# Harshwardhan Patil

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## Overview

Software Engineer with experience building and maintaining Java-based backend services and cloud-based distributed systems. Strong focus on clean API design, data correctness, system reliability, and collaborative engineering.

## Technical Skills

- **Languages & Frameworks: Java**, Spring Boot, SQL, TypeScript, JavaScript, Python
- **APIs & Backend:** REST APIs, DTO design, Authentication & Authorization
- **Databases:** PostgreSQL, MySQL, MongoDB, Redis
- **Cloud & DevOps:** AWS (EC2, ECS, S3, RDS), Docker, CI/CD (Jenkins, GitHub Actions)
- **Testing:** JUnit, Mockito, SonarQube, Postman
- **Design:** System Design, Design Patterns, SOLID principles

## Professional Experience

**Software Engineer, Clarivate Analytics** – Bangalore, India *Aug 2023 – Aug 2024*

- Developed and maintained Spring Boot REST APIs with DTO contracts & standardized error handling, reducing breaking changes by **30%** across releases.
- Built deployment pipelines using Docker, Jenkins, and Spinnaker, supporting **50+ production releases** with **zero rollbacks**.
- 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.
- Worked with Java concurrency primitives (thread pools, async execution) to handle parallel request processing and improve backend throughput.
- Diagnosed and optimized JVM-level performance issues through profiling and query tuning, improving system reliability and efficiency.
- Participated in peer code reviews and design discussions, focusing on maintainable code, clear API contracts, and long-term system correctness.
- Designed a reusable Angular table framework adopted across **3 internal teams**, reducing duplicated frontend effort and improving maintainability.
- Built reusable, aggregation-driven Angular chart components using D3.js, powering **15+ analytics views** for interactive reporting services.

**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%**.
- Implemented and optimized PostgreSQL schemas, queries, and indexing strategies, improving query performance by **40%** for analytics services.
- 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

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| **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*
*System for managing employees, teams, projects, and access control with reliable deployment and observability.*
**Tools:** Spring Boot, Angular, PostgreSQL, AWS (EC2, RDS, S3, Secrets Manager), Redis, Docker, GitHub Actions, Jenkins

- Designed and built a backend system for employee, project, and access management, applying system design principles to enforce **RBAC**, data isolation, and deployment automation.
- Developed **REST APIs** for multi-entity services with pagination, filtering, and search, maintaining data correctness and API consistency.
- Integrated logging and monitoring into backend services to ensure data consistency, traceability, and reliable operation.

**Battle Arena – Real-Time Multiplayer Platform** ⌨ *May 2024 – Present*
*Multiplayer system with backend services for real-time communication and game orchestration.*
**Tools:** Angular, Phaser 3, Spring Boot, Node.js, MongoDB, WebSockets, Docker, AWS

- Designed and built a distributed backend for real-time multiplayer gameplay, evaluating polling versus **WebSocket-based** communication to balance latency, consistency, and scalability.
- Developed a modular, terrain-aware game engine with clear separation between physics simulation, collision constraints, and gameplay rules, while defining backend service boundaries for authentication, matchmaking, and gameplay orchestration.

**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.