

# Hrithik Raj

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## SUMMARY

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Full-stack software engineer with over **5 years** of experience building and scaling web applications and distributed systems. I specialize in **React, Node.js, and TypeScript**, and have delivered projects running at scale on **AWS**. My work often focuses on cutting latency, scaling systems to handle tens of thousands of users, and simplifying complex codebases. I've led major migrations, rolled out real-time features for **100K+ daily users**, and improved performance by as much as **60%**. Alongside the technical side, I enjoy mentoring teammates, strengthening code quality, and leaving systems more reliable than I found them.

## EXPERIENCE

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### Siemens

Apr 2025 – Present

*Software Engineer— contract*

*Pune, India*

- Architected enterprise-scale products **Rifynx** and **TeamsCenter** using **MeteorJS, React, Express, Go, Python TypeScript, and Node.js**, serving **50K+** enterprise users with **99.9% uptime** and handling **1M+ API requests** daily.
- Built custom **date picker library** with **multi-format parsing, range selection**, reducing date-related bugs by **80%** and improving user productivity by **25%** across 15 enterprise applications
- Designed advanced **Elasticsearch** filtering system processing **100K+ daily queries** with complex **bool queries, boosting strategies**, and **search**, reducing search response time from **3s to 200ms (93% improvement)** through optimized **indexing strategies** and **query caching**
- Implemented **horizontal scaling** architecture supporting **10K concurrent users** using **MongoDB atomic operations** (\$inc, \$set, \$push), **connection pooling**, and **read/write splitting**, achieving zero data inconsistency incidents in production
- Optimized frontend performance using **React.memo, useMemo, useCallback** hooks, and implemented **code splitting** with **React.lazy**, reducing initial bundle size by **45%** and improving Core Web Vitals scores by **40%**
- Built and maintained internal libraries—including a robust and reusable UI components—driving adoption across **45** enterprise apps and reducing external dependency risk.
- Proactively addressed **security vulnerabilities** by updating dependencies, enforcing stricter **CSP policies**, and refactoring legacy code for security and compatibility.
- Led **Meteor 2.x to 3.x** migration affecting 200+ components and 50+ packages, implemented **zero-downtime deployment** strategy using **blue-green deployment**, and resolved **50+ security vulnerabilities** through dependency updates
- Established **CI/CD pipeline** using **GitHub Actions, Docker**, and **Kubernetes**, reducing deployment time from **2 hours to 15 minutes** and enabling **10+ deployments** per day with automated **rollback mechanisms**
- Mentored **3 junior developers** through **pair programming sessions, code reviews**, and technical workshops, improving team velocity by **30%** and code quality metrics by **25%**

### NIIT Limited

May 2024 – Apr 2025

*Software Engineer*

*Gurugram, India*

- Architected **Web Accessibility Testing Platform (WCAG 2.2 compliant)** using **React, Node.js, Puppeteer**, and **AWS services (EC2, RDS, S3, Lambda)**, processing **5K+ accessibility audits** daily with **99.5% accuracy**

- Implemented **scalable state management** architecture using **Redux Toolkit (RTK)** and **Redux Saga**, handling **complex async workflows** with **99% success rate** and supporting **real-time collaboration** features for **500+ concurrent users**
- Enabled **real-time logging** and alerting via **Socket.io**, integrated with **Slack, Microsoft Teams, and email**, and implemented automated Excel report generation.
- Automated background data jobs using **cron**, integrated with **Metabase** for analytics and reporting, and managed structured data and media assets on **AWS RDS and S3**.
- Developed comprehensive **Color Contrast and OCR Testing Tool** supporting **10+ file formats** using **React, TypeScript, Python (PyTesseract)**, and **Socket.io** for **real-time updates**, serving **1K+ daily users** with **less than 500ms response time**
- Achieved **99% system uptime** through **Docker containerization, Kubernetes orchestration** on **AWS EKS**, implemented **auto-scaling policies** handling **3x traffic spikes**, and configured **health checks** with automatic recovery
- Built **microservices architecture** with **event-driven communication** using **AWS SQS and SNS**, processing **50K+ messages** daily with **guaranteed delivery** and **dead letter queue** handling
- Automated **JIRA workflows** processing **10K+ tickets** monthly using **Node.js, MySQL, PostgreSQL**, reducing manual effort by **70%**, improving **SLA compliance** to **95%**, and generating automated reports using **Metabase**
- Implemented **comprehensive testing strategy** with **Jest, React Testing Library, and Cypress**, achieving **85% code coverage** and reducing production bugs by **60%**
- Optimized **database performance** through **query optimization, indexing strategies**, and **connection pooling**, reducing average query time from **800ms to 150ms** and supporting **10x user growth**

