

# Rathi

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As a **Senior Software Engineer** with **20 years of experience**, I specialize in **full-stack development**, **system architecture**, and **AI/ML-driven solutions**. Over the years, I've led and contributed to a wide range of **enterprise projects** across domains such as **insurance**, **banking**, **government**, and **digital media**. I'm adept at collaborating with **cross-functional teams**, working directly with **stakeholders** to translate **complex requirements** into **scalable, high-performance software**. My expertise spans from **front-end frameworks** and **backend services** to **machine learning integrations** and **cloud infrastructure**.

## EXPERIENCE

**Senior Software Engineer**, State Compensation Insurance Fund **Feb 2020 – Dec 2023**

*SCIF is a non-profit enterprise that provides workers' compensation insurance to California employers.*

Worked in both **leadership** and **engineering** capacities on several **enterprise-level development** efforts. Involved in **full-stack development**, **API integration**, **UI/UX optimization**, and **AI-driven automation** initiatives.

### Project Highlights:

**Data Aggregator** – Participated as a full-stack developer on a system that helped simplify the underwriting process by gathering external data (e.g., **Google API**, **DMV**, **DOT**) to support insurance quote decisions.

- Created a user interface using **Angular** with a search bar that dynamically pulled data based on the organization's name.
- Developed reusable UI components using **TypeScript**, **RxJS**, and **Angular Material** for consistent user experience.
- Used **JSON Schema** to build dynamic views and configured them to align with the structure of various external data sources.
- Integrated search features using **Apache Solr** for fast and scalable querying.
- Implemented server-side logic using **ASP.NET Web API** and **C#**.
- Applied **Agile** methodologies and used **JIRA** for sprint planning.

**Tech Stack: Angular, TypeScript, Angular Material, RxJS, Solr, C#, ASP.NET Web API, SQL Server, JIRA**

**BindNow** – Contributed to the development of a quoting system used by employers and brokers to get workers' compensation quotes. The system had multiple modules, including Employer Info, Broker Info, Payment, Q&A, Summary, and Quote Details.

- Designed front-end components using **React**, **Redux**, and **TypeScript** to manage user inputs and navigation flow.
- Implemented secure API integrations for data transmission using **ASP.NET Web API**.
- Conducted backend logic implementation in **C#**, using **Entity Framework** for database access.
- Participated in code reviews via **GitHub**, followed CI/CD pipelines using **Azure DevOps**.

**Tech Stack: React, Redux, TypeScript, C#, Entity Framework, SQL Server, ASP.NET Web API, Azure DevOps, GitHub**

**Chatbot** – Led a team of five engineers to build an AI-powered chatbot to support internal business queries using advanced **Natural Language Processing (NLP)** techniques.

- Integrated the **Zephyr 7B** language model from the **Mistral** family to handle contextual and document-based questions.
- Fine-tuned the model with **PEFT** techniques for domain-specific language understanding.

- Used **LangChain** to implement **RAG (Retrieval-Augmented Generation)** architecture.
- Indexed internal business documents using **FAISS**, and enabled fast document retrieval.
- Employed **Prompt Engineering**, **Vector Embedding**, and **Token Management** strategies to improve response quality.
- Created pipelines using **Python** for pre-processing and content ingestion.

**Tech Stack:** Zephyr 7B (LLM), PEFT, LangChain, RAG, FAISS, Python, NLP, Prompt Engineering, Vector Embeddings, Azure Blob Storage

**Environment:** C#, .NET, ASP.NET Web API, Angular, React, Redux, TypeScript, JavaScript, SQL Server, Entity Framework, Solr, Google API, Zephyr 7B, LangChain, FAISS, RAG, PEFT, Python, NLP, JSON Schema, RxJS, Angular Material, GitHub, Azure DevOps, Azure Blob Storage, JIRA.

## Technical Lead (Contract), Fiserv

May 2019 – Feb 2020

*Fiserv (NYSE: FI) is a leading global provider of financial services technology.*

Worked as a contract Technical Lead managing a five-member offshore team. Collaborated with **scrum masters**, **project managers**, and **DevOps** teams to integrate various banking products into a unified customer-facing portal.

### Project Highlights:

**Architect PS** – Architect PS is a web-based platform that brings together multiple banking features in one place, offering functionality such as **money transfers**, **bill payments**, and **check/deposit slip viewing**.

- Interpreted and converted business requirements into **technical design documentation**.
- Led integration efforts for third-party vendor products like **Zelle**, **QuickBooks**, and **Nautilus**.
- Built custom modules to interface with external services and manage **flat file configuration** imports.
- Enhanced performance by implementing **lazy loading** in the **account summary** module.
- Conducted **unit testing** and contributed to **CI/CD** activities for deployment readiness.

**Tech Stack:** C#.NET, ASP.NET MVC, Angular, SQL Server

**Environment:** C#.NET, ASP.NET MVC, Angular, JavaScript, SQL Server, Zelle, QuickBooks, Nautilus, DevOps, Flat File Integration, Unit Testing, CI/CD, Agile

## Senior Software Engineer, CSOSA

May 2015 – Mar 2019

*CSOSA (Court Services and Offender Supervision Agency) monitors release conditions of parolees and probationers.*

Contributed to the development of internal software solutions used for the supervision of offenders, with a focus on performance optimization and system reliability.

