

SYED MOHAMMAD SAAD

Software Engineer | Backend, Distributed Systems & Applied Machine Learning

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PROFESSIONAL PROFILE

Information Technology graduate from Pune Institute of Computer Technology (CGPA 8.94/10), specialising in secure, scalable backend and distributed systems built with Java and Python. My flagship work is FinTwin.ai — a production-grade, four-service personal finance platform I architected, built, tested and deployed entirely on my own, spanning a Spring Boot core API on Java 21, a dedicated identity service, a Python/FastAPI AI service and a React + Vite frontend, running on Kubernetes with autoscaling, monitoring and roughly 180 automated tests.

Alongside project work, I contribute to large open-source distributed-systems codebases — with merged pull requests in Elasticsearch, Apache Lucene and TheAlgorithms/Java, and 30+ pull requests opened across Elasticsearch and Lucene covering flaky tests, resource leaks, query-planner bugs and memory exhaustion. I have also published two peer-reviewed research papers, one at an IEEE conference and one in a national technical journal, both built, trained and evaluated end to end.

I am seeking a full-time software engineering role — backend, platform or distributed systems — and am available to join immediately.

EDUCATION

Bachelor of Engineering, Information Technology

11/2022 – 06/2026

Pune Institute of Computer Technology, Pune, Maharashtra

CGPA: 8.94 / 10.0

- Core coursework: Data Structures and Algorithms, Operating Systems, Database Management Systems, Computer Networks, Object-Oriented Programming, Distributed Systems, Machine Learning.

Higher Secondary Certificate (HSC) — Science

2021

Sarosh Junior College, Chhatrapati Sambhajnagar, Maharashtra

Score: 9.89 / 10

Secondary School (CBSE, Class X)

2019

Queens English High School, Parbhani, Maharashtra

Score: 9.64 / 10

TECHNICAL SKILLS

Programming Languages: Java 21, Python, SQL, JavaScript, C++

Backend & Frameworks: Spring Boot, Spring Security, Spring Data JPA, FastAPI, Node.js, Express.js, Socket.io

Architecture: Microservices, Distributed Systems, REST API design, service-to-service authentication, event handling, fault tolerance, horizontal scaling

Databases & Data Layer: PostgreSQL, MySQL, MongoDB, Redis, Flyway migrations, HikariCP connection pooling, Caffeine caching, schema design, query optimisation, N+1 elimination

Cloud & DevOps: Docker, Kubernetes (HPA, rolling deployments), AWS (Lambda, EC2, S3, API Gateway, Comprehend), Google Cloud Platform, GitHub Actions CI/CD, Prometheus, Grafana, Git

Security: JWT with refresh-token rotation and theft detection, OAuth2 / Google OAuth, TOTP two-factor authentication, RBAC, AES-256-GCM encryption, TLS 1.2, ECDHE-RSA, X.509 certificates, bcrypt

Testing & Quality: JUnit, Testcontainers, pytest, integration testing, contract testing, automated CI pipelines

Frontend: React.js, Vite, Tailwind CSS, Zustand, HTML5, CSS3

Machine Learning & AI: CNN, XGBoost, SVM, LSTM, MLP, scikit-learn, MediaPipe, OpenCV, NLP, self-hosted LLMs via Ollama (qwen2.5, phi3), OpenAI-style tool-calling

Computer Science Fundamentals: Data Structures and Algorithms, Object-Oriented Programming, Operating Systems, DBMS, Computer Networks, Distributed Systems

PROFESSIONAL EXPERIENCE

Google AI/ML Virtual Internship — Eduskills

01/2025 – 04/2025

Virtual

- Implemented end-to-end machine learning pipelines for classification and natural language processing tasks using CNN and XGBoost across datasets of 50,000+ records, improving model accuracy by 15–20%.
- Designed RESTful APIs for secure inter-service data transmission between pipeline stages, improving transfer efficiency by 30%.
- Handled data preprocessing, feature engineering, model evaluation and comparative benchmarking across candidate architectures.

