

# PRANAV SHUKLA

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## EDUCATION

Vellore Institute of Technology (VIT) Bhopal  
B.Tech in Computer Science and Engineering | CGPA: 9.22 / 10

Bhopal, India  
Expected 2028

## TECHNICAL SKILLS

**Languages:** Python, SQL, C++, Java, JavaScript, Dart

**AI & Machine Learning:** Deep Learning, Time-Series Analysis, Signal Processing, Computer Vision, Predictive Modeling, Statistical Analysis, A/B Testing

**Data & Visualization:** Pandas, NumPy, Scikit-learn, Tableau, Power BI, Looker Studio, SciPy

**Web & APIs:** Next.js, React.js, REST APIs, FastAPI, Flask, HTML/CSS, JavaScript

**Tools & Platforms:** TensorFlow, Keras, Git, Linux, Docker, MySQL, PostgreSQL, Vercel

## EXPERIENCE

**Data Analytics Intern — DigitalPlus24x7** 2025

- Reduced average report-generation time by 35% by re-engineering the end-to-end marketing data pipeline, replacing manual ETL steps with automated Python scripts and SQL queries against a PostgreSQL database.
- Increased dashboard load speed by 40% by restructuring data models and applying query-optimization techniques, enabling faster data-driven decisions across 5+ active campaigns.
- Built an interactive Looker Studio dashboard tracking 10+ KPIs in real time, turning raw ad-spend and conversion metrics into insights consumed weekly by marketing leadership.

## PROJECTS

**ArbFlow — Multi-Tenant GA4 Analytics SaaS Platform | Next.js, FastAPI, PostgreSQL, JWT** 2025 – Present

- Built and deployed ([live on Vercel](#)) a multi-tenant analytics platform that connects to the Google Analytics 4 (GA4) API to ingest, store, and visualize web-traffic metrics for multiple isolated client accounts from a single Next.js + FastAPI codebase.
- Architected per-tenant data isolation with JWT-based authentication over a shared PostgreSQL database, ensuring each organization can access only its own GA4 metrics and dashboards.
- Hardened the production deployment via a security audit—migrating JWT signing secrets and data-encryption keys to environment variables with fail-fast startup validation—eliminating hardcoded credentials from the repository.

**Sleep Apnea Detection from Polysomnography (PSG) Data | Python, TensorFlow, SciPy, SQL** 2026

- Built a 1D CNN to detect apnea events from single-lead PSG signals, validated with Leave-One-Participant-Out Cross-Validation against a logistic-regression baseline so results generalize to unseen patients.
- Engineered the full signal-processing pipeline: applied Butterworth bandpass filtering (0.17–0.4 Hz) to isolate respiratory frequencies from 32 Hz nasal/thoracic sensors, synchronized with upsampled 4 Hz SpO<sub>2</sub> data via SQL joins.
- Diagnosed the clinical Accuracy Paradox from severe class imbalance — a ~91% accuracy score masked missed apnea events — and re-centered evaluation on recall/sensitivity and PR-AUC; SMOTE oversampling then lifted minority-class F1 by 18 percentage points, the core finding of a paper in progress.

**Predictive Deep Learning Model for Pre-Eclampsia | Python, Scikit-learn, FastAPI** 2025

- Ranked Top 10 at the VIT-JHU Health Hackathon by building a deep-learning model that detects early-stage pre-eclampsia from noisy, multi-modal physiological data with over 94% precision.
- Performed statistical feature extraction on EEG/fNIRS signals and applied A/B testing frameworks to validate feature importance (reducing false positives by 22%), exposing results through a FastAPI REST endpoint for real-time inference.

**Automated Self-Healing MLOps Pipeline | Python, Flask, REST APIs, MySQL** 2025

- Reduced model-degradation incidents by 60% by building an MLOps architecture that detects data drift via statistical distribution tests and automatically triggers retraining without human intervention.
- Exposed pipeline controls through a Flask REST API and tracked every experiment run with versioned metadata in MySQL, enabling integration with downstream dashboards and alerting systems.

**Cryptocurrency Arbitrage & Backtesting Engine | Python, C++, SQL** 2024

- Reduced trade-execution latency by 30% by implementing a crypto arbitrage engine in C++ with optimized data structures, backed by a Python + SQL order-logging system.
- Backtested strategies across 12 months of historical price data using Pandas and statistical analysis, achieving a simulated Sharpe ratio of 1.8.

## LEADERSHIP & ACHIEVEMENTS

- Best Public Speaker, District Level — Times Parliament Debate (2019).
- Head Boy, Edify School Nagpur — led a 20+ member council and coordinated 5+ major school events (2020–2021).
- Secretary, Rotary Club of Edify School — organized 8+ community-service initiatives (2019–2020).