James J. Menard

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Experience

Consultant, Particle Health 2025

Creating new features, enhancing existing systems, and improving test coverage for a health tech company in the EHR space. Working with core and data science teams. Prompt engineering (Claude, ChatGPT), Go, Python, GCP, more.

Staff Software Engineer, SeatGeek 2023–2025

Joined the Fandom team responsible for all fan-facing components (including ticketing, fan and broker resales, upsales, event entry, user accounts, and customized day-of-event experiences) for modern, tech-savvy ticketing platform. SeatGeek's tech stack included Python, Go, C#/.NET, PostgreSQL, MSSQL, Redis, RabbitMQ, Kafka, ElasticSearch, AWS, TypeScript, Docker, and more.

- Improved overall reliability and scalability of day-of-event operations by improving async call patterns and error handling, reducing database query times and pushing more filtering from code into the database, improving the db schema, and adding targeted caching. Reduced latency and error rates to achieve 99.99% SLOs. Wrote multiple related architecture documents.
- Worked across many systems, coding in Python, Go, TypeScript, PHP, C#, and SQL.
- Optimized multiple database-intensive operations
    - Reduced large-scale bulk password reset time from weeks to hours.
    - Improved a partner bulk ticketing info endpoint by moving the work from the Python system where it used an in-house query language to the C# system where we could run optimized raw SQL.
    - Reduced a scheduled database cleanup job from hours to under a minute.
- Worked cross-team and within other teams outside of Fandom
    - Advised a senior developer in their creation of a system architecture and proof of concept for a new stream processing-based fraud detection system.
    - Improved the fraud team's detection results by adding to and fixing the data sent to a third-party fraud detection vendor.
    - Analyzed the state of end user identity management across all SeatGeek systems (the same user could have accounts in three or more systems) and proposed a path to consolidation.
    - Reviewed tech design docs across multiple teams.
- Created initial state transition diagrams for high-traffic expensive API endpoints to identify targets for optimization across systems.

- Guided multiple teams in improving modularization of the Python code base.
- Created a cache-based memoization decorator for the core Python repo, making caching of results easier across the entire code base.
- Performed code reviews, feature design reviews, and paired with developers.

Senior Software Engineer, Infinite Reality 2021–2023

Led the backend team and was responsible for optimizing, scaling, and growing the Display Social networking app. Display later became Infinite Reality, focusing on metaverse implementations and services. Tech stack included Ruby on Rails, backed by PostgreSQL, Redis, and ElasticSearch, using AWS Lambda, S3, and video processing, JavaScript, and Docker for local development.

- Achieved Redis cache reduction from 90% to 20% through both key compression and migration from single instance to Redis cluster, resolving user problems and providing as much scaling as needed.
- Improved end user search results by reworking the ElasticSearch queries and data indexes.
- Integrated and productized a new ML-driven social feed recommendation engine into the social networking app while ensuring it was performant and accurately updated. Provided the ML team with scripts for creating and delivering the feed.
- Achieved reduction in database operation times from 30+ seconds to sub-second and creating tiered caching and usage-limiting logic for expensive endpoints such as "number of followers" to improve system responsiveness and throughput.
- Rewrote video encoding AWI Lambdas and S3 triggers to migrate from AWS ElasticTranscode (being deprecated) to MediaConverter (cheaper and supported).
- Led technical discussions and wrote architecture design docs, including design of multi-tenant metaverse back end models.
- Led the team in API standardization and documentation work, tech debt payment, and major platform version upgrades.
- Experimented with graph databases for modeling user relationships.

Principal Software Engineer, Warby Parker 2018–2021

Supported and grew operations side of in-house custom technology for eyewear manufacturer and retailer. Originally member of SRE team; later joined Retail and Vision Services team responsible for all in-store software for sales associates, in-store payment, and eye exam systems. Tech stack included Python, Go, PostgreSQL, DynamoDB, Redis, TypeScript, AWS S3 and Lambdas, and more.

