

Wenjia (Alice) He

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EDUCATION

University of Michigan, Ann Arbor *Aug 2018 – present*

Ph.D. student in Computer Science and Engineering (GPA: 3.85/4.0)

Advisor: Prof. Michael Cafarella

Research interest: Data management for video streams; ML-based and statistical model-based query optimization; Database systems

University of Science and Technology of China *Aug 2014 – Jul 2018*

B.S. in Mathematics and Applied Mathematics (Major GPA: 3.94/4.3)

School of the Gifted Young

RESEARCH AND WORKING EXPERIENCE

University of Michigan, Ann Arbor *Aug 2018 – present*

Graduate Research Assistant | Advisor: Prof. Michael Cafarella

- Designed a video degradation-accuracy profiling model for various degradation interventions and aggregate query types, enabling tradeoffs between analytical accuracy and system, privacy and legal compliance requirements. Obtained up to 155% tighter accuracy estimation and 88% more accurate tradeoffs than previous methods.
- Proposed a two-phase mechanism with a hierarchical multi-armed bandit algorithm for optimizing filter queries with neural network predicates, and integrated it with SparkSQL. Evaluated it on text and image databases, yielding up to 88% improvement over standard scan.
- Implemented state-of-the-art collaborative preference completion algorithms, including Multi-Rank, Retargeted Matrix Completion, and Alternating Support Vector Machine, and evaluated them on four rating datasets.
- Developed a meeting record system to automatically identify speakers for meeting transcripts by utilizing deep embedding, based on ResCNN architecture and triplet loss function, and clustering methods.

Microsoft Research Asia *Jul 2017 – Jun 2018*

Research Intern | Advisor: Principal Researcher Chieh-Jan Mike Liang

- Designed sampling methods and acquisition functions in Bayesian optimization to optimize tail latencies of cloud systems, and conducted experiments on Bing Ads, showing 98% overall tuning time reduction.
- Co-developed the front end of WiDraw, an English-learning video game that recognizes hand drawn sketches.

University of Science and Technology of China *Sept 2016 – Jun 2017*

Undergraduate Research Assistant | Advisor: Prof. Wengang Zhou

- Investigated deep supervised hashing in image retrieval and implemented these deep learning models.

PUBLICATIONS

- **Wenjia He**, Michael R. Anderson, Maxwell Strome, Michael Cafarella. “A Method for Optimizing Opaque Filter Queries”. In *2020 ACM SIGMOD International Conference on Management of Data (SIGMOD '20)*
- Zhao Lucis Li, Chieh-Jan Mike Liang, **Wenjia He**, Lianjie Zhu, Wenjun Dai, Jin Jiang, Guangzhong Sun. “Metis: Robustly Optimizing Tail Latencies of Cloud Systems”. In *the Proceedings of the 2018 USENIX Annual Technical Conference (USENIX ATC '18)*

COMPUTER SKILLS

Programming Languages: Python, SQL, C/C++, C#, Scala

Tools: PyTorch, Keras, scikit-learn, opencv-python, pandas, Apache Spark, L^AT_EX, Git