

Thomas Evans

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Experience

University of Alberta, Department of Family Medicine

Edmonton, AB

Database Analyst; Full-time

April 2025 – Present

- Sole programmer bootstrapping the department’s analytics platform from zero infrastructure: database, **C# .NET** application layer, ETL pipelines, reporting, and AI-assisted querying, serving multiple clinic sites.
- Designed and facilitated a half-day requirements workshop for 16 clinical end-users across 6 stakeholder groups; produced 30+ user stories validated through structured stakeholder sign-off, INVEST review, and MoSCoW prioritization.
- Conducted embedded site observations of clinical staff workflows; produced a leadership-targeted systems analysis assessing root-causes and providing prioritized automation recommendations.
- Pitched a platform to department executive leadership (Chair, Associate Chair, ADM, Director of Health Services); secured approval to move from prototyping to production.
- Designed and built a **SQL Server system** with temporal tables for tracking historical data changes and point-in-time analysis.
- Built **Python and SQL ETL/ELT pipelines** to migrate legacy spreadsheet and SharePoint data.
- Designed an **English-to-SQL conversion layer**: used Gemini’s API to generate SQL from executive natural-language input against a fully isolated read-only database replica; configured context-caching to reuse precomputed input tokens and avoid redundant schema retokenization.
- Secured the conversion layer with defense-in-depth: used ScriptDom to **AST-parse AI-generated SQL** and reject non-**SELECT** query patterns; hardened prompts to soft-secure against SQL antipatterns; applied least-privilege with permission-scoped connection string; stored schema metadata in Google Cloud Storage.

Research Assistant

May 2025 – Jul 2025

- Managed data collection, analysis, and study design for usability study comparing faculty reporting systems.
- Implemented PDF report generation and statistical analysis (ordinal logistic regression, sign tests, Cronbach’s α , PCA).
- Adapted System Usability Scale for domain context; wrote technical report; **lead author on poster** (ACFP 2026).

Program Assistant

Sep 2022 – April 2025

- Prototyped Python tool using Gemini API for data deidentification; automated administrative tasks with Python and JavaScript.

University of Alberta, Interdisciplinary Lab for Modelling, Epidemiology, and Ecology

Edmonton, AB

Research Assistant

April 2026 – Present

- Analyzing weather station observational data against simulation outputs for climate/epidemiological modeling.
- Tuning, running, and evaluating the performance of Weather Research Forecast (WRF) simulations.

Projects

Synesthesia *JavaScript, React. [Front page Hacker News, Jan 2026](#)* Try it here

Color-picker sonification tool. Answers the all-important, widely-asked question: ‘What does a color-picker *sound like*?’ First entry in blog post series ‘13 Ways of Looking at a Hexcode’, exploring mappings of hexcodes to other forms of binary-encoded-information.

- Designed an algorithm mapping hexcodes to chords in the 24 tone-equal-temperament scale.
- Wrote bit-twiddling transformation logic to implement hexcode-to-chord morphisms.
- Implemented realtime audio synthesis with Attack-Decay-Sustain-Release envelopes using Tone.js
- Used sound React patterns e.g. memos and refs to reuse Tone.js nodes, saving overhead on per-render regenerations

Technical Skills

Languages: Python, C#, JavaScript, SQL, Rust, C, C++, R

Frameworks: .NET Core, Entity Framework, Spring Boot, React

Infrastructure: SQL Server, PostgreSQL, Redis, Kafka, Firecracker, Docker, Git, Linux

Education

University of Alberta

Edmonton, AB

BSc, Specialization in Computing Science

Part-time; Expected Fall 2027

Selected Coursework

CS: Algorithms, Operating Systems, Parallel & Distributed Systems, Exploring Software Development Domains, Cryptography & Digital Privacy, Distributed Systems Architecture

Math: Honors Linear Algebra I–II, Honors Calculus I–III, Graph Theory, Group Theory