Ling Zhang – Curriculum Vitae

	University of Wisconsin-Madison
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Education

2021 - now Ph.D., Computer Science - University of Wisconsin-Madison

Advisor: Prof. Jignesh Patel, Prof. Karu Sankaralingam

2019-2020 Master of Science, Computer Science - Carnegie Mellon University

2015-2019 Bachelor of Science with Highest Distinction, Computer Science - Purdue University

Minor in Mathematics

Publication

2023 Ling Zhang, Shaleen Deep, Avrilia Floratou, Anja Gruenheid, Jignesh M. Patel, Yiwen Zhu:

Exploiting Structure in Regular Expression Queries. Proc. ACM Manag. Data 1(2): 152:1-152:28 (2023)

2021 Ling Zhang, Matthew Butrovich, Tianyu Li, Andrew Pavlo, Yash Nannapaneni, John Rollinson, Huanchen Zhang, Ambarish Balakumar, Daniel Biales, Ziqi Dong, Emmanuel J. Eppinger, Jordi E. Gonzalez,Wan Shen Lim, Jianqiao Liu, Lin Ma, Prashanth Menon, Soumil Mukherjee, Tanuj Nayak, Amadou Ngom, Dong Niu, Deepayan Patra, Poojita Raj, Stephanie Wang, Wuwen Wang, Yao Yu, William Zhang:

Everything is a Transaction: Unifying Logical Concurrency Control and Physical Data Structure. CIDR 2021

Research Experience

Sept 2021 - now University of Wisconsin-Madison
Research Assistant

- **OnGoing:** Explored complex event query estimation from partial hardware telemetry observations for performance optimization.
- **OnGoing:** Designed a framework for indexing regular expression with low index construction overhead and high regex matching performance.
- **OnGoing:** Implemented and benchmarked existing regular expression index key selection methods on diversified real-world and synthetic workload.
- 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× to 168×.

May 2022 - Aug 2022 Microsoft Gray Systems Lab
Research Intern

- Analyzed workload performance scaling behaviors on SQL-Server on different hardware settings in the cloud.
- Experimentally compared methods in workload scaling prediction end-to-end pipeline.

May 2019 - Dec 2020 Database Group, Carnegie Mellon University
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 alter default values with snapshot isolation.

Jan 2018 - May 2019 CAM2 Analysis Project, Purdue University
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.
- Createx 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 - Dec 2020 Carnegie Mellon University
Graduate Teaching Assistant

- Led recitations and hold office hours to assist students in their learning process.
- Prepared exam and assignment questions based on the course materials.

Other Experience

Mar 2021 - Jul 2010 Splice Machine
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 - May 2019 Purdue University
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 - May 2017 Purdue University
Jandos Scholarship for outstanding students in Women in Science Programs