Augustine Manu-Frimpong

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EDUCATION

Grambling State University (GSU) **Grambling, LA**

B.Sc. Computer Science & Business Management, Mathematics (Minor) | **GPA: 3.96/4.0** **Expected Graduation: May 2027**

Honors: GSU Hackathon Winner (Fall 2024), 4x President's List, GSU Research Symposium Winner (Spring 2025), BizTech Challenge Finalist, Honors College, Presidential Scholarship, SAT Score:1510 (99th Percentile) – EBRW: 740, Math: 770

Relevant Coursework: DSA, OOP (Python), System Design, Operating System, ML/ AI, Discrete Structures, Linear Algebra, Numerical Methods, Calculus I - III, Differential Equations, Statistics & Probability I & II, Data Analytics, Econometrics, Computer Science I & II

TECHNICAL SKILLS AND CERTIFICATIONS

Languages: Python, Java, SQL, JavaScript, R, MATLAB, HTML, CSS
Frameworks: React, Flask, Django, FastAPI, Docker, Kafka, Celery, Redis, PostgreSQL, Supabase, Tailwind CSS
Libraries: PyTorch, TensorFlow, Scikit-Learn, NumPy, SciPy, Matplotlib, Pandas, Cirq, Seaborn, CVXPY
DevOps & Tools: Git, Github Actions, CI/CD, JIRA, Agile Methodologies, Microsoft Excel, Power BI, Tableau
Certificates: Microsoft ML/ AI, Meta Front-End Dev, Cisco Data Science & Analytics, CodePath Technical Interview Prep & Web Development

EXPERIENCE

Louisiana Tech University **Ruston, LA**

Machine Learning & Applied Math Intern – NSF REU May 2025 – Present

- Engineered an ℓ_1 trend filtering model with PyTorch to detect structural breaks in S&P 500 time series, outperforming the Hodrick–Prescott filter by 35% in volatility shift detection accuracy
- Accelerated matrix computation and signal extraction pipelines using NumPy and SciPy, reducing end-to-end processing time by 30% across 2,000+ sensor records
- Enhanced model robustness by integrating convergence diagnostics and residual autocorrelation tests, increasing downstream signal reliability by 40% for ML and quant trading tasks

eBay – Pathways Program **Remote**

Software Engineering Fellow May 2025 – Present

- Strengthened SWE skills with emphasis on JavaScript, REST APIs, data structures, and algorithm optimization via live coding sessions with eBay and CodeSignal engineers
- Improved algorithm runtime by up to 50% through targeted refactoring and complexity reduction, while collaborating on peer-reviewed code in weekly technical challenges

BLK Capital Management **Remote**

Equity Research Fellow Feb 2025 – May 2025

- Assessed 10+ public companies by conducting in-depth equity research and building sector-specific DCF valuation models, leading to high-confidence investment theses used in mentor-led discussions
- Reduced equity research time by 35% by automating KPI tracking and macroeconomics data ingestion using Python

Grambling State University IT Department | Student Technology Center **Grambling, LA**

IT Support Assistant Jan 2024 – May 2025

- Streamlined OS and software deployment workflows across 50+ campus machines, improving setup speed by 90% and reducing resolution time by 85% through automation and system-level troubleshooting
- Contributed to automating and standardizing device provisioning workflows, reducing system onboarding time by 60%

PROJECTS

LokalLearn – Offline AI Tutor (In Progress) | Python, Whisper, Transformers, pyttsx3

- Led the development of an offline AI tutor for low-connectivity regions, by integrating Whisper STT, a local LLM, and TTS into a real-time voice interaction pipeline, enabling accessible STEM education without internet or cloud dependency
- Optimized end-to-end AI reasoning on CPU-only devices, by caching model weights and minimizing I/O latency using Python and Transformers, achieving sub-5s response time in constrained environments—ideal for edge deployment
- Designed modular architecture with speech, language, and audio modules, by orchestrating components in a CLI interface using PyTorch and Hugging Face, laying the foundation for future expansion into multilingual support and on-device learning

Macro – Arb: Global Statistical Arbitrage Engine | Python, Statsmodel, Pandas, Matplotlib

- Built a macro-driven trading strategy using 240+ monthly observations to generate mean-reversion signals across global ETFs (e.g., EWG), applying cointegration (Engle-Granger) on FRED macro data and Yahoo Finance prices
- Engineered a backtesting pipeline with z-score filtering, PCA signal refinement, and performance evaluation, achieving +9.2% higher CAGR vs. buy-and-hold while quantifying Sharpe, drawdowns, and statistical robustness
- Applied PCA on macro factor space to extract latent drivers and tested for cointegration via Augmented Dickey-Fuller test

Market Data Microservice | FastAPI, Kafka, Celery, PostgreSQL, Redis, Docker, Python

- Developed a real-time microservice that ingested and streamed over 1M+ financial market data points daily via Kafka, computing 5-point moving averages with <10ms latency, simulating infrastructure used by top-tier trading firms
- Deployed Dockerized FastAPI REST APIs with 99.99% test uptime, scheduled data polling with Celery every 5 seconds, and integrated PostgreSQL + Redis to handle 100K+ asynchronous tasks/week with zero data loss

LEADERSHIP / ACTIVITIES

Notion **Grambling, LA**

Lead Organizer Nov 2024 – Nov 2024

- Co-organized the Notion x Grambling hackathon with 60+ participants by leading a 10+ member team, securing $3,000+ in sponsorship, and mentoring participants to successfully launch 5 minimum viable products (MVPs)