- Increased production monitoring coverage, code test coverage, and code quality and maintainability through code reviews, technical mentorship, and developer onboarding.
- As a member of various "guilds" and as a Principal Engineer, wrote technical designs and proposals on topics such as documentation standards, feature MVP proposals, and

suggestions to sunset old tech and systems and presented talks on technologies such as Elixir and (for fun) synthesizers.
- As a member of the Architecture Council, guided the creation of API framework design standards and discussed technology organization-wide practices and policies.
- Redesigned, rewrote, and updated in-store print queue management software to automate the process of creating and managing individual stores' printer queues.
- Created proof of concept for non-SRE developer management of AWS instance images used to deploy production software, and created AWS Lambda to clean up old instance images.
- Managed an external consulting team in the implementation of card-present tap-to-pay for all retail locations.

Principal Engineer, Chloe + Isabel 2015–2018

Added major new features and improved the quality, reliability, scalability, and responsiveness of a Ruby on Rails e-commerce platform for a manufacturer and online seller of hand-designed jewelry.

- Led the e-commerce platform's financial and operations systems team responsible for inventory, order taking, promotion application, shipping and tax calculation, payment, shipping fulfillment, and commission calculation and payment.
- Uncovered bottlenecks, improved performance of code and database queries, and upgraded tech platform to improve site reliability and scalability.
    - Improved response times by 14% by making audit logging asynchronous.
- Led design and implementation of international shipping, automated merchandiser payment, collect-on-ship, and more.
- Added multiple warehouse support and configurable shipment pricing and carrier override.
- Worked closely with Product, Operations, and QA to set priorities and milestones.
- Managed on-call schedules and performed regular issue review with QA.
- Documented major subsystems.
- Restarted company's tech blog and wrote articles.
- Organized and gave internal technical talks.
- Performed code reviews and mentored tech team members.
- Integrated with third party forum/publishing platform.
- Assessed potential vendors' and acquisitions' technology.

Sr. Dir. of Engineering and Architecture, Science, AIG 2014–2015

Led and grew an external team of developers focused on rapid prototyping and development of new applications that brought evidence-based decision making, innovation, and analytics (big data) to multiple business lines.

VP of Engineering, nRelate 2013–2014

Led, grew, and improved the technology platform and processes at a company that dynamically recommended and served four billion related article links and ad impressions a month across over 100,000 sites. Python, Scala, JavaScript, PHP, ElasticSearch, RabbitMQ, MySQL, MongoDB, Hadoop.

- Created life cycle, project management, and QA processes for software development and operations teams.
- Led productization of an ML-based ad recommendation engine developed by the in-house data science team.
- Removed operational single points of failure by moving from single instances to clusters.
- Improved system uptime, reliability, and fault tolerance.
- Led R&D and architectural redesign and replacement of core systems with more appropriate, scalable technologies.
- Led data center and server infrastructure redesign and migration.

Principal Engineer, General Assembly 2012–2013

Senior member of new internal development team tasked with designing and prototyping systems for internal Ruby on Rails platform for company that offered tech bootcamps for students. Created internal CMS and implemented e-commerce financial systems.

Director of Technology, ideeli (later Ideel) 2011–2012

Originally asked by founding CTO at the “kitchen table” stage to create Ruby on Rails-based tech stack, ultimately joined flash sale online e-commerce site at late-stage startup phase.

- Provided technical guidance, R&D, support, and mentorship for the core technology platform and the team.
- Technical lead on multiple projects including development of a custom A/B testing framework and replacement of their credit card vendor.
- Created a prototype rules engine implementation of the personalization engine.
- Acted as mentor for developers by teaching internal courses and reviewing code.

Brain AI/Rules Lead, Kaplan Test Prep and Admissions 2009–2011

Built, led, and managed team responsible for building new technology platform for taxonomy-based modeling of student knowledge and customized study recommendation using business rules engine, custom code, and AI-based algorithms built in Python and Java.

- Led the team that designed and deployed a beta version of the custom study recommendation software. The algorithm used to create the recommendations was patented.
- Acted as liaison with business users and subject matter experts, managing frequently-changing requirements and product goals.

