EMMANUEL ETORNAM TETTEH

COMPUTER ENGINEERING STUDENT • AI SYSTEMS RESEARCH & SOFTWARE ENGINEERING
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PROFILE

Computer Engineering student building AI systems that can be checked against evidence: multi-agent LLM workflows with grounded verification, efficient neural models for wireless receivers, and agent efficiency profiling. Interested in reliable, verifiable AI and ML for resource-constrained settings.

EDUCATION

BSc Computer Engineering, University of Ghana *2024 – Expected 03/2028*

RELEVANT EXPERIENCE

Research Assistant – Computational Imaging | Fourier Ptychographic Microscopy Project *May 2026 – Present*

- Reviewed Fourier ptychographic reconstruction, including phase retrieval and illumination/optical noise effects; designed Python experiments that inject noise into microscopy images and benchmark filtering before reconstruction.
- Comparing Gaussian, median, and wavelet denoising under Gaussian and Poisson noise to find what works best in different conditions.

Student Developer, NVIDIA 6G Developer Program | NVIDIA *Mar 2026 – Present*

- Applied the program's NVIDIA Sionna tooling to a neural OFDM channel-estimation study (see Projects), and experimented with CUDA-accelerated RAN and NGC containers in the AI Aerial ecosystem for GPU-based signal processing.

Machine Learning Engineer | Yorke & Toni (YT Groups) *May 2026 – Present*

- Test, validate, and backtest the models behind SCOUT, a tool that profiles every team across statistical features to flag which are overperforming their underlying numbers; refine features, run error analysis, and feed fresh post-match data back into the model.

Co-Founder & Chief Technology Officer | Breate *Oct 2025 – Present*

- Co-founded and led architecture and development of a deployed collaboration-platform MVP for African creators, developers, and innovators using Next.js, TypeScript, FastAPI, SQLAlchemy, PostgreSQL, Vercel, Render, and Neon.

Engineering Intern | Noguchi Memorial Institute for Medical Research *Aug – Oct 2026*

- Kept research facilities running by troubleshooting and repairing lab devices, computers, and hardware, reducing downtime for research staff.
- Maintained the institute's network infrastructure (switches, access points, and cabling), diagnosing connectivity faults to keep internet access reliable for ongoing research.

Networking Intern | IT Directorate, University of Ghana *Mar – May 2025*

- Supported campus network operations through access-point installation, cable termination, VLAN/subnet configuration, and troubleshooting.

SELECTED PROJECTS

MatchMind – Multi-Agent Football Analyst That Fact-Checks Your Questions | Microsoft Premier League Hackathon 2026 *Oct 2026*

- Built a five-agent Microsoft Agent Framework workflow: the Orchestrator extracts the assumption in a viewer's question (“why did they lose control?”), a Pundit agent that sees only the last few minutes adds takes, and a deterministic Skeptic recomputes each as a structured claim over the event log, ruling it holds up, half-right, not enough evidence, or doesn't hold up, and sending busted takes back for revision.
- Answers adapt to the user's football knowledge: a no-jargon beginner mode (short answer first), a fan mode, and an analyst mode with numbers and cited events; a grounding guard rejects LLM answers with numbers the Skeptic didn't compute, and agents fall back to rules on model failure or timeout.
- Wrote a seeded match simulator (~1,900 events/match) calibrated to StatsBomb data from 38 matches and a transparent action-value player rating; deployed on Azure Container Apps (FastAPI, Next.js) with streamed agent traces, rate limits, caching, 62 tests and Playwright CI.

Lightweight Neural OFDM Channel Estimation | Python, Sionna, PyTorch, NumPy, pytest *2026 – Present*

- Investigating whether compact neural estimators improve pilot-based OFDM channel estimation under low SNR, sparse pilots, and limited compute.
- Built a reproducible 3GPP TDL-A/B/C evaluation pipeline with LS and covariance-informed LMMSE baselines, seeded dataset generation, repeated-seed CNN training, NMSE/BER analysis, and a 59-test suite; across 3 seeds and 15 channel–SNR settings, the CNN reduced NMSE by 79–87% vs. LS-linear interpolation, while LMMSE remained the strongest benchmark.

Agentic Profiling – AI Agent Efficiency Research *2026 – Present*

- Investigating how multi-step AI agents can be profiled across token usage, tool/model calls, latency, context growth, and inference cost to find inefficiencies and build agent-level observability that informs prompting, model routing, and architecture.

NetLens – AI Network Diagnostics for Low-Quality Internet | Python, FastAPI, SQLite, Gemini API, JavaScript *2026*

- Built a local-first agent that measures latency, packet loss, and DNS timing on-device, scores connection health and task readiness, and uses Gemini for JSON-constrained diagnoses with a rule-based fallback.

Credit Scoring System for the Unbanked | Hack54 FinTech Hackathon – 2nd Runner-Up *2026*

- Built a credit-scoring model from rotational susu savings data to extend formal credit access to Ghana's unbanked.

TECHNICAL SKILLS & MEMBERSHIPS

Programming: Python, TypeScript/JavaScript, SQL, MATLAB
Scientific / ML: NumPy, Pandas, PyTorch, scikit-learn, Matplotlib, NVIDIA Sionna, Microsoft Agent Framework, Azure OpenAI, Gemini
Software / Data: FastAPI, SQLAlchemy, Next.js, React, REST APIs, PostgreSQL (Neon), SQLite
Systems / Tools: Git/GitHub, GitHub Actions, Linux/WSL, Docker, Azure Container Apps, Vercel, Render, pytest, Playwright, Google Colab (GPU)
Memberships & Certifications: IEEE Student Member • ALX Professional Foundations in IT (2025)