

## EDUCATION

**University of Alberta | Bachelor of Science, Specialization in Computing Science** **May 2026 (Expected)**  
Dean's Honor Roll (2x), Undergraduate Academic Scholarship (4x), Undergraduate Leadership Award (2x) **GPA: 3.60/4.00**  
**Coursework:** Software Engineering, Quality, Infrastructure & Testing, Compiler Design, Operating Systems, Advanced C & C++ Design, Distributed Systems, Rust Programming, Computer Architecture, Database Management, AI & ML Applications, Advanced Algorithms

## EXPERIENCE

**Software Engineer | People Inc.** **Sep 2024 – Present**

- Engineered a zero-config developer platform & **Deno CLI** ecosystem used by **500+** engineers, automating scaffolding, dependency updates, & provisioning; drove cross-team infra (secure dual-domain local dev, dedicated **LLM** DB clusters, automated API docs) to cut setup time by **90%**, reduce onboard time by **50%**, & eliminate environment drift. Authored onboarding course & mentored **3** new hires.
- Designed & implemented a managed database tooling layer for **Prisma ORM**, integrating secure credential vaults & supporting multi-tenant, multi-schema **PostgreSQL**. Cut DB connection errors by **95%** & accelerated production DB migrations by **10x**.
- Led development of an AI-powered survey & analytics platform (**Nuxt 3, Prisma, PostgreSQL, OpenAI**), delivering real-time analytics, dynamic question generation, & sentiment analysis. **3x** survey completion rates & adopted as the default by all product teams.
- Co-architected a modern design system in **Vue 3**, building **30+** reusable, accessible UI components & enforcing rigorous **QA/test automation**. Achieved **100%** adoption across new applications & a **3x** improvement in UI consistency.
- Modernized user management & access control by refactoring identity provider (**Keycloak**) integration, implementing robust group/role APIs, & delivering a full-featured admin UI. Enabled fine-grained permissions for **10,000+** users & increased platform uptime to **99.99%**.

**Software Engineering Intern | People Inc.** **Oct 2023 – Sep 2024**

- Engineered bulk data processing & core backend infrastructure (**NestJS, TypeORM, PostgreSQL, GraphQL, Redis, Kibana, Elasticsearch**), delivering **JSON**-driven job orchestration, self-healing service registry flows, robust job-runner services, & real-time job history analytics powering **hundreds** of large-scale data jobs; achieved **99.999%** uptime & reduced operational incidents by **80%**.
- Migrated **5+** mission-critical applications from legacy **Vue 2** to **Vue 3**, refactoring component architecture, state management (**Pinia**), & build tooling. Enhanced performance with **Composition API**, improved type safety with **TypeScript**, & modernized routing patterns.
- Overhauled the company-wide design system, introducing auto-imported components, prop hygiene, & comprehensive **Storybook** documentation. Enabled **100%** cross-app reusability & a **20%** reduction in bundle size.
- Engineered & optimized **Docker** image scripts & **CI/CD** automation (**AWS, Jenkins, Kubernetes, Playwright**), ensuring seamless deployments, robust **QA** integration, & a **50%** reduction in build failures.

**Lead Teaching Assistant - Software Engineering | University of Alberta** **Sep 2023 – May 2026**

- Designed advanced, industry-relevant programming assignments (**C, Java, Bash, Databases, Android, Git**) for **4000+** students.
- Built high-performance **Python/Shell** pipelines to automate grading & plagiarism checks, saving **1000+** hours of manual work.
- Provided targeted debugging & personalized guidance, significantly improving student outcomes & problem-solving skills.

## PROJECTS

**Gazprea Language Compiler & Playground** | *C++, LLVM, MLIR, ANTLR4, TypeScript, Bun, Hono* | <https://gazlab.onrender.com>

- Full-featured compiler for the **Gazprea** functional language: **7-stage MLIR-to-LLVM IR** pipeline, **-O3** optimizations, advanced type inference with **8+** analysis passes, qualifier-based promotion, & comprehensive error reporting. Front-end (**ANTLR4**) parses to AST; middle-end lowers through **MLIR** dialects with constant folding & dead-code elimination; backend emits **LLVM IR** for native targets.
- Interactive web playground (**Bun/Hono, Vite, TypeScript**) supports real-time compile-and-run, syntax highlighting, & output streaming; validated against **2000+** test cases covering generators, matrices, vectors, structs, & functional purity.

**TrackIt Personal Finance App** | *Vue 3, TypeScript, ML, FastAPI, Docker, Tailwind, Google OAuth* | <https://trackit-sigma-taupe.vercel.app>

- Personal finance platform with multi-account **CSV ingestion, duplicate detection**, & intelligent categorization (**ML sentence transformer** with **fuzzy matching**, **1000+** learned patterns) powering dashboards & **Chart.js** analytics.
- Secure multi-user isolation via **Google OAuth** & **JWT**-protected APIs; **Docker Compose** stack delivering **<100ms** API responses & **<10ms** categorization latency.

**Distributed Multi-Player Poker System** | *Rust, Axum, WebSocket, PostgreSQL, Deno CLI* | <https://github.com/Nandan-18/poker-system>

- Spec-driven distributed poker platform with **Rust** casino “house” server: player accounts, chip conversion, table lifecycle, **persistent** statistics (rounds played, pots won, folds). Complete game engines for **Five-Card Draw, Seven-Card Stud, & Texas Hold'em** with dealer rotation, blinds/antes, betting rounds, & configurable house rules (min/max bet, raise limits), **2–5** players per table.
- Spectator & player clients over **HTTP/WebSocket** via **Deno CLI** & **egui**.