Tyrone Marhguy

Computer Engineering @ UPenn | Software & ML Engineer | Full-Stack Development

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Education

University of Pennsylvania   Philadelphia, PA
Bachelor of Science in **Computer Engineering** & Master of Science in **Electrical Engineering**   Expected May 2028
- **Relevant Coursework:** Data Structures & Algorithms, Machine Learning, Full-Stack Development, Database Systems, UX Research, Advanced Circuits & Systems

Technical Skills

Languages: Python, TypeScript/JavaScript, C++, C
Frameworks: FastAPI, React/Next.js, Node.js
Data & Cloud: XGBoost, pandas, NumPy, PostgreSQL, Redis, Docker, AWS
Tools: GitHub Actions, Kubernetes, Jenkins, Data Visualization

Projects

UniBridge GH — Software Architecture, System Design, API Development   Project Link
- Engineered software architecture for Ghana's national admissions portal, hoping to serve **350K+ annual applicants** with **99.9% uptime**
- Executed system design for **P99 < 500ms** latency at **10K+ daily API calls** via performance tuning and API optimization
- Deployed XGBoost recommendation engine with **92% top-3 match accuracy** and created technical documentation

Music and You - Microservice Architecture, Cloud Computing   Project Link
- Designed a microservices architecture to serve **1.4K users** analyzing **450K+ tracks** with **99.9% uptime**
- Utilized cloud computing (AWS) to achieve **+28% lift vs baseline** (AUC 0.82) with SHAP explainability
- Implemented YT2Spot, YouTube-music to Spotify songs migration CLI with **73.8% match success**

MoMo Credit Score — Mobile Development, Security Best Practices   Project Link
- Engaged in mobile development for a fintech app with **AUC 0.80, P99 <400ms**
- Engineered **200+ feature store** achieving **+25% approval rate** improvement in pilot
- Implemented security best practices for full model governance and GDPR compliance

Psychology Research Platform — User Experience, UI Design   Project Link
- Focused on user experience (UX) and user interface (UI) design to log **1.2K+ sessions, 250K+ events**
- Delivered real-time WebSocket gameplay with **P99 <150ms** latency and **95% completion rate**
- Cut researcher setup time by **60%** with an automated analytics pipeline and data visualization tools

Experience

Teaching Assistant, CIS 1100 (Intro Programming)   July 2025 – Present
University of Pennsylvania   *Philadelphia, PA*
- Lead weekly recitations for **300+ students**, reducing runtime failures by **40%** through code review
- Created 50+ Pytest autograder test suites with GitHub Classroom, cutting grading time to **<24 hours**

Computer Science Intern   May 2025 – August 2025
Heag Pain Management   *Charlotte, NC*
- Built HIPAA-compliant FastAPI + PostgreSQL platform reducing appointment processing time by **40%**
- Automated analytics pipeline cutting monthly report preparation from **3 days to 4 hours**

Computer Science Instructor   February 2025 – May 2025
Fife Academy, University of Pennsylvania   *Philadelphia, PA*
- Designed and delivered a 10-week Python curriculum for **16+ students** (Grades 3-5), increasing engagement by **25%** and reducing error rates by **40%**

Leadership & Activities

Google Developer Groups on Campus @ Penn   March 2025 – Present
Active member focused on Google developer technologies and AI-driven solutions **Penn Aerospace Club – Weather Prediction Team**   September 2024 – Present
Developed Python ML pipelines (XGBoost) for wind/precipitation forecasting and dashboards used by **20+ members**
ColorStack @ Penn & NSBE Member   September 2024 – Present
Active in mentorship, professional development, and technical workshops supporting underrepresented engineers