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I am a software engineer with twenty years of experience developing web applications and distributed systems. During this time, I have come to strongly value an iterative development process. I focus on early validation of assumptions, breaking work into small pieces and adapting as I learn. I have a deep passion for software-architecture design and the practice of software development.

Magento Commerce

Oct 2017 – Present
Software Architect

Aug 2016 – Sept 2017
Senior Software Engineer

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.

RJQL Service – The primary focus of my time at Magento has been the RJQL service. This service is responsible for the execution of RJQL queries, powering all automated data analysis. It is 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 -- currently, Postgres, Redshift and the Google Analytics API.

- Architected entire design and lead 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 roadmap that included machine-learning capabilities became a top-level business priority. I lead a small team in an exploratory project to spearhead this initiative.

- Devised and lead 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 is a business-analytics SaaS startup. 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 here, 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 is a description of various 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

BeerJot – We liked beer and wanted a way to keep track of which beers we liked best.

- Mobile-targeted site for recording beer ratings
- Integrated with Facebook using OAuth 2.0 for authentication
- Built using PHP & MySQL

Pro World Inc. – Pro World is one of the many t-shirt sites on the internet. We were hired to build the web-based quote interface.

- Built wizard allowing customers to enter details to receive a custom quote
- Stores quote details and emails permanent link to customer
- Integrates with 3 party API to retrieve quote pricing data
- Used PHP, MySQL, Kohana framework and jQuery

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.
- <http://bpiel.github.io/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