

# William J. Piel

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I am a technical manager and software engineer with twenty years of experience in building web applications and distributed systems. During this time, I have come to strongly value an iterative development process. I deeply enjoy helping team members do their best work. As a manager, I consider empathy and emotional intelligence among my key strengths. As an engineer, I have a deep passion for software-architecture design and the practice of software development.

## Patch

April 2023 – Nov 2023

Software Engineer

Contractor

Patch (patch.tech) is a SaaS startup building an acceleration layer for data warehouses. As part of the infrastructure team, I was responsible for the improvement and maintenance of the ETL machinery and query layer.

- Built a Clojure implementation of Apache Iceberg
- Implemented an OTP-inspired actor framework for Clojure
- Made use of avro, parquet, k8s (kubernetes), etcd and XTDB

## Fignascent

Nov 2019 – Nov 2022

Founder, CEO & CTO

For three years, I set my mind to one goal: developing a new technology that would radically improve how distributed systems and web apps are built and deployed. While I did not succeed in the stated goal, I believe I came away from the experience as a better person and engineer.

- Implemented an algorithm for distributing storage and computation across a large cluster of server nodes – in a robust, fault tolerant manner.
- Designed a programming language to eliminate traditional barriers between backend and database functionality – yielding novel software architecture paradigms
- Wrote and discarded over forty experimental implementations of various ideas.
- Taught myself Rust. Worked with it daily for months. Used Clojure heavily as well.

## Vetd

Jan 2019 – Nov 2019

Co-Founder &

Chief Technical Officer

Vetd was an accelerator-backed SaaS business focused on transforming the process of buying SaaS. As the only technical co-founder, I was also our first and only engineer, at the outset. I was part of Vetd for just shy of a year, until our runway ran out.

- Single-handedly built and deployed initial web app
- Built and managed a small engineering team
- Used languages Clojure and Clojurescript
- Implemented production infrastructure on AWS – Fargate, RDS, S3

- Designed and implemented custom GraphQL API using websockets & Hasura
- Streamlined development and deployment with custom-built Docker images

## GlobalFit

July 2018 – Dec 2018  
Chief Technical Officer

GlobalFit is a thirty-year-old company building a B2B2C wellness marketplace. I was recruited to help the company through what the C-suite described as a "difficult cultural situation".

- Worked to mend the deeply problematic relationship between the leadership team and engineering team
- Dramatically simplified a convoluted production deployment pipeline
- Built relationships, based on trust and mutual respect, with every member of my team
- Worked with team members to identify potential for career growth

## Magento Commerce

Oct 2017 – July 2018  
Software Architect

Magento is an open-source, e-commerce platform. Some estimates consider it to be the most-popular e-commerce platform globally. After acquisition by Magento, the RJMetrics product was transformed into Magento's business intelligence offering. I am the senior technologist of this team.

Aug 2016 – Sept 2017  
Senior Software Engineer

**RJQL Service** – The primary focus of my time at Magento was the RJQL service. This service was responsible for the execution of RJQL queries, powering all automated data analysis. It was arguably the core of our product. RJQL is a proprietary query language designed to succinctly express the wide variety of analyses our product supports. It can abstract over arbitrary data sources – such as, Postgres, Redshift and the Google Analytics API.

- Architected entire design and led implementation team.
- Significantly reduced server expenses by supplanting previous solution with more efficient one.
- Obviated ~20k lines of PHP, and a Hadoop implementation, with ~9k lines of Clojure.

**Cerebro** – In the second half of 2017, establishing a product road map that included machine-learning capabilities became a top-level business priority. I led a small team in an exploratory project to spearhead this initiative.

- Devised and led the execution of a solid project plan, despite ill-defined business requirements.
- Consulted on application of concepts from scholarly articles to our specific goals.
- Researched implicit collaborative filtering algorithms.
- Developed robust dataset-builder tooling, using Clojure.

