Jingyuan Zhu

734-353-1898 | jingyz@umich.edu | github.com/JingyZhu

Research Interests

My research interests are in the areas of Distributed Systems, Networking and Web. Specifically, I'm interested in studying broken links on the web, and deriving different solutions to deal with links that keep becoming dysfunctional overtime.

Education

University of Michigan, Ann Arbor, MI
Ph.D in Computer Science — Sep 2019 – Apr 2024 *Expected*

University of Michigan, Ann Arbor, MI — GPA: 3.8/4.0
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

Reserach Experience

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

Reviving Dead Links on the Web with FABLE

- Studied why URLs become dysfunctional after years. Discovered that a sizeable number of URLs being broken because of the reorganization of its page to a new URL, instead of the page being deleted.
- Derived and implemented FABLE: a tool automatically discovers reorganized new URLs of a broken one.
- Achieved great efficiency (save 95% of the liveweb pages crawls), with good coverage (23%) and accuracy ($\geq$86%).

Teaching Experience

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

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

Publications

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)

Selected Projects

CPU Microarchitectural Performance Characterization of Cloud Video Transcoding

- Studied CPU micro-architectural performance and bottlenecks of transcoding with different types of videos.
- Analyzed the trade-offs between video size, quality and transcoding time.
- Applied *AutoFDO* and *Graphite* to optimize the transcoding time with respect to different bottlenecks.

Low Latency Live Streaming | *FFmpeg, Intel VAAPI*

- Developed a live streaming tool which utilizes Intel's VAAPI to have ultra low latency.
- Optimized on transcoding configurations and reduced unnecessary buffers to reduce latency
- Achieved ∼30ms live streaming latency.

BuildIT | *React-Native, Django, MySQL, SIFT*

- Developed a mobile app for helping people building things such as furniture using AR technology.
- Designed and implemented frontend app with React-Native.
- Helped developing backend logic on handling requests and data manipulation with database.

Honors and Awards

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

Mechanical competition Champion. Shanghai JiaoTong University — Fall 2016

Skills

Languages: Python, C/C++ SQL(MySQL)/NoSQL(MongoDB), Golang, JavaScript, HTML/CSS
Frameworks & Tools: Chrome-remote-interface, FFmpeg, LLVM, TVM, React, Flask, Docker, git, LaTeX, PyTorch, RDMA verbs

Coursework

Web Systems, Operating Systems, Distributed Systems, Computer Networks, Databases, Compilers, Mobile App Design, Machine Learning, Systems for Machine Learning