- Developed a real-time posture analysis system using MediaPipe, CNN, XGBoost and SVM, delivering a 20% accuracy gain, 35% better error detection and 25% faster processing over the baseline implementation.
- Led a 3-member team across the full project lifecycle — system design, deployment, testing, performance tuning and user experience.
- Integrated secure communication and fault-tolerant response handling for live-streaming analytics under continuous video input.
- Work from this internship was extended into a peer-reviewed paper accepted at IEEE ICCCNT 2025, IIT Indore.

FLAGSHIP PROJECT

FinTwin.ai — AI-Powered Personal Finance Platform

2026

*Solo-architected, built, tested and deployed end to end**Java 21, Spring Boot, FastAPI, PostgreSQL, Redis, Kubernetes*

A personal finance platform that aggregates a user's bank accounts through the Setu Account Aggregator framework and layers budgeting, goal-tracking, investment and net-worth engines on top — including real EMI and debt-to-income computation and a water-fill savings-allocation algorithm that distributes surplus income across goals by priority. Every layer of the system, from schema design to Kubernetes manifests, was designed and written by me.

- **Architecture** — built a production-grade four-service distributed system: a React + Vite frontend, a Spring Boot (Java 21) core API, a separate identity service isolating authentication concerns, and a Python/FastAPI AI service, all backed by PostgreSQL with 14 versioned Flyway migrations.
- **Domain engines** — implemented budget, goal, investment and net-worth engines with real EMI and DTI computation, plus a water-fill savings-allocation algorithm for prioritised goal funding.
- **Security** — engineered JWT authentication with refresh-token rotation and reuse/theft detection, TOTP-based two-factor authentication, Google OAuth sign-in, role-based access control through a custom Spring Security permission evaluator, and AES-256-GCM field-level encryption of sensitive financial data at rest.
- **AI copilot** — deployed a self-hosted LLM copilot on Ollama (qwen2.5 / phi3) driven by an OpenAI-style tool-calling loop: rather than prompt-stuffing user data into context, the model calls tools that fetch scoped data through a secured internal API, keeping user data controlled and removing any paid-API dependency.
- **Performance** — eliminated N+1 query hotspots and tuned throughput using Redis-backed distributed rate limiting, Caffeine caching, HikariCP connection-pool tuning, paginated batch jobs replacing full-table scans, and parallel market-data fetching.
- **Delivery & operations** — containerised with Docker and deployed on Kubernetes with horizontal pod autoscaling from 2 to 10 replicas and zero-downtime rolling deploys, instrumented with Prometheus and Grafana, and shipped through 5 GitHub Actions CI/CD workflows.
- **Quality** — covered the system with roughly 180 automated tests: 48 Testcontainers-based integration tests against real PostgreSQL and Redis instances, and 129 pytest tests for the Python AI service.

OPEN SOURCE CONTRIBUTIONS

Merged contributions to large-scale distributed-systems and search codebases. Reading and navigating codebases of that size is a skill in itself, and it is where most of my practical distributed-systems knowledge comes from.

- **elastic/elasticsearch** — PR #142940 (merged): documented the `http_schema` field in the `AlibabaCloudSearchService` configuration.
- **apache/lucene** — PR #15719 (merged): improved JavaDocs for the `org.apache.lucene.util` package.
- **TheAlgorithms/Java** — PR #7275 (merged): contributed `RemoveStars` and `ComplexNumberMultiply` string algorithms.
- **Broader activity** — opened 30+ pull requests across Elasticsearch and Lucene investigating flaky tests, resource leaks in the chunked fetch phase, ESQl query-planner bugs and memory exhaustion in lookup joins.

