

## Profile

### Senior Full Stack Engineer - Ruby on Rails, PHP, SQL, HTML, CSS, JS, jQuery

Object-oriented full stack developer with expertise in MVC, Web-Services, Database Design, and unix/linux scripting. Strong problem solving and algorithm development skills. Experienced integrating Stripe, Zuora, and PayPal payments.

#### Links:

[Personal Website](#)[Readable Regular Expressions \(article\)](#)[Letter of Recommendation](#)[A Review of Agile SCRUM \(article\)](#)

## Skill Summary

### Methodologies

OOP, MVC, Web-Services (SOAP, REST), Test-Driven-Development (TDD), Continuous Integration, Agile, Artificial Intelligence (OpenAI)

### Web Technologies

Ruby on Rails 4/5/7 with sass and haml, HTML 5, PHP 5/7, Python 3, CodeIgniter, Object-oriented Javascript including AJAX, JSONP, jQuery, cURL, databases including queries, joins, aggregate functions, stored procedures, and performance optimization, XML, LAMP Stack, Apache configuration including url re-writing using mod\_rewrite, CSS 3 including flexbox, grid, media queries, responsive design, web-fonts, SVGs, Single-Page-Apps, TCP/IP sockets, ImageMagick, background job processing.

### Development, Collaboration and Project Management Tools

VS Code, RubyMine, PyCharm, RSpec, PHPUnit, Postman, MySQLWorkBench, Oracle SQL Developer, Trello, Jira, Confluence, git, awk, sed, crontab, regex, vim.

## Experience

### LEAD SOFTWARE ENGINEER, KEY CALCULUS LLC 11/2019 - 05/2020 + 04/2022 - PRESENT

Links: [Key Calculus Application](#) [Key Calculus Videos presented by me](#)

Sole developer of a custom Ruby on Rails SaaS application ([KeyCalculus.com](https://KeyCalculus.com)) used for designing industrial, master-keyed locking systems. Incorporated AI into my development workflow for algorithm development, coding, and refactoring. The application provides a web interface for designing the keying schema and generates the key codes (bittings) and pinning charts used for assembling the lock hardware. Designed and optimized the algorithms used for all aspects of the application. Implemented at-rest data encryption and other security features. Integrated Stripe payments and background processing with redis/sidekiq.

### LEAD SOFTWARE ENGINEER, TCF BANK (REMOTE) 06/2020 - 03/2022

Enhanced PHP application obtained through merger with another bank. Integrated multiple data feeds, including personnel data, and Active Directory information between the two bank's data systems. Updated application to better utilize modern browser features, (e.g. SendBeacon) & discontinue use of deprecated features (e.g. ajax calls on

page unload events). Maintained extensive set of SQL Server stored procedures. Planned and coordinated cross-department projects with other engineering groups. Directed and assisted offshore developer.

**LEAD SOFTWARE ENGINEER, MAYO CLINIC (REMOTE) 06/2019 - 10/2019**

Designed a solution to migrate the Mayo Clinic's internal PHP application for provisioning system resources from a mainframe/Sybase implementation to a web-based API using Informatica. The updated application brings increased consistency and decreased redundancy to Mayo's data sources.

**SR. WEB APPLICATION ENGINEER, IBM (REMOTE) 07/2017 - 06/2019**

Designed and developed new features for IBM's cloud services in PHP using a custom ORM based on Zend and Oracle database. Made extensive use of SOAP APIs, but also provided RESTful interfaces for IBM's cloud services. Scaling and performance were key considerations for this large PaaS (platform as a service) application. Used agile scrum for project management, and TDD (test driven development) for coding work. Most recent work involved adding new file & block storage functionality, such as limiting access of iScsi storage devices to specific hosts for security, and for improving backup storage services. The development team is distributed across several cities including Dallas, Houston, Austin, and Minneapolis.

**RUBY/RAILS APPLICATION DEVELOPER, UNITED HEALTH GROUP - OPTUM 12/2016 - 03/2017**

Enhanced Ruby on Rails application used by families to organize caregiving tasks and documents for elderly parents. Implemented a new front-end based on designer comps using html5, css3, svg images, and javascript/jQuery. Also implemented backend features and updated the data models as needed to support the new design. Used Continuous Integration and RSpec based unit testing.

**WEB APPLICATION DEVELOPER, BANK OF AMERICA (REMOTE) 01/2016 - 06/2016**

Developed a web application used internally by the bank. The application is written primarily in Javascript (including jQuery) with a small openresty/Lua backend for delivering the daily data updates. It is used to provide rate quotations for home equity lines of credit based on location. Data is provided daily to the application in xml format, which is transformed using awk, sed, and Lua, prior to being loaded by the web client. The data transformation makes heavy use of regular expressions, and the application uses just in time data loading via AJAX to provide a responsive user-interface.

**SENIOR SOFTWARE ENGINEER, INTELLICENTRICS 07/2013 - 11/2015**

Designed and implemented Service-Oriented Architecture (SOA), web-based applications for the health care industry with public and administrative portals, with emphasis on scalability. The newer application which provides credential management for hospital staff is based on Ruby on Rails, Postgres, and nginx, and is hosted on AWS. A separate CRM component, and a legacy application that provides credential management for health care vendors are based on PHP, CodeIgniter (MVC framework), MySQL, and Apache. The CRM component is integrated with the Ruby/Rails application through RESTful APIs. Designed and implemented customer-facing and administration features including the data models

and a responsive presentation layer based on Bootstrap. Developed many of the API methods used for communication between the CRM module and the Rails based features, using Test Driven Development (TDD). Integrated third-party web-services, including Zuora's ([zuora.com](http://zuora.com)) subscription and payment processing, and Backgrounds Online ([backgroundsonline.com](http://backgroundsonline.com)) background checks using RESTful and SOAP APIs. I also designed and implemented the work-queueing feature that drives the CRM module. I received commendations on the quality and quantity of my work products by peers and management.

