Tushar Pathak

Phone: +1 (718) 413-9793 | Email: tushar.p@nyu.edu | LinkedIn: linkedin.com/in/tushar-pathak | GitHub: github.com/tusharpathaknyu

Education

New York University — New York, USA
M.S. Computer Engineering (Graduate Scholarship Recipient) — *January 2024 – December 2025*

Birla Institute of Technology and Science (BITS) Pilani — Hyderabad, India
B.E. Electrical and Electronics Engineering — *August 2019 – July 2023*

Professional Experience

Dreamline AI — Remote
Software Engineer — *August 2025 – Present*

- Spearheaded the development of 12 responsive User Interface (UI) modules using **React**, **Next.js**, and **TypeScript**, resulting in a **35% user engagement increase** across 15+ project categories.
- Architected a robust **Role-Based Access Control (RBAC)** system for multi-tenant environments, accelerating feature deployment cycles by **40%** while maintaining 95% design fidelity.
- Embedded 11 **Supabase** database schemas with real-time synchronization, ensuring **99.99% uptime** for 500+ daily active users via optimized connection pooling.
- Galvanized an interactive scheduling engine handling 60+ monthly appointments, reducing booking logic errors by **80%** through strict schema validation and error-handling middleware.

Texas Instruments — Bangalore, India
Applications Intern — *January 2023 – July 2023*

- Synthesized competitive benchmarking data for **Gallium Nitride (GaN)** power stages, delivering modifications that realized a **5% efficiency increase** and **12% cost reduction** for a $2M+ product line.
- Streamlined custom laboratory software in **Python** that enhanced data acquisition throughput by **25%** for high-voltage prototype validation.
- Devised a 4-layer custom **Printed Circuit Board (PCB)** for characterization hardware in Altium Designer, curtailing verification cycles by **30%** for 15 global labs.

Xarvis Intelligent Systems Lab — Pune, India
Software Engineering Intern — *May 2021 – July 2021*

- Constructed a high-scale multi-tenant backend architecture in **Spring Boot**, enabling seamless onboarding of 10+ client organizations and a combined base of **50,000+ end-users**.
- Implemented a database-per-tenant isolation strategy using **Hibernate**, **MySQL**, and **Liquibase**, supporting isolated migrations across 5 schemas with zero data loss.
- Orchestrated service deployment via **Docker** and integrated **Keycloak** authentication, saving **20+ development hours weekly** through environment automation.

Software Systems & AI Projects

GymEZ: Gamified Full-Stack Fitness Ecosystem — *Android Apk Link*

- Architected a **React Native + TypeScript** fitness platform with **55+ screens**, **42 services**, and **9 gamified modes** including a **Unity 3D Shadow Arena** combat system that dynamically links real-world workout stats to in-game character attributes.
- Integrated **Gemini API** for intelligent workout generation, real-time form analysis via computer vision, injury prediction algorithms, and an AI nutritionist with identifies micro-nutrients just by clicking a pic of food item, and an AI Fridge with barcode/receipt OCR scanning—reducing user meal-logging time by **60%**, and an alert system for food expiry
- Designed **30+ Supabase PostgreSQL tables** with **Row Level Security (RLS)**, **Supabase Realtime** subscriptions for live gym occupancy tracking, and indexed foreign keys achieving **sub-100ms query latency** for 500+ daily active users.
- Implemented a **5-phase production roadmap**: integrated **Firebase Crashlytics** (99.5% crash-free target), **RevenueCat** in-app subscription, **WatermelonDB** offline-first sync, and **CI/CD via GitHub Actions**.
- Built a gamification ecosystem with **trophy-based matchmaking**, XP/leveling system, guild boss raids, PvP tournaments, and weekly challenges—driving user engagement through competitive leaderboards and **15+ achievement badges**.

OhmAI: Cloud-Native Circuit Assistant with Observability — *Link*

- Deployed a cloud-native design assistant on **Google Cloud Platform (GCP)**, utilizing **Docker** containers and managed services to support concurrent requests with 99.9% reliability.
- Configured **Datadog Application Performance Monitoring (APM)** for full-stack observability, slashing incident response time by **45%** through real-time API latency tracking.
- Consolidated a **Retrieval-Augmented Generation (RAG)** pipeline using **LangChain** and **FAISS**, reducing research latency for complex hardware specifications by **60%**.

UVMForge: AI-Powered Verification Testbench Generator — *Link*

- Created a framework that transforms natural language into production-ready **Universal Verification Methodology (UVM 1.2)** compliant code for APB and AXI4-Lite protocols.
- Formulated an **RTL-aware** generation engine using **Jinja2 templates**, achieving **80% passing test coverage** through exact port matching.

Technical Skills

Full-Stack: TypeScript, JavaScript, Next.js, React Native, Node.js, Spring Boot, Unity 3D, Redux, HTML/CSS.
Cloud & DevOps: Google Cloud Platform (GCP), Datadog APM, Docker, Kubernetes, Git, CI/CD, Supabase, Keycloak.
Database & Middleware: PostgreSQL, MySQL, MongoDB, Redis, REST APIs, GraphQL, FAISS (Vector DB), Hibernate.
Hardware & Embedded: Python (SciPy, NumPy), Java, C++, SQL, SystemVerilog, Verilog, RISC-V, Altium Designer, LTSpice.