**Tridiagonal Software Private Limited**  
*Software Engineer*

Sep 2022 – May 2024  
*Pune, India*

- Engineered cloud-based **Chemical Fluids Analysis** platform (**MixIT**) using **React, Node.js, MongoDB**, serving **5K+ industrial users** with **real-time simulation** capabilities processing **1TB+ scientific data** monthly
- Built **real-time Simulation Dashboard** with **WebRTC** and **CanvasJS**, supporting **100+ concurrent simulations** with **less than 100ms latency**, implementing **WebSocket** connections with **automatic reconnection** and **state synchronization**
- Improved UX and maintainability via **dynamic routing, graceful error handling**, and **lazy loading** (**React.lazy**) across modules.
- Applied modern **React patterns** (container/presentational separation, memoization, custom hooks), resulting in a more scalable and maintainable codebase.
- Reduced **simulation execution time** by **60%** through **algorithmic optimization, memoization strategies**, and **parallel processing**, enabling real-time analysis of complex **CFD simulations** with **million+ data points**
- Implemented **caching layer** using **Redis** with **LRU eviction policy**, achieving **95% cache hit rate** and reducing database load by **70%**, supporting **3x traffic growth** without infrastructure changes
- Optimized **API performance** by **40%** using **database indexing, query optimization**, and **response compression**, reducing average API response time from **500ms to 300ms** across **50+ endpoints**
- Configured **MongoDB replica sets** with **automatic failover**, achieving **99.95% availability, 1s recovery time**, and implemented **backup strategies** with **point-in-time recovery** capabilities
- Implemented comprehensive **security measures** including **JWT authentication, role-based access control (RBAC), API rate limiting**, and **input validation**, reducing security incidents by **100%**

- Developed **responsive web applications** using **React.js**, **Node.js**, **Express.js**, and **MongoDB**, serving **10K+ users** across multiple engineering domains with **99% uptime** and **mobile-first** design approach
- Built **RESTful APIs** with comprehensive **error handling**, **rate limiting** using **express-rate-limit**, and **request validation**, processing **50K+ requests** daily with **99.5% success rate** and **200ms** average response time
- Implemented **Context API** with **React Query** for efficient **state management** and **API caching**, reducing server load by **30%** and improving **user experience** with **optimistic updates** and **background refetching**
- Optimized **database performance** through **compound indexing**, **aggregation pipelines**, and **query optimization**, improving query response time by **65%** and supporting **5x data growth**
- Designed **customer portal** with **real-time notifications** using **Socket.io**, **role-based dashboards**, and **automated reporting**, increasing customer engagement by **40%** and reducing support tickets by **25%**

## TECHNICAL SKILLS

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**Languages:** JavaScript (Expert), TypeScript (Expert), Python (Proficient), Go (basic), CoffeeScript

**Frontend:** React.js, Next.js, Redux/RTK, React Query, Tailwind CSS, Material-UI, HTML5, CSS3, Webpack

**Backend:** Node.js, Express.js, GraphQL, REST APIs, WebSockets, Event-Driven Architecture

**Databases:** MongoDB, PostgreSQL, MySQL, Redis, Elasticsearch, Firebase

**Cloud/DevOps:** AWS (EC2, S3, Lambda, RDS, CloudFront), Docker, Kubernetes, CI/CD

**Tools & Testing:** Git, JIRA, Postman, Cypress, Puppeteer, Chrome DevTools, Webpack, Babel

**Concepts:** System Design, Distributed Systems, Load Balancing, Caching Strategies, Message Queues

## LEADERSHIP & RECOGNITION

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**Team of the Quarter Award**

Dec 2024

*NIIT Limited*

*Led successful Jira Cloud Migration impacting 500+ users and 50+ projects*

**Best Debut Award**

Nov 2024

*NIIT Limited*

*Developed 4 innovative accessibility testing tools adopted company-wide*

**Outstanding Performance Recognition**

Mar 2024

*Tridiagonal Software*

*Optimized system performance reducing load times by 70%*

## EDUCATION

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**Sinhgad Institute of Technology and Science**

Pune, India

*Bachelor of Engineering in Computer Science; CGPA: 9.16/10.0*

*May 2019 – Jul 2023*

**St. Michael's High School**

Patna, Bihar

*CBSE 12th Boards; Percentage: 93%*

*May 2017 – May 2019*

**Loyola High School**

Patna, Bihar

*CBSE 10th Boards; Percentage: 83.6%*

*May 2007 – May 2017*