### Project Highlights:

**SMART** – A **single-page case management system (SPA)** designed to support the supervision of criminal offenders across various operational modules.

- Developed the **Offender** module using **Angular**, **ASP.NET Web API**, and **Elasticsearch** to support real-time tracking and data retrieval.
- Performed **unit testing** and participated in **continuous integration** workflows to ensure deployment readiness.
- Worked on optimizing backend logic and queries to improve **data processing** performance.

**Tech Stack:** C#.NET, ASP.NET, Web API, Angular, SQL Server, Elasticsearch

**Environment:** C#.NET, ASP.NET, Web API, Angular, Elasticsearch, SQL Server, Unit Testing, CI/CD, SPA Development

## Senior Software Engineer, RecordedBooks

Oct 2010 – May 2015

*RecordedBooks provides digital audiobooks for retail customers and libraries across the US, Canada, and UK.*

### Project Highlights:

**RecordedBooks.com** – This website allows users to access and download digital audiobooks, with book titles sourced from multiple providers.

- Analyzed and translated business requirements into **technical specifications** to support new feature development.
- Designed and implemented **search indexes** using **Apache Solr – Lucene** to enhance search performance.
- Integrated **AWS S3** to store and retrieve digital content securely and efficiently.

**Tech Stack: SQL Server 2008, AWS S3, ASP.NET MVC4, C#, ADO.NET, XML/XSD, Microsoft Visio, Mercurial (HG)**

**Audio Digital Encoder** – Contributed to the development of a backend system that automated the creation of **digital audiobooks** from physical **CDs** and **cassettes**.

- Enabled the system to scale for various publishers by designing **configuration files** tailored to each publisher's needs, supporting different **audio formats, codecs, and bitrates**.
- Used **.NET file operations** in conjunction with **dbPowerAMP** to process and encode the audio content.
- Developed an automated validation workflow to retrieve **audio files** from **Amazon S3** and verify them against stored **metadata** records for accuracy.

**Tech Stack: DMExpress, SQL Server 2008, C#, ADO.NET, XML/XSD, Microsoft Visio, Visual Source Safe**

**MARC Generator** – This was a custom-built application designed to automate the creation of **Machine-Readable Cataloging (MARC) files** for use in **digital libraries** across the United States.

- Developed functionality to extract and integrate **metadata** for a large collection of audiobooks by integrating **web crawlers** that scraped relevant data from various **library websites**.
- Introduced a method to enrich MARC records with **URLs** by leveraging **XSLT stylesheets**, combining structured **XML data** with transformation logic to enable **in-house MARC file generation** and reduce dependency on external vendors.
- Identified a scalable opportunity to automate the MARC file creation process for a major publisher's library, enabling efficient processing of a large **ebook catalog** through batch generation workflows.

**Tech Stack: SQL Server 2008, ASP.NET MVC, C#, ADO.NET, XML/XSD, Microsoft Visio, Visual Source Safe**

**Environment: ASP.NET MVC, C#, SQL Server 2008, ADO.NET, XML/XSD, Apache Solr, Lucene, AWS S3, dbPowerAMP, XSLT, DMExpress, Mercurial, Visual Source Safe, Microsoft Visio, Web Crawling**

## IT Analyst (Architect), Tata Consultancy Services

Oct 2006 – Feb 2010

**SIIF** – The SIIF system was developed for the **Ministry of Finance and Public Credit** to manage national **budget administration**, dealing with large volumes of data under stringent **security** and **compliance** standards.

- Contributed to **requirements analysis, system design, and application architecture**, with the solution built using **Service-Oriented Architecture (SOA)** principles on a **Microsoft technology stack**.
- Facilitated regular **team meetings**, participated in **code reviews**, and ensured alignment between technical design and business goals.

**Tech Stack: C#.NET, ASP.NET, JavaScript, SQL Server**

**Environment:** C#.NET, ASP.NET, JavaScript, SQL Server, SOA, System Design, Application Architecture, Team Collaboration, Code Review

## **Skills :**

**Languages & Frameworks:** ADO.NET, Angular, ASP.NET, ASP.NET MVC, ASP.NET Web API, C#.NET, GraphQL, JavaScript, Python, React, Redux, TypeScript, MVC, Web API, XML/XSD, XSLT

**Front-End & UI Technologies:** Angular Material, Responsive UI, RxJS, SPA Development

**Machine Learning & AI:** FAISS, K-Means, K-NN, LangChain, Natural Language Processing (NLP), PEFT, PCA, Prompt Engineering, RAG (Retrieval-Augmented Generation), Supervised and Unsupervised Learning, T-SNE, Vector Embeddings, Zephyr 7B

**Cloud & Integration:** API Gateway, AWS S3, Azure Blob Storage, Azure DevOps, Flat File Integration, Google API, Lambda Services, Rackspace

**Databases & Search Technologies:** Apache Solr, Elasticsearch, MySQL, SQL Server

**Tools & Platforms:** dbPowerAMP, DMExpress, GitHub, JIRA, Mercurial (HG), Microsoft Visio, Rational Rose, Visual Source Safe

**Architecture & Methodologies:** Agile, Application Architecture, CI/CD, Code Reviews, Service-Oriented Architecture (SOA), System Design, Unit Testing