# Emmanual Antony Clement

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## EXPERIENCE

**Software Developer — Vui Coffee Roasters**, Mysore, India August *2026 – Present*

- Built the full inventory system end to end, backend and frontend, for a real coffee roastery (FastAPI, PostgreSQL, React/TypeScript): green bean lots, roast batches, blends, recipes and stock movements, live with real production data.
- Implemented JWT/bcrypt auth with an owner-approval signup flow, a barrel event ledger, analytics endpoints and Excel exports; moved to Alembic migrations and deployed on Render, Netlify and Supabase with a cron keep-alive.
- Built a CRM for the same business to track B2B cafes and B2C customers with tags, follow-ups and a going-cold view.
- Running exploratory data analysis (EDA) on the business's sales data.

**AI and Software Engineering Intern — Excelsoft**, Mysore, India *May 2026 – July 2026*

- Architected and built ProctorSense, a fully client-side, real-time AI exam-proctoring system running object detection, gaze tracking and motion analysis in-browser, with zero video leaving the device.
- Engineered a 3-worker pipeline running YOLO26 object detection (ONNX Runtime, WebGPU), MediaPipe facial/iris gaze tracking, and a custom frame-differencing motion detector, each independently throttled for real-time inference without blocking the UI.
- Built a zero-copy frame pipeline (MediaStreamTrackProcessor, Transferable objects) and a risk-scoring engine with accumulate-fast, decay-slow hysteresis across six signals to suppress false positives.
- Shipped a live dashboard with score explanations and audit-trail export; recognized by senior management as a top internship contribution and being advanced toward production.

**Data Science Intern — CodeAlpha Technologies**, India *July 2025 – August 2025*

- Analyzed COVID-era unemployment trends in Python (Pandas, Matplotlib, Seaborn), cleaning and visualizing data to surface patterns.
- Built and benchmarked supervised classifiers on the Iris dataset to select the best-performing model.

## PROJECTS

**Customer Churn Prediction System** | *Python, Scikit-learn, FastAPI, Docker, Render*

- Built an end-to-end churn model on 7,000+ telecom records (Random Forest, 80–85% accuracy), tuning the decision threshold to 65% to reduce false positives.
- Built a FastAPI REST API with Pydantic validation for real-time predictions, containerized with Docker and deployed via CI/CD (GitHub to Render).

**AI-Powered Stock Decision Support System** | *Python, Scikit-learn, XGBoost, SHAP, yfinance*

- Owned the ML and backend pipeline, on a 3-person team, for a next-day price-direction system on NSE stocks, reducing 97 features to a 50-feature set from 10 years of data across 15 stocks (26,595 train / 6,660 test rows).
- Trained and ensembled Random Forest and XGBoost models, achieving 52.3% average walk-forward accuracy across 5 independent years, above a 50.7% baseline and in line with published industry benchmarks.
- Built a backtesting engine with dynamic position sizing: 32.8% alpha in the 2024-2026 bear market (strategy -3.1% vs market -35.9%), max drawdown -9.7% vs -36.4%.
- Integrated SHAP for per-stock prediction rationale; broad market return was the top predictive feature.

**macOS PDF Annotation App (in progress)** | *Swift, PDFKit, Xcode*

- Building a native Mac PDF reader that fixes Preview's inability to highlight scanned, image-only pages, with a text-snapping toggle and text boxes saved as standard PDF annotations.
- Implemented free-form highlighting and an eraser as PDF annotation objects rather than baked-in pixels, so highlights stay editable and can be deleted individually without undo.
- Added drag-and-drop of the open file, or a single page rendered as an image, straight into browser windows and chats without going through Finder.

## EDUCATION

**Bachelor of Engineering in Artificial Intelligence and Data Science — Mysore University School of Engineering, Mysore, India**
Expected June 2027 | GPA: 9.709/10
*Relevant Coursework: Data Structures and Algorithms, Artificial Intelligence, Database Management Systems, Operating Systems*

## LANGUAGES & TECHNOLOGIES

Python, JavaScript, TypeScript, Swift, C, C++, SQL, React, FastAPI, PostgreSQL, Pandas, Scikit-learn, XGBoost, Docker, Git, Linux

## CERTIFICATIONS

CS50x & CS50P – HarvardX | Deloitte Data Analytics & Wells Fargo Software Engineering Job Simulations – Forage