Sam Bird

on request | see website | sambird.org | linkedin.com/in/sam-bird-cs

Education

University of Oklahoma 2025 – present
Doctor of Philosophy in Computer Science *Norman, OK*

- Researching quantum computing methods for query optimisation and physical design tuning on distributed databases
- Developing novel approaches using quantum computing, machine learning, and mathematical optimisation to solve the index selection problem and join order optimisation problem in a distributed environment

University of Oklahoma December 2024
Master of Science in Computer Science (GPA: 4.00/4.00) *Norman, OK*

- **Coursework:** Advanced Machine Learning (Python), Advanced Database Management (C++, SQL, PL/SQL), Data Mining, Computational Learning Theory

University of Oklahoma December 2023
Bachelor of Science in Computer Science, Minor in Mathematics (GPA: 3.71/4.00) *Norman, OK*

- **Computer Science Coursework:** Machine Learning (Python), Applied Statistical Methods (R), Parallel, Distributed, and Network Programming (C), Algorithm Analysis
- **Mathematics Coursework:** Numerical Analysis, Linear Algebra, Ordinary Differential Equations

Publications

- S. Bird, L. Gruenwald, and S. Groppe, "QUBO-Driven Divergent Design Index Tuning for Distributed Databases," in *Proceedings of the 2026 IEEE International Conference on Big Data (BigData)*. Phoenix, USA: IEEE Computer Society, December 2026, forthcoming.
- S. Bird, L. Gruenwald, and S. Groppe, "A Divergent Index Tuning Advisor Using Quantum Machine Learning for Distributed Databases," in *Proceedings of the 2026 IEEE 42nd International Conference on Data Engineering Workshops*. Montreal, Canada: IEEE Computer Society, May 2026, pp. 1–7.

Invited Talks & Lectures

University of Oklahoma – Guest Lecture for Advanced Database Management April 2026
Quantum Computing for Database Management *Norman, OK*

University of Oklahoma – Guest Lecture for Advanced Database Management April 2025
Quantum Computing and Machine Learning for Database Index Selection *Norman, OK*

University of Lübeck – Quantum and Intelligent Computing Symposium March 2025
Quantum Reinforcement Learning for Divergent Design Index Tuning *Lübeck, Germany (virtual)*

Awards

University of Oklahoma June 2026
GCoE Graduate Student Travel Award *Norman, OK*

Experience

University of Oklahoma 2025 – Present
Graduate Research Assistant *Norman, OK*

University of Oklahoma 2024 – 2025
Graduate Teaching Assistant *Norman, OK*

- Teaching assistant for CS 4513: Database Management Systems; CS 5513: Advanced Database Management
- Assisted in the instruction of over 250 students by clearly communicating key concepts, relying on strong knowledge of the fundamentals of database use and design.
- Responsible for answering student queries about databases, grading assignments, and assisting the instructor.