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Department of Computer Sciences

University of Wisconsin–Madison

Education

- 2024–on **PhD in Computer Science**, University of Wisconsin–Madison, Advisor: Prof. Xiangyao Yu
Relevant Coursework: Foundations of Data Management, Game Theory, Optimization & Learning, High Performance Computing for Applications in Engineering
- 2023–2024 **MSc in Computer Science**, Carnegie Mellon University, Advisor: Prof. Andrew Pavlo
Relevant Coursework: Advanced Database Systems, Advanced Operating Systems and Distributed Systems, Deep Learning Systems, Computer Architecture
- 2018–2021 **BSc in Computer Science**, Carnegie Mellon University, Graduated with University Honors
Relevant Coursework: Operating System Design and Implementation, Database Systems, Optimizing Compilers, Introduction to Computer Security, Computer Graphics

Research Experience

- 2024–on **University of Wisconsin–Madison**, PhD researcher, Supervisor: Prof. Xiangyao Yu
Researching GPU-accelerated memory compaction and database systems.
- 2023–2024 **Carnegie Mellon University**, Master's researcher, Supervisor: Prof. Andrew Pavlo
Researching the database system extensibility ecosystem.
- 2020–2021 **Carnegie Mellon University**, Undergraduate researcher, Supervisor: Prof. Andrew Pavlo
Utilizing just-in-time (JIT) compilation techniques to increase index key comparator performance.
- 2019–2020 **Carnegie Mellon University**, Undergraduate researcher, Supervisor: Prof. Afsaneh Doryab
Researched the correlation between student performance and lifestyle factors, using data collected from smart devices.

Publications

- 2025 Anarchy in the Database: A Survey and Evaluation of Database Management System Extensibility. **Abigale Kim**, Marco Slot, David G. Andersen, Andrew Pavlo. To appear in VLDB 2025.
- 2021 Understanding Health and Behavioral Trends of Successful Students Through Machine Learning Models. **Abigale Kim**, Fateme Nikseresht, Janine Dutcher, Michael Tumminia, Daniella Villalba, Sheldon Cohen, Kasey Creswel, J. Creswell, Anind Dey, Jennifer Mankoff, and Afsaneh Doryab. IHET-AI 2021.

Talks

- 2024 Anarchy in the Database: A Survey and Evaluation of Database Management System Extensibility, PGConf.dev 2024. [\[Slides\]](#) [\[Video\]](#)
- 2023 Database Management System Extensibility, Parallel Data Retreat 2024. [slides](#)

Posters

- 2025 GPU Databases - The New Modality of Database Analytics, University of Wisconsin–Madison, Prospective Student Visit Days 2025. [poster](#)
- 2023 Survey of Database Management System Extensibility, Parallel Data Retreat, 2023. [poster](#)

Experience

- 2024–2024 **TileDB Inc.**, Software Engineer
Developed a Rust API for the TileDB storage engine.
- 2022–2023 **TileDB Inc.**, Software Engineer
Redesigned query engine to support complex predicates. Worked on data pipelining features.
- 2021–2021 **YugabyteDB**, Software Engineering Intern
Implemented cluster mapping-update integration during asynchronous tablet split.
- 2020–2020 **Amazon Web Services, Redshift**, Software Development Engineering Intern
Designed and implemented a scalable service improving Redshift database cold-start performance.
- 2019–2019 **Amazon**, Future Engineer Software Development Engineering Intern
Developed web publishing platform used by 6,000 Amazon content merchandisers,

Awards

- 2022 **Senior Leadership Recognition**, Awarded to graduating seniors from Carnegie Mellon University who have made an unparalleled impact on the CMU community.
- 2022 **University Honors**, Awarded to graduating seniors from Carnegie Mellon University who graduated with a GPA above 3.5.

Teaching

- 2023–2023 **Carnegie Mellon University**, Database Systems Teaching Assistant
- 2021–2021 **Carnegie Mellon University**, Introduction to Computer Systems Head Teaching Assistant
- 2020–2021 **Carnegie Mellon University**, Introduction to Computer Systems Teaching Assistant
- 2019–2020 **Carnegie Mellon University**, Principles of Imperative Computation Teaching Assistant