RESEARCH PUBLICATIONS

Yoga Pose Detection and Correction Using Machine Learning Approaches

2025

16th IEEE International Conference on Computing, Communication and Networking Technologies (ICCCNT), IIT Indore — Paper #3374

- Built a real-time posture correction model that gives corrective feedback to yoga practitioners, achieving 92% pose accuracy.
- Paired MediaPipe pose estimation with a CNN and XGBoost ensemble to classify postures and generate on-the-fly alignment corrections; per-joint alignment deltas are translated into human-readable guidance.
- Contributed to real-time skeletal keypoint extraction (MediaPipe + OpenCV), multi-model classification across CNN, XGBoost and SVM, training, evaluation and paper writing.

Machine Learning Techniques for Detecting DoS and DDoS Attacks: Methods, Attacks and Datasets

2026

Indian Journal of Technical Education (ISTE)

- Designed an intrusion detection system separating malicious denial-of-service traffic from benign flows using MLP and LSTM classifiers, achieving over 99% detection accuracy on CIC-IDS benchmark datasets.
- Evaluated detection performance across volumetric and protocol-level attack classes.
- Surveyed detection methods, attack taxonomies and publicly available datasets, including the limitations and biases those datasets introduce.

SELECTED PROJECTS

Hybrid Cryptography over TLS

Java 17, JSSE/JCA

Client-server communication channel built on Java SSL sockets using TLS 1.2 with ECDHE-RSA key exchange and AES-256-GCM, providing confidentiality, integrity and perfect forward secrecy, with custom X.509 certificate authentication through the Java KeyStore.

Real-Time Chat Platform

MERN, Socket.io, JWT

One-to-one and group messaging platform with delivery-status tracking over Socket.io. Sessions secured with JWT and bcrypt; sustained sub-50 ms message delivery across concurrent sessions.

Sentiment Analysis Service

Spring Boot, AWS Comprehend

Spring Boot microservice that scores user feedback in real time through asynchronous, non-blocking REST APIs on AWS Comprehend, with environment-scoped credentials and defensive error handling throughout.

Hospital Management System

MERN

Patient portal for logging in, booking consultations and messaging providers, alongside an admin panel for appointments, messages and doctor records. Scheduling conflicts are detected in the application layer before they reach the database.

Emotion-Driven Music Recommender

Python, OpenCV, Spotify API

Computer-vision system that reads facial expression in real time to infer mood, then curates a matching Spotify queue — recommendations driven by current emotional state rather than listening history.

Food Reservation System

Node.js, Express, MongoDB, React

Restaurant table-booking and pre-ordering platform with server- and client-side validation preventing double-booking and keeping order state consistent.

Legal Assistance Chatbot

LLMs, Python, JavaScript

Dialogue system that makes legal process understandable to non-lawyers, backed by LLMs over a legal knowledge base. Built the front end: conversation flow, case breakdowns and result views.

Track My Carbon

JavaScript, HTML5, CSS3

Calculator for the direct and indirect CO₂e emissions of an individual or organisation over a chosen period, designed to turn an abstract figure into something actionable.

E-Commerce Storefront

JavaScript, HTML5, CSS3, Payments

Browse-and-compare storefront with clear product displays, simple navigation and a checkout path with secure payment integration.

ACHIEVEMENTS

- Two peer-reviewed research publications — one IEEE conference paper (ICCCNT 2025, IIT Indore) and one national journal paper (ISTE, 2026).
- Merged open-source contributions to Elasticsearch, Apache Lucene and TheAlgorithms/Java.
- Graduated with a CGPA of 8.94/10.0 in Information Technology from Pune Institute of Computer Technology.
- Solo-designed and shipped a production-grade four-service distributed system with Kubernetes deployment and ~180 automated tests.
- Led a 3-member engineering team through a full project lifecycle during an institute research internship.

ADDITIONAL INFORMATION

Availability: Immediate

Preferred locations: Hyderabad, Bengaluru, Pune — open to relocation across India

Preferred roles: Backend Engineer, Software Engineer, Platform / Distributed Systems Engineer, Java Developer

Languages: English, Hindi — add or edit as applicable