

# Akshay Lakwal

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## Summary

Final-year **IT Engineering** student at **IITP Pune** (Graduating 2026). **AI-Augmented Full-Stack Developer** specializing in the MERN stack, Next.js, and real-time architectures. I leverage modern tools like **Cursor** and **Windsurf** to build scalable enterprise solutions, integrating **Stripe payments**, **PostgreSQL**, and **Generative AI APIs**. Focused on writing clean, efficient code and solving complex architectural challenges like database concurrency and machine learning classification.

## Professional Experience

**Data Engineering Intern**, Eduskills (AICTE Partner) 

01/2025 – 03/2025

- **Pipeline Management:** Collected, processed, and managed large-scale datasets to support data-driven decision-making processes.
- **Database Operations:** Performed complex SQL queries and CRUD operations to maintain data integrity and optimize retrieval workflows.
- **Agile Collaboration:** Worked within a professional Scrum environment, utilizing Git for version control and participating in team code reviews.
- **Engineering Standards:** Adhered to industry best practices for data orchestration, ensuring high-quality documentation.

## Technical Skills

- **AI-Native Workflow:** Expert in AI-augmented development using **Cursor**, **Windsurf**, and **GitHub Copilot** to accelerate feature delivery.
- **Languages:** JavaScript (ES6+), TypeScript, Python, C++, C, C#.
- **Frontend:** React.js, Angular, Next.js 14, Tailwind CSS, HTML5, CSS3, Bootstrap.
- **Backend:** Node.js, Express.js, NestJS, Hono.js, Socket.io  (WebSockets).
- **Databases:** MongoDB, PostgreSQL (Neon DB), MySQL, Drizzle ORM.
- **Tools & Cloud:** Docker, Playwright (Web Scraping), Stripe SDK, Git, Render, Netlify, Vercel.

## Projects

### Maratha Warfield Weapons Classification (Final Year Project)

Tech Stack: Python, TensorFlow, Keras, **Vision Transformer (ViT)**, NumPy, OpenCV.

- **ViT Architecture:** Architected an automated classification system using **Vision Transformers (ViT)** and TensorFlow to capture global contextual relationships, outperforming traditional CNNs.
- **Data Engineering:** Manually curated and augmented custom datasets using **OpenCV** and **NumPy**, implementing pre-processing pipelines for high-fidelity training.

### Prescripto | Healthcare SaaS Platform

Tech Stack: MongoDB, Express.js, React, Node.js, Stripe, JWT, Tailwind CSS.

- **Concurrency Control:** Developed an **atomic slot-booking engine** using **ACID principles** to eliminate database race conditions during concurrent user bookings.
- **FinTech Integration:** Integrated **Stripe SDK** for secure payment processing and engineered a MERN-based platform for scalable management.

### AI Note-Taking App | AI-Powered Workspace

Tech Stack: Next.js 14, React, Hono.js, PostgreSQL, Drizzle ORM, Google Gemini API, Clerk, Tiptap.

- **API Architecture:** Engineered a high-performance custom backend using **Hono.js** and **Next.js 14**, optimized for Node.js runtimes.
- **GenAI Integration:** Leveraged **Google Gemini API** for deterministic text tools, including instant summarization and context-aware auto-tagging with **Drizzle ORM**.

### Blink | Real-Time Messaging Engine

Tech Stack: MongoDB, Express.js, React, Node.js, Socket.io , WebSockets, JWT.

- **Low-Latency Architecture:** Utilized **Socket.io**  and WebSockets for bidirectional event handling and message persistence in MongoDB.
- **Advanced Security:** Implemented secure authentication using **JWT stored in HTTP-only cookies** to mitigate XSS and CSRF vulnerabilities.

## Education

**Bachelor of Engineering (B.E) - Information Technology,**  
*International Institute of Information Technology, Pune (SPPU)*

2022 – 2026 (Expected)

**Higher Secondary Education (12th),**  
*Sarosh Junior College, Chhatrapati Sambhajinagar-87%*

2021 – 2022

**Secondary Education (10th),**  
*Sanskrit English High School, Chhatrapati Sambhajinagar-94.80%*

2019 – 2020

## Certifications & Involvement

**Frontend Development:**  Code First Academy (Issued Aug 2024).

**Management Committee Member:** ITSA Committee (Information Technology Student's Association).

**C and C++ Programming:**  Disha Computer Institute (Issued Dec 2024).