Patrick Sullivan

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Skills / Programming Languages

Rust, AWS, SQS, S3, OpenAPI, Go Terraform, TypeScript, React, C#, F#, .NET, Microsoft SQL Server, PostgreSQL, MySQL, GraphQL, Git, Docker, 3D graphics, CUDA GPU programming, Elixir, Datadog

Experience

OpenObserve – Remote

Software Engineer, November 2024 – March 2025

- Contributed to an open source stream data processing application written in Rust.
- Introduced processes for migrating JSON data into PostgreSQL, MySQL, and SQLite databases.
- Used NATS pub/sub events to perform real-time synchronization of records in different database instances across clusters in different AWS regions.
- Implemented new HTTP server endpoints using Rust, Actix, and OpenAPI.
- Deployed and debugged application in different cluster environments using Kubernetes and Argo.

Sybridge Techonlogies (formerly Fast Radius) – Remote

Senior Software Engineer, August 2023 – August 2024

Software Engineer, January 2021 – August 2023

- Designed and built a distributed system of services in Rust that is used to generate business critical manufacturing insights about 3D CAD files. The system coordinates different services and resources to perform file conversions and computational geometry operations.
- Created HTTP servers using Rust and Axum, and used OpenAPI to perform language-agnostic communication between different services.
- Worked closely with DevOps team to provision service infrastructure in AWS using Terraform.
- Rearchitected job processing system to use AWS SQS to process jobs asynchronously and remove high volume of HTTP request time-outs.
- Benchmarked Rust computational geometry code to identify performance bottlenecks. Refactored and optimized our medial axis algorithm implementation to exploit parallelism and reduce runtime by more than 70%.
- Implemented experimental GPU nearest neighbor search algorithm using Rust and CUDA.
- Wrote an image renderer for 3D meshes in Rust that renders thumbnails of customer-uploaded CAD files.
- Used React and BabylonJS to construct an interactive 3D real time renderer for CAD files in the browser.
- Rebuilt signup flow for customer-facing web application in Elixir to reduce friction towards acquiring new users.
- Organized a back-end guild for engineers to share knowledge and best practices and to grow professionally.
- Provided on-call support to internal users of our quote and factory management software.

OneCause – Indianapolis, IN, USA

Software Engineer, March 2019 – December 2020

- Used Go to build back-end services in our microservice architecture.
- Created new UIs using TypeScript and Angular for OneCause's fundraising and event management software.
- Helped to expand suites of TypeScript and Go unit tests and integration tests.
- Worked with product managers to plan and prioritize new work.
- Participated in and led design meetings with engineers to examine user stories and plan actionable tasks.

TCC Software Solutions – Indianapolis, IN, USA

Software Engineer, September 2017 – February 2019

- Built an ETL tool in C# that transforms and moves data from an Oracle database to a SQL Server database.

Indigo BioAutomation – Indianapolis, IN, USA

Software Engineering Intern, May 2017 – August 2017

MTD Products, Inc. – Indianapolis, IN, USA

Software Engineering Intern, March 2016 – April 2017

Education

Rose-Hulman Institute of Technology – Terre Haute, IN, USA

B.S., Computer Science, 2017

GPA: 3.61 / 4.00

Senior Thesis: *Working Towards Multiparty Session Types in Haskell*

https://github.com/patrickcsullivan/documents/blob/main/session-types.pdf

Recipient of the Michael Atkins Outstanding Senior Thesis Award

Awarded by the Department of Computer Science and Software Engineering