

# Harshwardhan Patil

📍 Arlington, TX

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🌐 Portfolio

## Overview

Full-Stack Engineer with **3+ years of experience** building scalable, distributed systems and high-performance APIs across frontend, backend, and cloud environments. Skilled in **system design**, CI/CD on AWS, production monitoring, and delivering **fault-tolerant, data-consistent services** at scale.

## Technical Skills

- **Languages & Frameworks:** Java, TypeScript, JavaScript, SQL, Python, Spring Boot, Angular, Node.js
- **Cloud & DevOps:** AWS (EC2, ECS, S3, RDS, Secrets Manager), Docker, Jenkins, GitHub Actions, Nginx, CI/CD
- **Databases:** PostgreSQL, Redis, MySQL, MongoDB, Schema design, Database indexing, Query optimization, Large dataset handling
- **Testing & Security:** JUnit, Jasmine, SonarQube, Postman, JWT, RBAC, HTTPS/TLS, CORS, CSRF/XSS protection
- **Design & Architecture:** System Design, Design Patterns, SOLID principles, Distributed backend services, Concurrency handling, Session management

## Professional Experience

### Software Engineer, Clarivate Analytics – Bangalore, India

Aug 2023 – Aug 2024

- Designed scalable Spring Boot REST APIs with DTO contracts and standardized error handling, reducing breaking changes by **30%** across releases.
- Designed distributed backend services handling concurrent user load with controlled multi-session logins and token-based session management.
- Implemented concurrent login flows across backend and frontend, managing session lifecycles, request validation, and SKU-based access control.
- Designed and optimized relational schemas and queries for large analytical datasets, using indexing and query tuning to ensure data correctness.
- Containerized and built deployment pipelines using Docker, Jenkins, and Spinnaker, supporting **50+ production releases** with **zero rollbacks**.
- Proactively identified performance bottlenecks in reporting services and optimized API and cache layers, reducing response latency by **25–35%**.
- Implemented role-based access control across backend and frontend layers, enforcing tiered and region-based data visibility for **10+ access variants**.
- Designed and implemented low-latency typeahead and autocomplete services, improving search response times by **40%** over large-scale datasets.
- Architected a highly configurable, reusable Angular table framework adopted across **3 internal teams**, reducing duplicated frontend effort by **50%**.
- Built reusable, aggregation-driven Angular chart components using D3.js, powering **15+ analytics views** for interactive reporting services.
- Led and developed dynamic PPT and PDF export pipelines, generating **100+ customized reports** with user-selected filters, layouts, and metadata.

### Associate Software Engineer, Clarivate Analytics – Bangalore, India

Aug 2021 – Jul 2023

- Optimized frontend rendering and state management for data-heavy views, improving responsiveness of interactive charts and tables by **20–25%**.
- Integrated Elasticsearch into Spring Boot to provide fast, advanced queries across **millions of drug records**, reducing search latency by **30%**.
- Improved frontend performance by minimizing unnecessary re-renders and optimizing data-fetching patterns, resulting in **20% faster page loads**.
- Migrated a legacy client-side component to an Angular 13 application, rebuilding **5+ core business flows** with a modular architecture.
- Implemented secure request-handling mechanisms, including JWT authentication, CORS/CSRF protection, and input validation in **multiple services**.
- Developed and led reusable Angular UI components, including charts and advanced table views, reused across **multiple reporting modules** consistently.

## Education

### University of Texas at Arlington

Master's in Software Engineering

May 2026

### BMS College of Engineering, India

Bachelor's in Mechanical Engineering

July 2021

## Projects

### Employee Management System 🌐

Dec 2024 – Nov 2025

Enterprise-grade system for managing employees, teams, projects, and access control with production-grade deployment and observability.

**Tools:** Spring Boot, Angular, PostgreSQL, AWS (EC2, RDS, S3, Secrets Manager), Redis, Docker, GitHub Actions, Jenkins

- Designed and built a scalable backend system for employee, project, and access management, applying **system design** principles to enforce **RBAC**, data isolation, and deployment automation.
- Implemented high-performance **REST APIs** for multi-entity services (employees, departments, projects, tasks) with pagination, filtering, and search, optimized for **scalability** and **API latency**.
- Integrated **dashboards**, **centralized logging**, and **monitoring** into backend services to ensure data consistency, traceability, and reliable operation in production environments.

### Battle Arena – Real-Time Multiplayer Platform 🌐

May 2024 – Present

Real-time multiplayer system featuring a modular game engine, physics-based simulation, and distributed backend services.

**Tools:** Angular, Phaser 3, Spring Boot, Node.js, MongoDB, WebSockets, Docker, AWS

- Designed a **distributed backend architecture** for real-time multiplayer gameplay, evaluating polling versus **WebSocket-based** communication and implementing custom protocols to balance latency, consistency, and scalability.
- Architected a **modular, terrain-aware game engine** with clear separation between **physics simulation**, **collision constraints**, and gameplay rules, enabling extensibility without impacting core engine stability.

### AI-Powered Personal Finance Manager 🌐

Feb 2025 – Apr 2025

Full-stack financial data processing system integrating live banking data with analytics and secure cloud deployment.

**Tools:** Flask, Streamlit, Redis, Plaid API, Docker, AWS

- Designed backend **REST APIs** to ingest, normalize, and categorize financial transactions from live banking data using Plaid, ensuring **secure data isolation** per user.
- Built **analytics pipelines** for expense aggregation and trend analysis, and delivered interactive dashboards via **secure cloud deployment** on AWS.