

Sunny Yasser

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EDUCATION

- * **Polytechnique Montréal** Montréal, Canada
PhD in Computer Engineering (GPA - 4.0/4.0)
Sep. 2024 - Present
Advisor: Amine Mhedhbi at the Data & AI Systems (DAIS) Laboratory
Thesis Topic: Optimizing Query Execution and Optimization on Modern Hardware
- * **Delhi Technological University** New Delhi, India
B.Tech in Electronics Engineering (Graduated with Distinction: GPA - 8.5/10.0)
Apr. 2016 - Apr. 2020

PUBLICATIONS

- * **Factorized and Vectorized Execution: Optimizing Analytical and Semantic Queries over Relations**
ACM SIGMOD, 2026. Sunny Yasser, Anas Dorbani, Amine Mhedhbi
- * **Beyond Quacking: Deep Integration of Language Models and RAG into DuckDB**
Proceedings of the VLDB Endowment, 2025. Anas Dorbani, Sunny Yasser, Jimmy Lin, Amine Mhedhbi

PROFESSIONAL EXPERIENCE

- * **Polytechnique Montréal** Montreal, Canada
Teaching Assistant
Aug. 2024 - Dec. 2024
 - ◇ **INF3170 - Files and databases: Fichiers Et Bases De Données**
 - Created automatic testing infrastructure on Gradescope for assignment evaluation.
 - Prepared SQL assignments to help students evaluate their understanding.
- * **Cadence Design Systems** Noida, India
R&D Software Engineer
May 2021 - Aug. 2024
 - ◇ **Xcelium Simulation Performance Team: Project: Compile Time Optimizations for Verilog Designs**
 - Optimized Nvidia design build flow, achieving 10% reduction in code generation and 1.14× compile-time speedup.
 - Implemented lock-free graph algorithm for module stitching and a decompiler, enabling 5× faster bug resolution.
- * **CitiBank** Remote, India
Software Engineer
Aug. 2020 - May 2021
 - ◇ **Global Risk Control: Project: Global Risk Monitoring Services**
 - Decomposed a critical monolith into scalable microservices with distributed transaction safety via two-phase commit.
 - Designed risk-modeling platform enabling dynamic incorporation of business factors into monitoring workflows.
- * **Algosure Research LLP** New Delhi, India
Quant Developer Intern
Dec. 2019 - Feb. 2020
 - ◇ **Back Office Team: Project: High Performance Backtrading Platform for Algorithmic Strategy Evaluation**
 - Optimized multi-GB historical data ingestion pipeline achieving 2× throughput improvement.
 - Built interactive visualization library integrating trading signals with calendar overlays for rapid strategy diagnostics.

PROJECTS

- * **FFX (Fast Factorized Execution Library): Vectorized and Factorized Query Engine** *Sep. 2024 - Present*
 - Project creator and lead: Responsible for all aspects of design, implementation, and verification.
 - Designed a vectorized query engine for modern hardware over factorized, i.e., compressed, relations.
 - Developed new join algorithms for factorized intermediate relations while ensuring vectorization on superscalar CPUs.
- * **FlockMTL: Multimodal Data System (GitHub Stars: 248, Downloads: 500+ /week)** *Sep. 2024 - Present*
 - Contributor: Supported the implementation of critical features part of the PVLDB publication.
 - Added LLM support for different cloud providers including OpenAI services and Azure AI.
 - Introduced tutorials and notebooks over kaggle datasets to highlight system features and onboard users.

AWARDS

- * **Cadence Innovator Award** *May 2023*
Awarded for releasing Xform - a suite of compile-time optimizations across multiple customer designs.

LANGUAGES & TOOLS

- **Programming Languages:** C++, C, Python, Java, SQL, Bash.
- **Databases & Cloud:** OracleDB, MySQL, PostgreSQL, Redis, Spark, Azure, GCP, AWS.
- **Tools & Frameworks:** PyTorch, Tensorflow, Scikit-Learn, RabbitMQ, Apache Kafka, SpringBoot, Docker.