

AMMAAR ALAM HAMEED

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EDUCATION

Princeton University

Bachelor of Science in Engineering, Computer Science | GPA: 3.94/4.0

Minors: Statistics and Machine Learning; Optimization and Quantitative Decision Science

Honors: Shapiro Prize for Academic Excellence

Coursework: Data Structures and Algorithms | Programming Systems | Machine Learning | Computer Architecture | Theoretical CS | Discrete Math | Optimal Learning | Convex Optimization | Regression and Time Series Analysis | Stochastic Calculus

Princeton, NJ

Jul 2023 – May 2027

TECHNICAL SKILLS

Languages: Python, TypeScript, Java, C/C++, JavaScript, Rust, SQL, Bash, R

ML/AI: PyTorch, TensorFlow, scikit-learn, Hugging Face Transformers, pandas, NumPy, OpenCV

Infrastructure: Docker, Kubernetes, Terraform, AWS, Google Cloud Platform (GCP), GitHub Actions, Ansible, Linux

Web: React, Node.js, Express, Flask, PostgreSQL, MongoDB, Redis, WebSockets, REST APIs

PROFESSIONAL EXPERIENCE

TigerApps (Student Organization)

Senior Developer & Lead DevOps Engineer

Sep 2024 – Present

Princeton, NJ

- Orchestrated infrastructure for **10+ applications** serving **94% of campus (5,000+ DAUs)**; led team of **15+ developers** defining **CI/CD** standards and incident response protocols.
- Drove **850+ daily users** and **112K+ conversations** by building production RAG AI campus assistant using **MongoDB vector search**, custom retrieval architecture, and Google Places API **MCP servers**.
- Reduced memory usage **65%** via heap profiling and object pooling; engineered high-availability architecture handling **100x traffic spikes (3,000+ req/s, sub-200 ms p99)** with **Redis caching**.

Ultimate Kronos Group (UKG)

Software Engineer Intern

May 2025 – Aug 2025

Weston, FL

- Slashed median CI wall time **34%** and **GCP** storage costs by **\$9.3k/mo** via shard-aware artifact caching, concurrent dependency resolution, and dedup policies; kept **95%+** pipeline success and **99.95% release SLO**.
- Cut MSI upgrade validation **93%** (48h to 3h) and enforced org-wide PR gate by engineering a headless end-to-end upgrade pipeline that processes 32 integration pods in parallel via **GitHub Actions** and **GCP buckets**.
- Accelerated development by engineering AI-integrated workflows (**Claude Code/Codex CLI**) with Slack/Jira Model Context Protocol (MCP) servers; created prompt-engineering documentation used for engineer onboarding.

Emma Bloomberg Center for Access & Opportunity

Computer Science Teaching Assistant (COS 125)

May 2024 – Aug 2024

Princeton, NJ

- Mentored **30+ students** in **data structures**, **algorithms**, and **dynamic programming** through weekly precepts and **15+ office hours**; built automated testing suite in **Python** reducing grading time by **70%**.

PROJECTS

MineBench | TypeScript, React, Next.js, Three.js, Prisma/PostgreSQL

Jan 2026 – Present

- Built and maintained an open source **LLM spatial reasoning benchmark** where models generate structured voxel JSON via a custom tool-calling interface; scaled to **260K+ blind human votes**, **200+ GitHub stars**, and accepted into **OpenAI's Codex for Open Source** program.
- Engineered the full-stack web platform for blind comparison of model-generated 3D builds, implementing deterministic validation, custom voxel rendering engines, conservative Glicko-2 ranking, and efficient browser-side handling of large JSON payloads.

TigerType (Founder) | React, Node/Express, WebSockets, PostgreSQL, GitHub Actions

Jan 2025 – Present

- Scaled to **1,800+ daily users (20% of campus)** handling **1.2M+ races** and **119M+ words typed** by developing real-time multiplayer typing game with SSO authentication, matchmaking, and leaderboards.
- Maintained state consistency across **880 concurrent lobbies** with **sub-40 ms p99 latency** via WebSocket synchronization engine and optimized database queries.

Atlas (Quant Trading Platform) | Python, Pandas, NumPy, Polars, Alpaca/Coinbase APIs

Dec 2025 – Feb 2026

- Engineered backtesting framework with realistic friction modeling (slippage, funding rates, maker/taker fees) across equities and crypto derivatives; achieved **1.63 daily Sharpe** and **111% annual return** on 365-day backtest.
- Developed ORB (Opening Range Breakout) trend strategy with VWAP alignment, Efficiency Ratio regime gating (ER over 0.35), and cost-aware admission control to filter low-edge entries in choppy markets.
- Built walk-forward optimization pipeline with rolling train/validate/test windows, preventing curve-fitting via median parameter extraction across 12+ temporal segments.

Compatibility Scoring Research (Paper) | Python, Optimization

Aug 2025 – Jan 2026

- Authored independent research paper and built a transparent reciprocal-recommendation pipeline for small-campus cohorts using probabilistic acceptability models, uncertainty-aware **LCB** scoring, and configurable similarity/complementarity kernels.

WordHunt Solver | PyTorch, OpenCV, Quartz CGEvent API, Trie

Nov 2024 – Dec 2025

- Achieved a **362,000-point Word Hunt world record** and helped improve **GamePigeon's anti-cheat system** by building and shipping a GitHub-released macOS solver application with custom **convolutional neural network** board recognition (**99%+ accuracy** on **2,400+** images), Trie-optimized DFS search, and Quartz cursor automation at **60+ swipes/sec**.