Leif Adamec Rydenfalk

Umeå, Sweden

ledamecrydenfalk@gmail.com | LinkedIn | Github | Personal Website

---

Summary

Versatile Software & Systems Engineer proficient in Rust, TypeScript, and modern web technologies. Experienced in architecting and developing end-to-end solutions, including high-performance internal tools (Rust: Axum/Dominator), data-driven game engines (Rust: wgpu/ECS), and dynamic full-stack web applications (SvelteKit/Node.js). Proven ability in API design & integration (Slack, Fortnox, Stripe), real-time graphics, low-level optimization, and deploying robust systems. Passionate about building foundational software and tackling complex technical challenges with a focus on efficiency and maintainability.

Experience

Systems Researcher and Engineer, AI Systems and Tool Developer | *TURBORILLA AB |*
Umeå, Västerbotten County, Sweden
March 2025 – Present

Spearheaded research, design, and development of critical internal systems aimed at significantly enhancing the efficiency of workhour management and financial analysis. Independently architected and delivered a full-stack application built entirely in Rust, demonstrating end-to-end project ownership. This solution featured a dynamic frontend using Dominator and a high-performance Axum backend. A key aspect involved engineering robust, type-safe API interfaces for seamless integration with Slack and Fortnox, incorporating comprehensive error handling to ensure data integrity and system stability. Resourcefully deployed the application globally using Cloudflare Tunnels from a locally hosted Mac Mini server. The system's reliability was further guaranteed through the design and implementation of an extensive testing suite, particularly for the workhour validation component, validating the accuracy of critical financial data. This initiative directly contributed to streamlined operations and improved analytical capabilities.

- ***Key Skills:*** *Rust Programming (Full-Stack), Software Architecture & Design, API Development & Integration (Slack, Fortnox), System Implementation & Deployment (Cloudflare Tunnels), Frontend Development (Rust Dominator), Backend Development (Rust Axum), Test-Driven Development (TDD) & Quality Assurance, Data Validation & Integrity, Robust Error Handling & System Resilience, Financial Modeling & Analysis*

Concepts, Internal Tool Development & Automation, System Research & Optimization, Infrastructure Management, Independent Project Leadership.

Game Engine Developer | *Self Employed | Umeå, Västerbotten County, Sweden*
February 2025 – Present

Engineered a data-driven game engine from the ground up using Rust, focusing on performance and modern rendering techniques. Implemented a custom Entity Component System (ECS) architecture using `hecs`, supporting robust game state management. Developed an advanced real-time graphics renderer leveraging `wgpu`, featuring hybrid Signed Distance Field (SDF) voxel traversal, cloud ray marching, and post-processing effects (TAA, Bloom, Color Correction). Designed and built a type-safe, runtime-configurable, performance-optimized render graph, enabling flexible and efficient rendering pipelines across platforms, including mobile. Integrated core engine systems including windowing (`winit`), developer GUI (`imgui-rs`), user input handling (keyboard, controllers), and foundational multiplayer support.

- ***Key Skills:*** *Rust, wgpu, Custom Engine Architecture, Real-time Rendering, Low-level Optimization, Memory Management, Concurrency.*

Full-Stack Developer | *Self Employed* | Umeå, Västerbotten County, Sweden
January 2024 – May 2025 (1 year 5 months)

- Developed and deployed full-stack web applications, managing the entire project lifecycle from conception to deployment.
- Engineered engaging user interfaces with SvelteKit, including a custom animation system to enhance user experience.
- Implemented secure authentication flows using OAuth and Firebase APIs, ensuring robust user management.
- Integrated the Stripe API for seamless and secure payment processing within e-commerce contexts.
- Designed and built backend systems using Node.js and PostgreSQL, featuring a custom algorithm for handling user attributes to enable personalized feed generation.
- Utilized Docker for containerization, ensuring consistent development and deployment environments.

