Dhruv Aron

(408) 828-2951 | dhruv.aron@gmail.com | Personal Website | Google Scholar | GitHub | LinkedIn

Education

University of Wisconsin-Madison **Madison, WI, USA**

Bachelors of Science in Computer Sciences (with Honors) Sep. 2024 - May 2027

- GPA: 4.0 / 4.0
- Advisors: Prof. Xiangyao Yu, Prof. Remzi Arpaci-Dusseau

Publications

* Denotes equal contribution.

Glucose360: An Open-Source Python Platform with Event-Based Integration for Continuous Glucose Monitoring Data Analysis. Ben Ehlert*, Dhruv Aron*, Dalia Perelman, Yue Wu, Michael P. Snyder. In *Diabetes Technology & Therapeutics (2026)*.

Research Experience

Researcher: UW-Madison Systems Group, advised by Dr. Remzi Arpaci-Dusseau Sep. 2026 - Present

- Investigating systems designs hampering local (LLM) inference and AI harness performance, context awareness, and agent persistence
- Devising and executing experiments isolating systems-layer performance distributions and bottlenecks for local inference engines such as Strata and DwarfStar4 as well as open-source agent harnesses such as OpenAI Codex, OpenCode, and Omnigent

Researcher: UW-Madison Databases Group, advised by Dr. Xiangyao Yu Sep. 2025 - Present

- Led a study investigating both modern general-purpose and GPU-native relational database management system (RDBMS) potential and suitability for fragmented fields, particularly genomics and bioinformatics
- Designed and conducted performance evaluations comparing database-based execution (DuckDB) vs. conventional bioinformatics tools such as BEDtools and SAMtools on popular operations and workflows, examining runtime efficiency, storage usage, and overall expressiveness
- Researched and outlined future database extensions and micro-architectures needed for modern RDBMS to become more native citizens of genomics and bioinformatics

Research Assistant: Snyder Lab at Stanford University, advised by Dr. Michael P. Snyder Sep. 2023 - Aug. 2025

- Identified limitations in existing continuous glucose monitoring (CGM) tools, particularly in data integration, automated analysis, and support for research workflows
- Developed Glucose360, an open-source Python framework for integrating CGM data with lifestyle events and automating glucose analysis for researchers and clinicians (actively used by professionals at Stanford Health)

Professional Experience

Software Engineering Intern: Lakebase Compute & Performance Team at Databricks May 2026 - Aug. 2026

- Under mentorship by Dr. Haoyu Huang, designed and implemented into production Lakebase PostgreSQL a specialized dynamically resizable shared buffer lookup (hash) table that serves millions of client endpoints

- Reduced the PostgreSQL shared buffer lookup table data structure size by 50%, and also added functionality for both thread-safe dynamic upscaling and downscaling while maintaining concurrent query throughput at 99% during the resize procedure
- Two C patches based on my individual work are under active consideration for version 20.0 of the official PostgreSQL open-source database system

Software Engineering Intern: TenSixty Biosciences Sep. 2023 - Aug. 2024

- Automated their core biocomputational processes into a platform for storing, automating, and visualizing computations on TenSixty's .h5ad biological datasets
- Built dynamic frontend and visualizations through JavaScript, React, Node.js, and D3.js, and created a backend API with databases by using Python with Flask (combining Pandas, NumPy, and ScanPy), PostgreSQL, and AWS

Relevant Activities

Teaching Assistant: CS537 (Undergraduate Operating Systems) Fall 2026

- Taught discussion sections and held office hours for 100+ students on operating systems concepts such as system calls (C fork()/exec()), shared memory, threads and race conditions, mutexes and semaphores, and more

Coordinator: UW-Madison Undergraduate Projects Lab (UPL) Apr. 2026 - Present

- Leading, collaborating with, mentoring, and holding office hours for STEM undergraduate students
- Also organized MadHacks 2026

Editor: UW-Madison Journal for Undergraduate Science and Technology (JUST) Sep. 2025 - Present

- Advised, edited, and helped write several editorials for semesterly JUST issues, in addition to general submission reviewing and curating

Member: Firmware sub-team, UW-Madison Badger Solar Racing Sep. 2024 - May 2025

- Employed C++ to connect car internal systems through Controller Area Network (CAN) and Inter-Integrated Circuit (I^2C) protocols

Awards & Honors

Dean's Honor List Fall 2025 - Present

Relevant Coursework

* Indicates to be taken.

Data Structures and Algorithms (Honors), Operating Systems, Databases, Compilers, Quantum Algorithms (Graduate), Machine Organization and Programming, Computer Engineering, Object-Oriented Programming in Java, Artificial Intelligence*, Computer Architecture*, Networks*

Skills

Languages: Python, Java, C++, C, Golang, Rust, HTML/CSS, JavaScript, TypeScript, R, SQL, Bash, LISP

Frameworks: FastAPI, Flask, Next.js, React

Technologies: AWS, ChromaDB, D3.js, Databricks, Docker, Docker Compose, DuckDB, Neon, Nginx, Node.js, PostgreSQL, Supabase