TANISHQ MANGAL

Full Stack Developer | Cloud & AI Security Engineer
Vadodara, India | +91 6367733171 | tanishkmangal3@gmail.com
LinkedIn | GitHub | Portfolio

PROFESSIONAL SUMMARY

High-performance **Full Stack Developer** and **AI Engineer** with expertise in building scalable distributed systems, offline-first mobile architectures, and privacy-preserving AI. Proven track record of reducing API latency by **63%** and deploying enterprise-grade security (RLS, Homomorphic Encryption). Passionate about combining **TypeScript**, **Node.js**, and **Python** to deliver secure, production-ready solutions.

EDUCATION

Parul University   **Vadodara, Gujarat**
Bachelor of Technology in Computer Science Engineering   *Expected: May 2026*

TECHNICAL SKILLS

Languages: JavaScript (ES6+), TypeScript, Python, Java, SQL, C++
Frontend & Mobile: React Native, Expo, Next.js, React.js, Redux, Tailwind CSS, HTML5, Figma
Backend: Node.js, Express.js, Socket.IO, Spring Boot, Microservices
Database: PostgreSQL, MongoDB, Redis, Supabase, Google Firebase
Cloud & DevOps: AWS (EC2, S3), Docker, GitHub Actions (CI/CD), Linux, Nginx
AI & Security: Opacus (Differential Privacy), Paillier (Homomorphic Encryption), Scikit-learn, Pandas
Soft Skills: Agile Methodology, Strategic Problem Solving, Technical Leadership, Collaboration

EXPERIENCE

Avinya Biomedical   **Vadodara, India**
Web Developer Intern   *June 2025 – Sept 2025*

- Engineered a high-traffic biomedical platform using **Next.js** and **Firebase**, adopting a serverless architecture to ensure high availability for scalable user loads.
- Reduced API response latency from 220ms to 80ms (**63% improvement**) by implementing rigorous **Load Balancing** strategies and optimizing **PostgreSQL** queries.
- Streamlined CI/CD pipelines via **GitHub Actions**, saving the engineering team **5+ hours** of manual QA work weekly.
- Improved system observability by integrating **Grafana** and **Prometheus**, increasing proactive issue detection rates by **60%** and ensuring 99.9% system uptime.

PROJECTS

Ghost Protocol: Privacy-Preserving Federated Learning | GitHub   **Dec 28, 2025 – Present**
Python, Opacus, Paillier HE

- Devised a **cryptographically secure** decentralized learning system using **2048-bit Paillier Homomorphic Encryption**, enabling **100% real private computation** with zero simulations.
- Attained **70%+ model accuracy** on fully encrypted data while implementing **Differential Privacy (DP-SGD)** with a strict privacy budget of $\varepsilon = 2.51$.
- Directed real-time federated aggregation of **2,700+ neural network parameters** across 3 hospital nodes, proving feasibility of secure multi-party computation (SMPC) in healthcare-grade environments.

Scalable Ride-Sharing Backend System   **Oct 2025 – Dec 2025**

Node.js, Redis, Socket.IO, AWS

- Built a scalable microservices architecture utilizing **Redis Geohashing** for real-time location tracking, optimizing driver-rider matching latency by **40%**.
- Implemented bi-directional communication using **Socket.IO** to support concurrent connections and managed horizontal scaling on **AWS EC2** to handle traffic spikes.

FlowForce: Offline-First Workforce OS   **Oct 2025 – Nov 2025**

React Native, Expo, Supabase, Local AI

- Architected an **offline-first** mobile platform using **React Native** and **Expo**, implementing a custom sync queue with privacy-preserving conflict resolution.
- Built **"NanoBrain"**, a local **Naive Bayes AI model** for on-device intent classification, enabling voice commands without server revenue or data leakage.
- Implemented enterprise-grade security using **Row-Level Security (RLS)** and **device integrity checks**, enforcing strict access controls and audit logging.

AI-Powered Resume Analyzer   **March 2025 – May 2025**

Python, NLP, React

- Led the development of an ATS-grade resume parsing engine achieving **96% accuracy** in entity extraction.
- Utilized BERT-based keyword matching using **Hugging Face Transformers** to intelligently score resumes against job descriptions, reducing manual screening time by 70%.

Productr - Full Stack E-commerce Dashboard | GitHub | Live   **Jan 16, 2025 – Jan 18, 2025**

MERN Stack, Tailwind, Recharts, Vercel

- Built a **pixel-perfect**, responsive inventory management system with **secure OTP Authentication** and **role-based access**.
- Engineered an interactive **Analytics Dashboard** using **Recharts** to visualize real-time asset valuation and category distribution.
- Optimized performance using **Skeleton Loaders** and **Lazy Loading**, achieving instant page transitions on a Vercel/Monorepo architecture.
- Secured backend API with **Helmet** and **rate-limiting** to prevent DDoS attacks.

CERTIFICATIONS

AWS Certified Cloud Practitioner | Amazon Web Services
Back End Development and APIs | freeCodeCamp
Postman Student Expert | Postman