the Web with FABLE
Jingyuan Zhu, Anish Nyayachavadi, Jiangchen Zhu, Vaspol Ruamviboonsuk, Harsha V. Madhyastha
ACM Internet Measurement Conference 2023 (IMC'23)

Making Links on Your Web Pages Last Longer Than You
Ayush Goel, Jingyuan Zhu, Harsha V. Madhyastha
HotNets 2022: Twenty-First ACM Workshop on Hot Topics in Networks (HotNets'22)

Characterizing "Permanently Dead" Links on Wikipedia
Anish Nyayachavadi, Jingyuan Zhu, Harsha V. Madhyastha
ACM Internet Measurement Conference 2022 (IMC'22)

Jawa: Web Archival in the Era of JavaScript
Ayush Goel, Jingyuan Zhu, Ravi Netravali, Harsha V. Madhyastha
16th USENIX Symposium on Operating Systems Design and Implementation (OSDI'22)

Cloud Video Transcoding Performance Characterization
Yuhan Chen, Jingyuan Zhu, Tanvir Ahmed Khan, Baris Kasikci
2020 IEEE International Workshop/Symposium on Workload Characterization (IISWC'20)

Honors and Awards

Patent (CN106175608): Intelligent stair sweeping robot and its control method and control system

Dean's Honor List. University of Michigan — Fall 2017 - Winter 2019, Every semester

Mechanical competition Champion. Shanghai JiaoTong University — Fall 2016