PRANAV SHUKLA

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Education

Vellore Institute of Technology (VIT), Bhopal — **Bhopal, India**
B.Tech, Computer Science and Engineering | *CGPA: 8.79 / 10* — *Expected 2028*

Experience

Data Analyst — **Nagpur, India**
Com1 Communication Technologies Pvt. Ltd. — *6-month engagement* — *Aug 2026 – Feb 2027 (Ongoing)*

- Support reporting on a UK housing-data platform covering 2,500+ housing organisations by writing SQL against the production warehouse and turning results into recurring analyses for client-facing teams.
- Reduce manual effort on repeating deliverables by scripting Python data-quality checks that flag ingestion anomalies against source records before the data reaches published reports.

Data Analytics Intern — **Remote, India**
DigitalPlus24x7 — *Nov 2025 – May 2026*

- Cut average report-generation time by **35%** by re-engineering the end-to-end marketing data pipeline, replacing manual ETL steps with scheduled Python scripts and tuned SQL against PostgreSQL.
- Increased dashboard load speed by **40%** across **5+** live campaigns by restructuring data models and rewriting queries with indexing and pre-aggregation.
- Turned raw ad-spend and conversion data into a weekly decision surface for marketing leadership by building a Looker Studio dashboard tracking **10+** KPIs in real time.

Projects

Kleene — Browser-Native Automata Theory Workbench — **2026 – Present**
Rust, WebAssembly, React, TypeScript, Vite | *kleene.pranavmshukla.in*

- Removed the JRE install that gates JFLAP, assigned in most CS departments, by shipping a workbench that opens from a URL: an SVG canvas for drawing states and transitions, regex entry, and the full `regex` → ε-NFA → `DFA` → `minimal DFA` → `regex` converter running client-side as WebAssembly.
- Made every conversion auditable rather than opaque by rendering each subset-construction round and Hopcroft partition split as a scrubbable on-screen step naming the witness string that caused it; inequivalent machines report the shortest string they disagree on.
- Held correctness across a 4-crate Rust workspace with **10,000** randomized property cases per suite plus a differential harness checking language equivalence against Rust's `regex` crate; v2 (pushdown automata, Turing machines, grammars) in progress.

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

- Took the platform from prototype to production by onboarding its **first live client organisation**, now running its Google Analytics 4 reporting on it — validating the multi-tenant model against real traffic, not seed data.
- Let separate organisations share one Next.js + FastAPI deployment without seeing each other's data by architecting per-tenant isolation on a shared PostgreSQL database behind JWT-scoped access.
- Eliminated every hardcoded credential in a self-run security audit, moving JWT signing secrets and encryption keys to environment variables with fail-fast startup validation.

Ankur (CNAMS) — Child Growth & Malnutrition Screening System — **2026**
Flutter, Riverpod, SQLite/SQLCipher, BLE, Next.js 14, TypeScript | *cnamsfrontend.vercel.app*

- Cut malnutrition triage for Anganwadi workers from a lab round-trip to an on-the-spot result by computing WHO LMS z-scores (WAZ/HAZ/WHZ/MUAC-for-age) on-device in Flutter and classifying SAM/MAM/normal with no network dependency.
- Kept capture working in zero-connectivity centres with an encrypted offline-first store (drift + SQLCipher), background sync, BLE weighing-scale ingestion, and Poshan Tracker-ordered CSV export.
- Gave supervisors sector-level SAM/MAM trends and a live referral queue via a Next.js 14 portal spanning **21** routes across **5** roles (worker, supervisor, doctor, parent, admin).

Sleep Apnea Detection from Polysomnography Signals — **2026**
Python, TensorFlow, SciPy, SQL | *paper in progress*

- Lifted minority-class F1 by **18 percentage points** by diagnosing an accuracy paradox — a **91%** headline score that masked missed apnea events — and re-centering evaluation on recall and PR-AUC with SMOTE applied strictly inside each training fold.
- Built the signal pipeline end to end: Butterworth bandpass (0.17–0.4 Hz) over 32 Hz nasal/thoracic channels, SQL-joined to upsampled 4 Hz SpO_2, feeding a 1D CNN validated by leave-one-participant-out CV against a logistic-regression baseline.

Technical Skills

Languages:	Python, C++, Rust, TypeScript / JavaScript, SQL, Dart, Java
Web & Backend:	Next.js, React, FastAPI, Flask, Flutter, REST APIs, WebAssembly, Tailwind CSS
ML & Data:	TensorFlow, Keras, Scikit-learn, Pandas, NumPy, SciPy; deep learning, time-series and signal processing, A/B testing
Infra & Tools:	PostgreSQL, MySQL, SQLite, Docker, Git, Linux, Vercel, Looker Studio, Tableau, Power BI

Achievements & Leadership

Best Public Speaker, District Level — Times Parliament Debate (2019) • **Head Boy**, Edify School Nagpur — led a 20+ member student council across 5+ school-wide events (2020–21) • **Secretary**, Rotary Club of Edify School — organised 8+ community-service initiatives (2019–20).