- Oversaw selection of rules engine vendor and design of technology platform. Managed internal, vendor, and consultant deliverables.

Consultant, Independent 2009

Completely redesigned, rebuilt, and deployed the back end and content management of the website of a well-know Nickelodeon kid's TV show along with its content management and user-generated content workflow systems. The site had over 4 million registered users, served over 270 terabytes of data monthly, and was available in 18 languages. Responsible for choosing the technology and designing, implementing, and delivering the software. The site was built using Ruby on Rails and ran on AWS EC2 instances.

Ruby and Rails Implementation Engineer, 10gen (later MongoDB) 2008–2009

Tasked with implementing Ruby on a new Platform as a Service architecture based on open-source components as an alternative to GCP or AWS. Users' applications could run on the platform using Python, Ruby, or JavaScript and use the then-new NoSQL database MongoDB developed in-house. Code in those three languages was able to import, call, and be called by code in any of the other languages within a single application.

- Implemented Ruby language and framework support using JRuby, Java, and server-side JavaScript.
- Created database and runtime environment adapters in Java and Ruby to allow Ruby on Rails and other Ruby frameworks to use the Babble app server and MongoDB.
- Implemented the ability for Ruby code to call and be called by code in other languages.
- Developed a Ruby Mongo Object/Relational Mapper (ORM) framework, an ActiveRecord Mongo adapter, CGI session and logging database storage, a grid file storage wrapper, and more.
- Wrote a pure-Ruby Mongo driver and Ruby and Clojure examples for a Java driver. Enhanced Babble app server and JavaScript libraries. Wrote extensive unit tests. Presented talks at conferences and user groups.

Various Software Engineering Positions 1983–2008

Publications and Presentations

"Ruby in the Clouds", presented at RubyConf 2008.

"Ruby on Rails - An Introduction", online, presented to NY CTO Club, July 2006.

"Building Applications With Berkeley DB Java Edition", *Java Developer's Journal*, Sept. 2004.

"Unit Testing With OCUnit", O'Reilly's *MacDevCenter.com*, April 2004.

"Alternate Data Storage Technologies", online, presented to NY CTO Club, April 2004.

"Introduction to Ruby for Mac OS X", *MacTech*, March 2003 cover article.

"Ruby, an Introduction", online, presented to NY CTO Club, July2001.

Technical Skills

Languages

Ruby, Python, Bash, Go, Elixir, JavaScript/TypeScript, C/C++, Java, PHP, Common Lisp, Smalltalk, Objective-C, Perl, Assembly
Acquainted with: Clojure, Crystal, Erlang, Scala, Haskell, Fortran

Operating Systems

Unix (Linux, BSD, Solaris, etc.), Mac OS X, MacOS, Nextstep, BeOS, DOS, Windows, VMS

Databases

MySQL, PostgreSQL, SQLite, Oracle, MongoDB, Sybase, Informix

Frameworks and Tools

Ruby on Rails, Sinatra, Flask, Elasticsearch, S3, AWS Lambda, JRuby, J2EE, Spring, Hibernate, Tapestry, JSP, JDBC, Ant, Maven, JUnit/XUnit, RMI, CORBA, (X)HTML, CSS, AJAX, XML, XML-RPC, SOAP, WSDL, Apache, Tomcat, WebLogic, LaTeX, more

Education

University of Rochester, Bachelor of Arts - May, 1983
Major: Mathematics, with a concentration in Computer Science

Professional Organizations

New York CTO Club

Select Open Source Projects

KeyMaster – Real-time MIDI performance software

midilib – Pure-Ruby MIDI file and event manipulation library

DataVision – Cross-platform graphical database reporting tool used in 50 countries and translated to 14 languages

NQXML – The first XML parser written in pure Ruby

Subjective C – An implementation of Objective C that transpiles Objective C into C and munges the assembly output to support dynamic method lookup during compilation

Rice – Information and Content Exchange (ICE) pub/sub protocol Ruby reference implementation

TwICE – ICE protocol Java reference implementation

Bangkok – Ruby chess game replayer with music generation capability

Squeak (Smalltalk) PostgreSQL interface