Accomplishments include a 500% performance enhancement to one of the reporting features through optimizing SQL queries, implemented auto-configuration of developer environments, migrated legacy codebase from svn to git, identified a significant security hole in the production deployment process, and wrote several tools to improve developer efficiency including a static function call mapper which was used to unravel complex and undocumented method interdependencies in a legacy application.

#### **WEB APPLICATION DEVELOPER / FREELANCE PROJECTS**

Developed websites and web-based applications for enterprise and small business providing e-commerce and productivity functionality. Applications include content management systems, corporate extranet, store locators, photo galleries, online stores with real-time shipping quotes using XML web services and real-time payment processing.

Major projects:

Mahindra Tractor:

Implemented custom MVC framework (PHP), and configured Apache on dedicated server to support development, production, and client-review versions of the main public site and several micro-sites. Programmed backend (PHP, SQL) and frontend (HTML 5, CSS 3, Javascript, jQuery) of two major releases of public website plus ongoing updates and enhancements. Designed 40 table MySql database to drive sites - data includes product specs, tractor/attachment compatibility, dealer information, pricing and financing, press releases, product reviews, online store, etc. Site features include:

- Dealer Locator (by zip code), using web-services geocoder and great-circle distance calculations.
- Custom Content Management System for Mahindra's 300+ dealers to customize their own dealership pages with photos, inventory listings, map and overview.
- Multipage visitor survey, finance calculator, product reviews (display and submissions), online job applications, online store for Mahindra branded merchandise with real-time shipping quotes via UPS web-services APIs (XML based), and location based content (e.g. show tractors with enclosed cabs to visitors with IP addresses assigned to cold climate regions).

Enhanced Dealer Extranet with location based features and redesigned parts of the user-interface to be more intuitive for dealers.

Implemented email auto-responder to provide replies to customer inquiries. Auto-responder runs as a linux cron job using curl to execute a PHP program which analyzes content from customer's email inquiry to provide a reply tailored to their inquiry. It also ensures that only one reply will be generated if visitor submits similar inquiries to multiple dealers. Inquiries are archived in MySql database and forwarded to appropriate dealers and business managers.

Joe's Crabshack (restaurant chain - 120 locations):

Programmed backend (PHP, MySQL) and frontend (Javascript) of website, working with a team of graphic designers and HTML/CSS and Flash programmers. Developed store locator, job application feature, customer feedback page with utility for restaurant management to download a csv file summary based on date range. Built content management system for location-based promotions, and a feature for store managers to upload photos of restaurant customers, who could then download or print them in a variety of styles as a souvenir of their visit.

Blue Wave (car wash chain):

Implemented public website from designer comps, and micro-site for Blue Wave's advertising agency to deliver and archive design graphics for client's review. Public site includes a store locator and online purchase of gift cards with balance checking feature. (Gift card features use SOAP web services APIs provided by World Gift Card, Inc.) These sites use PHP, HTML, CSS, MySql, and Javascript.

Worldwide Power Products (large electrical equipment broker):

Programmed backend (PHP and MySql) and frontend (Javascript) for public website, and designed and implemented content management system for uploading images, specs, and descriptions of large, diesel powered electrical generators. Worked on team with graphic designer and HTML/CSS programmer. Implemented specialized calculator for electrical power calculations (Javascript).

Other projects:

James Coney Island (restaurant chain):

Developed mobile phone web application for product promotion whereby customer enters a url from a placard displayed at the restaurant, where they enter their phone number - a text message containing a discount coupon code is immediately sent to their mobile phone. Also developed an application that allows customers to request discount club membership invitations for their friends. The PHP application would send an email invitation to the non-member friend, from the member friend, after verifying that referred friend was not already a member. Outgoing emails were queued in MySql database and sent out at a regular interval by a cron job to prevent

exceeding hourly server limits on outgoing emails. This promotion added hundreds of new "Coney Club" members to the client's email opt-in database.

#### Medical Practices:

David Lim MD (urology surgeon), and Piney Point OMS (Oral and Maxillofacial surgeons)

Designed and coded these informational websites. Features include physician curriculum vitae, photo galleries, driving directions, symptom and surgical procedure information, downloadable patient forms, and post-operative care instructions.

#### Online stores:

Poole Productions (language learning videos), GTA Custom Jewelers, DQ Jewelry, Jewelry Dog USA, Looksie Light (specialized lighting products)

Implemented online stores using PayPal payment processing. GTA site includes a custom order management system, and content management system for adding new product categories and pricing information.

#### Miscellaneous:

International Trade Center - Houston, Joe Baraban Photography, New Life Fellowship (church), Alief Medical Sales

Developed brand-building features using LAMP stack, HTML, CSS, Javascript, and jQuery. International Trade Center site includes event registration for trade conventions and seminars, and membership purchases.

#### **SOFTWARE ENGINEER, CRAY RESEARCH, INC., MENDOTA HEIGHTS, MN**

Consistently designed innovative tools to achieve goal of Continuously Releasable (compiler) Software, including a tool to identify and isolate source code changes that introduced regressions. Conceived and designed tools for multiple development groups to share test runs, using automated component level isolation techniques for identifying components introducing regressions, reducing testing resource costs by 70%, and greatly improving component validation turnaround times. I was often selected to develop specialized tools for use within the compiler group, and acquired a reputation for automating software production tasks. I received special recognition from management for my presentation skills.

## Education

University of Minnesota, Minneapolis, Minnesota  
B.S. Physical sciences (physics and chemistry)  
(plus significant computer science coursework)