Pratham Shah

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Experience

Abhinandan Mountreea, Silvassa, India   *Freelance Frontend Developer*
Jul 2025 – Nov 2025

- Engineered a high-performance real estate platform using **React.js**, **Vite**, and **GSAP**, enhancing load efficiency and interactivity.
- Integrated **Cloudinary CDN** for intelligent image delivery with **WebP conversion** and caching, reducing initial load time by **50%**.
- Refined UX through parallax animations, responsive layouts, and **@vercel/analytics** for real-time performance insights.
- Applied **SEO best practices**, lazy loading, and micro-interactions, increasing user engagement by **30%**.

MIT ADT University   *Research Intern (Academics / Research)*
Jul 2024 – Dec 2024

- Developed **NeuraArm**, a **Brain–Computer Interface (BCI)** prototype controlling a robotic arm via **EEG signals**.
- Conducted **signal acquisition**, **preprocessing**, and **feature extraction** using **Python** and **NumPy**.
- Trained **Artificial Neural Network (ANN)** models for left/right hand **motor imagery classification**.
- Linked neural outputs to robotic hardware, enabling **real-time actuation** through **ML pipelines** and signal processing.

Projects

InsightVault – AI-Powered Query Intelligence Platform   *Nov 2025 – Present*

- Architected **InsightVault** using **Next.js**, **Supabase (pgvector)**, and the **OpenAI API** for semantic search and LLM-driven responses.
- Configured **Supabase Realtime**, **PostgreSQL**, and **pgvector** for efficient embedding management and retrieval.
- Devised modular **API routes** with **Next.js caching**, **Node.js metrics**, and latency tracking, accelerating backend performance by **30%**.
- Established observability pipelines via **Supabase Logs**, **pgMonitor**, and custom analytics hooks for performance visibility.

Distributed File Storage System   *Jul 2025*

- Designed and deployed a scalable distributed storage architecture on **AWS** leveraging **EC2 instances** and **S3 buckets**.
- Built a **fault-tolerant system** ensuring high availability, low latency, and cost-efficient operation.
- Created a **RESTful API** for file upload, download, and sharing, streamlined for speed using **Node.js** and **Express.js**.

Additional Projects:

- **Neuro Signal Classifier:** Designed an EEG-signal classification pipeline using **Python**, **TensorFlow**, and **scikit-learn** for motor-intent recognition.

Technical Skills

Languages: JavaScript (ES6+), TypeScript, Python
Technologies: React.js, Next.js, TailwindCSS, Shadcn/UI, GSAP, React Query, Node.js, Express.js, REST APIs, MongoDB, AWS (EC2, S3), Docker, GitHub Actions, LangChain, Embeddings, Vector Search, Prompt Engineering, Git, Postman, VS Code

Achievements

- Second Runner-up at **SHODH 1.0 Campus Problem Hackathon (2025)** for developing an innovative full-stack solution under time constraints.
- Published research paper **"A Review of Brain–Computer Interface Applications for Robotic Limb Control in Motor Rehabilitation"** in **IJIRT**, analyzing BCI-based robotic control and neuro-rehabilitation systems.

Extra-Curricular

- Football player – teamwork and strategy under pressure.
- Poet and writer – creative problem framing and clear communication.
- Enthusiast in reading and researching ancient history and scriptures – exploring philosophical and cultural evolution.