

Ling Zhang – Curriculum Vitae

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Education

- 2021 - now** Ph.D., Computer Sciences - University of Wisconsin-Madison
Advisor: Prof. Jignesh Patel, Prof. Karu Sankaralingam
Key Courses: Big Data Systems, Machine Learning, Advanced Algorithms
- 2019-2020** Master of Science, Computer Science - Carnegie Mellon University
Key Courses: Advanced Database Systems, Distributed Systems, Analytical Performance Modeling
- 2015-2019** Bachelor of Science with Highest Distinction, Computer Science - Purdue University
Minor in Mathematics
Key Courses: Compilers, Database Systems, Software Engineering, Software Testing, Cryptography

Experience

- Sept 2021 - now** University of Wisconsin-Madison
Research Assistant
- Designed a framework for indexing regular expression with low index construction overhead and high regex matching performance.
 - 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 $1.6\times$ to $168\times$.
- May 2025 - Aug 2025** eBay
Software Engineer Intern
- Developed an ML-driven index recommendations pipeline to optimize ClickHouse workloads.
 - Designed a modular pipeline with feature engineering and query latency aware cost-reward modeling based on query logs.
 - Adapted the index recommendation tool to suggest Puffin secondary index for Iceberg lakehouse.
- May 2022 - Aug 2022** Microsoft Gray Systems Lab
Research Intern
- Analyzed cloud workload performance scaling on SQL-Server on different hardware settings.
 - Experimentally compared methods in workload scaling prediction end-to-end pipeline.
- Mar 2021 - Jul 2021** Splice Machine
Software Engineer Intern
- Refined log generation code to record firing triggers, handling nested trigger execution.
 - Parsed performance metrics, designed database schema of metrics and experiment settings.

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 alter 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.

Publication

- 2025** Ling Zhang, Shaleen Deep, Joyce Cahoon, Anja Gruenheid, Jignesh M. Patel:
From Feature Selection to Resource Prediction: An Analysis of Commonly Applied Workflows and Techniques. (accepted) EDBT 2025
- 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

Teaching & Leadership 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 based on the course materials.

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*