

Ling Zhang– Curriculum Vitae

Address University of Wisconsin-Madison
1210 W Dayton St. Rm 4354
Madison, WI 53706

Email ling-zhang@cs.wisc.edu

Homepage mush-zhang.github.io/homepage/

Education

2021 - now Ph.D., Computer Science (GPA: 4.00/4.00) - University of Wisconsin-Madison
Advisor Prof. Dr. Jignesh Patel

2019-2020 Master of Science, Computer Science (GPA: 3.75/4.00) - Carnegie Mellon University

2015-2019 Bachelor of Science with Highest Distinction, Computer Science (GPA: 3.98/4.00) - Purdue University
Minor in Mathematics

Publication

2021 Ling Zhang, Matthew Butrovich, et.al, Everything is a Transaction: Unifying Logical Concurrency Control and Physical Data Structure Maintenance in Database Management Systems
In Conference on Innovative Data Systems Research 2021

2023 Ling Zhang, Shaleen Deep, et.al: Exploiting Structure in Regular Expression Queries
In ACM SIGMOD Conference 2023.

Research Experience

Sept 2021 - now University of Wisconsin-Madison
Research Assistant

- **OnGoing:** Design and experiment a framework for indexing regular expression with low index construction overhead and high regex matching performance speed up.
- Designed and experimented regular expression matching strategy that improved performance.
- Implemented a general regular expression matching framework on top of existing state-of-art libraries and speed up 3 real-world workloads by $1.6\times$ to $168\times$.

May 2022 - Aug 2022 Microsoft Gray Systems Lab
Research Intern

- Analyzed different benchmarks' performance scaling behaviors of SQL-Server with the change of hardware settings.
- Applied linear mixed effects model and multivariate adaptive regression splines to predict benchmark performance.
- Designed an end-to-end pipeline to vectorize, cluster, and predict workload performance based on existing metrics.

May 2019 - Database Group, Carnegie Mellon University

Dec 2020 *Research Assistant*

- Implemented Deferred Action Framework in a DBMS to schedule internal maintenance tasks.
- Refactored logical and physical operators in CMU's experimental self-driving DBMS, NoisePage.
- Integrated and improved data binding and statement-to-operator transformation components in NoisePage to annotate and translate query ASTs to logical operators.
- Implemented non-blocking add/drop columns and altering default values with snapshot isolation.

Jan 2018 - CAM2 Analysis Project, Purdue University

May 2019 *Research Assistant*

- Setup Scrapyd daemons to run multiple projects remotely for network camera discovery.
- Constructed a task queue to monitor and manage camera data in the database with RabbitMQ.
- Created a REST API for camera database interaction with client applications.
- Created class structure and method definitions of Python wrapper for CAM2 Database API.

Teaching Experience

Aug 2020 - Carnegie Mellon University

Dec 2020 *Graduate Teaching Assistant*

- Led recitations and hold office hours to assist students in their learning process.
- Prepared exam and assignment questions to assess students' understanding of the course materials.

Other Experience

Mar 2021 - Splice Machine

Jul 2010 *Software Engineering Intern*

- Refined log generation code to record firing triggers, handling nested trigger execution.
- Wrote script to parse performance metrics, designed database schema of metrics and experiment settings.

Jul 2018 - Purdue University

May 2019 *CAM2 Research Team Leader*

Managed a 70-student research team, set up meetings with team leaders and professors

Honors and Awards

2019 Computer Research Association

Honorable Mention in Outstanding Research Award

Aug 2016 - Purdue University

May 2017 *Jandos Scholarship for outstanding students in Women in Science Programs*