PATAN ARMAAN KHAN

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TECHNICAL SKILLS

Programming Languages: Python, TypeScript, Dart, JavaScript
Web & Mobile Development: React, React Native, Flutter, Node.js, Django, FastAPI
Databases & Backend Technologies: PostgreSQL, SQL, REST APIs
AI / Machine Learning: TensorFlow, PyTorch, OpenCV, scikit-learn, EfficientNet, LLMs
DevOps & Development Tools: Git, GitHub, Vercel
IoT & Hardware: Arduino, Raspberry Pi

EXPERIENCE

AI Intern — Progton Software Pvt Ltd , Bangalore, India **JAN 2026 – NOV 2026**

(Contributed to backend infrastructure and data pipeline development supporting the team's AI initiatives.)

- **Reduced backend API latency by 60%+ and database query overhead by 65%** by eliminating N+1 bottlenecks using Django ORM `prefetch_related`, annotations, and optimized multi-model queries.
- **Engineered a multi-tier RBAC architecture** for Super, State, and District Admins, enforcing state/district-level data isolation across Maktabs, inspectors, surveys, and reports.
- **Developed an offline-first, trilingual Flutter app** supporting **English, Hindi, and Urdu RTL**, with GPS geotagging, photo uploads, Hive caching, resilient Dio networking, and on-device PDF generation for field inspectors.
- **Built a real-time reporting and analytics pipeline** covering **13 educational grade levels**, category classifications, gender ratios, attendance, and student-teacher metrics, with automated **PDF and Excel import/export** using ReportLab, Pandas, and OpenPyXL.

PROJECTS

AI-Based Dermatology Diagnosis System | GitHub | Python, TensorFlow, EfficientNetB4

- **Built a multimodal AI dermatology classifier** to detect **7 categories of skin lesions** from HAM10000 images while incorporating patient age, gender, and anatomical-site metadata.
- **Improved robustness on imbalanced dermatology data** through transfer learning, class weighting, and image augmentation pipelines.
- **Implemented multimodal feature fusion with EfficientNetB4**, combining visual embeddings with structured patient metadata for more context-aware predictions.

Aquaponics Monitoring System | Python, Raspberry Pi, IoT

- **Engineered an IoT-enabled aquaponics automation system** for real-time environmental monitoring and automated fish-plant ecosystem regulation.
- **Achieved 30% higher crop yield and 40% lower water consumption** while processing **500+ sensor data points per hour** through a Raspberry Pi and Python analytics pipeline.
- **Developed dynamic nutrient and water-control logic** using continuous sensor feedback; innovation published with the **Indian Patent Office, Patent No. 202441066021**.

Agent Allowance: Spending Guardrails for AI Shopping Agents | **GitHub** |Streamlit, SQLite, pytest, PayPal Orders API (sandbox)

- **Built a spending-control layer for AI shopping agents** where an LLM (Google Gemini) only proposes purchases and a deterministic Python rule engine (per-purchase cap, monthly budget, merchant allowlist, approval threshold) approves, escalates, or blocks each one.
- **Integrated the PayPal Orders v2 API (sandbox)** for order creation, buyer approval, status checks, and idempotent capture; designed a prompt-injection defense so blocked purchases never reach PayPal, verified by 180+ mocked-network pytest tests.
- **Deployed a live Streamlit app on Render with an AG Grid** audit ledger, a human approval queue, LLM quota caps, and GitHub Actions CI; submitted to the PayPal AI Hackathon.

EDUCATION

B.Tech. in Computer Science and Engineering (AI & ML) CGPA: 7.37 **AUG 2022– JUL 2026**

Presidency University, Bangalore, India

ACHIEVEMENTS

Ranked Top 15 at PAC Hack 24-Hour National-Level Hackathon under sustainable development category**.**

Achieved 2nd Place at Internal Smart India Hackathon for Aqua Hydra hardware innovation project.