

Derek M. Gygax

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Software Engineer

Detail oriented full-stack software engineer with over a decade of experience developing scalable, high-performance software and web applications. Proficient in both front-end and back-end development, database management, and algorithm design, I am adept at delivering high-quality user-friendly solutions that meet complex scientific and business needs. Seeking a challenging opportunity to contribute to innovative projects in a fast paced dynamic environment.

Work Experience

Lead Software Engineer

2024

Voters Voice Amendment (VVA)

Technologies: Java, Spring Boot, TypeScript, Node.js, Next.js (React), PostgreSQL, Hibernate, MongoDB, Docker, AWS
Designed, developed, and launched the Voters Voice Amendment ([VVA](#)) web application to pilot direct initiation and voting on federal and state law initiatives, bypassing traditional legislative pathways

- **Technology Stack:** Independently selected and developed a scalable, maintainable architecture with structured, reusable, and readable code
- **Microservices API Backend and Cloud Integration:** Designed and developed a scalable microservices architecture using Spring Boot instances as the API backend. Deployed on AWS for reliable hosting, ensuring the system can dynamically handle varying user demands efficiently
- **Hybrid Database Architecture:** Architected and maintained a hybrid database system utilizing both relational (PostgreSQL) and NoSQL (MongoDB) databases, optimizing query performance and ensuring data integrity during high-volume interactions
- **Security and Stateless JWT Authentication:** Implemented robust authentication and authorization protocols using stateless JWTs for secure, scalable user authentication across services

Lead Software Engineer

2022 - 2024

57 West Capital Advisors, Inc.

Technologies: TypeScript, Next.js (React), Sass

Developed and maintained the [57 West Capital Advisors](#) website, ensuring up-to-date content

- **Software Development:** Led development of the website with Next.js, optimizing performance for a responsive, engaging user experience across all devices
- **Front-End Architecture:** Designed and implemented the full front-end structure, utilizing modern engineering practices to build scalable, reusable components and styling with Sass
- **Stakeholder Engagement:** Collaborated with company representatives to align solutions with their goals and needs

Bioinformatics Engineer

2021 - 2023

Mendelgen

Technologies: React, Redux

Engineered and enhanced bioinformatic web applications for [Mendelgen](#) allowing biologists to simulate biological assays and experiment with different scenarios enhancing their research capabilities

- **Bioinformatic Algorithm Development:** Created algorithms to simulate PCR and DNA cloning techniques
- **React Component Optimization:** Reviewed, refactored, and designed React components, focusing on reusability and readability to enhance system performance, maintainability, and streamline the integration of new functionalities
- **State Management:** Implemented robust state management with Redux to ensure seamless user experience

Software Engineer

2017 - 2020

Artemis Consulting, Inc.

Technologies: Python, Java, Django, Flask, Angular, jQuery, Apache Solr, Docker, AWS, Jenkins, Selenium Testing

Developed and maintained accessible, user-friendly web applications for the Library of Congress, facilitating efficient web archive searches and online copyrights submission

- **API Request Structuring:** Collaborated on API request structuring, ensuring smooth integration between the Angular front-end and the Java back-end
- **Angular Component Development:** Created modular, reusable components to improve maintainability and scalability, ensuring efficient front-end functionality and a seamless user experience
- **Application and Search Enhancement:** Enhanced the ProjectOne search application on the [Library of Congress](#) website, focusing on search capabilities, scalability, and accessibility using Python, Django, Flask, and Apache Solr
- **Novel Platform Development:** Co-developed an online copyright submission platform using Angular and Java, deployed on AWS ECS with Docker

Software Engineer

2017 - 2018

2 Couples Connect

Technologies: Java, MySQL, JTwig, JavaScript, AWS, WebSockets(Socket.IO)

Engineered and launched 2 Couples Connect, a platform enabling couples to connect with others when moving to new cities

- **Front-End Development:** Created dynamic, reusable JTwig templates, delivering a seamless user experience
- **Java API Expansion and Maintenance:** Expanded and maintained Java RESTful API endpoints, ensuring efficient communication between the JTwig front-end and the Java back-end for real-time data exchange
- **MySQL Integration:** Contributed to designing and optimizing MySQL databases, ensuring efficient data management and rapid query performance for a growing user base
- **WebSocket Integration:** Implemented real-time chat and notifications using socket.io.js, managing multiple chat rooms and real-time message updates

Bioinformatics Engineer

2014 - 2017

In Silico Solutions

Technologies: Python, R, Linux, Java, JavaScript, jQuery, MySQL, Docker, Galaxy

Created web-based applications, bioinformatics pipelines, and Docker images to assist biologists with the analysis of public and private biological data. Interacted with scientists to ensure analysis and visualization of results best suited their needs

- **Java API and Back-End Development:** Developed and maintained a Java back-end, including RESTful APIs, to handle data processing, MySQL interactions, and seamless communication with front-end applications
- **Relational Database Management:** Designed, structured, and optimized MySQL databases and queries for efficient data retrieval and storage
- **Statistical Analysis Pipeline:** Used Python, R, and MySQL to engineer biostatistics pipelines running on Linux servers for the MD Anderson Cancer Center's Reverse Phase Protein Array (RPPA) core facility
- **Collaborative Development for Annotation & Visualization:** Collaborated with scientists at Johns Hopkins University to design and develop CRAVAT and MuPIT using Java, Python, HTML, and MySQL. Web applications for genomic variant annotation, data visualization, and 3D protein variant viewing

Education

- **MS in Human and Molecular Genetics** | *Virginia Commonwealth University* | 2010 - 2014
- **BS in Biology, Minor in Mathematics** | *College of William and Mary* | 2006 - 2010