Key Skills: SvelteKit, TypeScript, Frontend Animation, UI/UX Development, Node.js, API Design (REST/GraphQL), WebSockets, Algorithm Design, Backend Logic Implementation, PostgreSQL, Data Modeling, Authentication & Authorization, OAuth, Firebase Authentication, Payment Gateway Integration, Stripe API, Docker, Containerization, Full-Stack Development, Project Management, E-commerce Systems Concepts.

Featured Projects

Personal Portfolio Website

- Developed this interactive web presence to effectively showcase skills and projects, demonstrating modern frontend development practices.
- Built from the ground up using SvelteKit for optimal performance and user experience, TypeScript for robust, type-safe code, and Tailwind CSS for efficient styling.
- Features a component-based architecture, state management, dynamic content rendering, and responsive design.
- Technologies: SvelteKit, TypeScript, JavaScript, Tailwind CSS, Svelte Components, HTML5, CSS3, Vite.
- Hosted here: [Personal Website](#)
- Source code: [Github](#)

Skills

- **Programming Languages:** Rust (Advanced: Systems, Backend, Game Dev), TypeScript, JavaScript (ES6+), Python, Java, C++, C, HTML5, CSS3/SASS, WGSL, SQL, Assembly (Basic), Zig (Familiarity)
- **Full-Stack Web Development:**
    - **Frontend:** Svelte/SvelteKit, React, Rust (Dominator), Vue.js, UI/UX Development, Frontend Animation, Redux/Zustand, Tailwind CSS, Webpack/Vite
    - **Backend:** Node.js (Express.js), Rust (Axum), Python (Django/Flask), Java (Spring Boot), API Design (REST, GraphQL), WebSockets, Microservices Architecture, Backend Logic Implementation
    - **Databases:** PostgreSQL, MongoDB, MySQL, Redis, Data Modeling, Database Design, ORM (Prisma, Sequelize, SQLAlchemy)
- **Systems & Game Engine Development:**
    - **Architecture & Design:** Game Engine Architecture, Data-Driven Design, Systems Architecture & Design, System Research & Optimization, ECS Implementation (hecs)
    - **Graphics & Rendering:** Real-time Rendering, wgpu, Vulkan, OpenGL, Ray Marching, SDF Rendering, Voxel Rendering, Render Graph Design, Post-Processing (TAA, Bloom), Shader Programming (WGSL), 3D Math, Mobile Graphics Optimization, DirectX (Basic)
    - **Core Concepts:** Low-level Optimization, Memory Management, Concurrency & Parallelism, Real-time Systems, Data Validation & Integrity, Type Safety Implementation
- **DevOps & Cloud Infrastructure:**
    - **Cloud Platforms:** AWS (EC2, S3, ECS, Lambda, RDS), Cloudflare Tunnels

- ○ **Tools & Practices:** Docker, Containerization, CI/CD (GitHub Actions, Jenkins), Git, Infrastructure Management (Local Servers, Cloud), Terraform (Basic)
- **API Integration & Tooling:**
  - ○ **APIs:** Slack API, Fortnox API, Stripe API, Firebase Authentication
  - ○ **Skills:** API Development & Integration, Payment Gateway Integration, Authentication & Authorization (OAuth)
- **Core Skills & Practices:**
  - ○ **Methodologies:** Agile/Scrum, Test-Driven Development (TDD), Unit & Integration Testing, Quality Assurance
  - ○ **General:** Algorithm Design, Data Structures, Problem Solving, Efficiency Optimization, Robust Error Handling & System Resilience, Independent Project Leadership/Management, Team Collaboration, Code Reviews, Technical Communication, Requirement Analysis, Financial Modeling Concepts
- **Audio & Music Production:**
  - ○ **Software:** Ableton Live 11, FL Studio, Logic Pro X, Serum 2, Kontakt, Various VSTs/AUs
  - ○ **Skills:** Composition & Arrangement, Sound Design, Synthesis, Mixing & Mastering (Basic), MIDI Programming, Music Theory

---

Education

Self-taught

References

Available through request