## RJMetrics

July 2012 – July 2016  
Director of Engineering

July 2010 – July 2012  
Senior Software Engineer

Second technical hire of a VC-backed startup. RJMetrics was a business-analytics SaaS startup. It was acquired by Magento. As Director of Engineering, I made contributions in the form of team leadership, hands-on development and improvements to processes and tooling. During my time there, I worked with a variety of technologies including Clojure, PHP, Javascript, Python, MySQL, Postgres and AWS.

**Billing System Overhaul** – While switching to a new billing vendor, we decided to overhaul our notoriously buggy billing system. I acted as lead architect.

- Designed CQRS-style architecture and API.
- Translated complex business workflow requirements into a sane state machine.
- Implemented a robust scheduling system to handle event processing.

**Improved Development Tooling and Process** – Third-party API integrations are a critical part of our product offering. While building these integrations, I also developed tools designed specifically to optimize the development process.

- Improved efficiency of entire project team.
- Leveraged omniscient debugging techniques.
- Developed mechanism to generate tests by capturing and replaying http traffic.

**New Chart Builder and RJQL** – One of the largest projects the company has undertaken was a near-total rewrite of our chart builder, a core element of the product UI/UX.

- Designed a query language, RJQL, which allowed us to leverage existing code, but with much improved flexibility and ease.
- Planned out six-month development schedule. Coordinated resources to keep us (very close to) on schedule.

**Mentor** – I often acted as a mentor to other members of the team.

- Provided guidance on career development
- Helped team-members work through difficult decisions and navigate sensitive situations.
- Promoted a healthy company culture

**"The" Framework** – When I arrived, the product's web application was in a unmaintainable, disorganized state. My very first task at the company was to construct a framework that would lay the foundation for the web application code as we refactored.

- Still in use today.

- Has required very few bug fixes or improvements over many years of heavy use.
- Designed to integrate smoothly with existing code base.

**Service-Oriented Architecture, REST and APIs** – The company reached a critical maturation point where we opted to move to new technologies and architectures that would allow us to move faster in the long run. I played a key role in those decisions, as well as shaping the future of our system as it unfolded.

- Evangelized new technologies, patterns and best practices.
- Laid out foundation for our service architecture.
- Led design of REST API "blueprint" that our services adhere to.

## Pepper Lillie Ltd

October 2004 – July 2010  
Co-founder,  
Software Engineer

My cousin and I founded a two-man web shop, Pepper Lillie. As the sole software developer, I was completely responsible for all technology decisions and implementation. Below are descriptions of a couple of the more exciting projects we undertook during my time in this role. I typically worked with .Net, PHP and Python.

**Sparrow Technology Services** – Before the last big crash, hedge funds were raking it in and looking for any advantage they could get. As our own entrepreneurial endeavor, we developed a SaaS offering targeting that audience. The software we developed was acquired, in 2006, by an NYC firm that services hedge funds.

- Architected a system to automatically retrieve public filings from SEC server on nightly basis
- Developed proprietary process for extracting financial data from SEC filings
- Application allowed user to download reports tailored to their specifications
- Built using ASP.Net, C# and MS SQL 2005

**Social Great** – During the check-in craze of '09, there were not just one, but multiple players in that space. I built a web app that aggregated data from the four top services in real time. The site displayed the most popular places to check-in on a map plus some additional data for each location.

- Architected a system that was able to collect, aggregate and analyze in real-time from multiple APIs
- Devised an algorithm to match imperfect venue data points between various sources

## Talks & Projects

**Sayid** – A debugger and profiler I wrote for Clojure.

- [Becoming Omniscient with Sayid](#) – Spoke at Conj 2016 in Austin. Video available on YouTube.
- <https://github.com/clojure-emacs/sayid>

**Guildsman** – A TensorFlow library for Clojure. TensorFlow is Google's machine-learning library.

- [The Tensors Must Flow](#) – Spoke at Conj 2017 in Baltimore. Video available on YouTube.
- <https://github.com/bpiel/guildsman>

## Education

### University of Delaware

B.S. Computer Engineering  
Minor in Computer Science  
September 1998 – June 2002