# Zain Ghazanfar

U.S. Citizen | Atlanta, GA | 470-621-2799 | zain.ghazanfar@gatech.edu | linkedin.com/in/zainghazanfar | github.com/z-ghazanfar

## Education

**Georgia Institute of Technology** Expected May 2026
*B.S. in Computer Science; Minor in Financial Technology* *Atlanta, GA*

**Awards:** Zell Miller Scholarship, Faculty Honors, Dean's List | **GPA:** 3.95/4.0
**Relevant Coursework:** Machine Learning, Artificial Intelligence, Design & Analysis of Algorithms, Data Structures & Algorithms, Systems & Networks, Probability & Statistics, Applied Combinatorics, Perception & Robotics

## Experience

**Software Engineer Intern – Research Systems** June 2025 – Aug 2025
*Arrowstreet Capital* *Boston, MA*

- Engineered an access-control and provisioning layer on top of **Prefect** across research compute clusters, streamlining onboarding of research workflows and minimizing downtime in mission-critical pipelines.
- Developed an asynchronous **Python** client (asyncio, aiohttp) to synchronize Active Directory group states with Prefect APIs, enabling dynamic membership updates at scale with auditable dry-run simulation and real-time logging in GitLab UI.
- Deployed containerized pipelines in **GitLab CI/CD** to orchestrate pre–market access validations across environments, ensuring consistent states before trading workflows launched and reducing operational risk.
- Partnered with research, development, and infrastructure teams to optimize the automation layer for scalability and fault tolerance, ensuring seamless execution of trading and simulation pipelines.

**Machine Learning Engineer & Co-Founder** Jan 2024 – Sep 2025
*Zaphor Solutions* *Alpharetta, GA*

- Built scalable ML pipelines in **Python** using **Pandas** and **PostgreSQL** for real-time inventory tracking, sales trend analysis, and dynamic pricing optimization across 70+ SKUs, scaling revenue to over $200K.
- Developed and deployed time-series forecasting models (ARIMA, Prophet) and demand prediction algorithms to automate inventory management and reorder logic, maintaining a 95% in-stock rate.
- Applied reinforcement learning and statistical optimization to ad bidding and pricing, improving conversion rates by 20% and reducing Advertising Cost of Sales (ACoS).

**Machine Learning Researcher** Jul 2024 – Present
*Georgia Institute of Technology, ACT Lab* *Atlanta, GA*

- Implemented and trained deep reinforcement learning agents in **PyTorch**, leveraging CNNs and Transformers for feature extraction and **DQNs** for policy optimization, improving trajectory prediction accuracy by 12% and reducing training convergence time by 18%.
- Led a subteam of 3 in refining architectures and conducting ablation studies, achieving a 15% gain in control stability and demonstrating robustness across varied traffic and lane-change scenarios.
- Automated high-fidelity training/evaluation pipelines in **CARLA** for large-scale simulations (500k+ frames), enabling reproducible benchmarking and accelerating experimentation throughput by 30%.

**Software Engineer Consultant** Dec 2022 – May 2024
*Endor Media*

- Engineered **Python**-based automation pipelines for lead scoring and client outreach, integrating OpenAI GPT-3.5 Turbo and embedding models via API for classification and semantic scoring, reducing manual qualification workload by 40%.
- Built data pipelines to ingest and normalize GoHighLevel API streams, integrating with a React-based UI and Node.js services to deliver real-time visibility into campaign KPIs and sales performance.

**Applied Data Science Researcher** Jan 2023 – May 2023
*Georgia Institute of Technology, SMART Lab* *Atlanta, GA*

- Automated data analysis workflows for PZT thin-film experiments in **Python** using pandas and numpy, reducing manual processing time by 35% and enabling reproducible statistical modeling.
- Developed visualization pipelines in **Matplotlib/Seaborn** to evaluate switching dynamics, improving interpretability of experimental results for publication and presentation.
- Engineered preprocessing and classification routines for 10k+ **GIWAXS** measurements, applying k-means clustering and statistical analysis to extract structured features for downstream predictive modeling.

## Awards and Achievements

**Eagle Scout** Jun 2023
**National Merit Semifinalist** Sep 2022

## Skills

**Languages:** Python, C++, Java, R, SQL/PostgreSQL, JavaScript/TypeScript, Go, Swift, Assembly, HTML/CSS, LaTeX
**Frameworks & Tools:** NumPy, Pandas, scikit-learn, TensorFlow, PyTorch, Jupyter, Matplotlib/Seaborn, Prefect, Docker/Kubernetes, Terraform, AWS, Git/GitLab CI/CD, FastAPI/Flask, React/Node.js
**Concepts:** Reinforcement Learning, Time Series Forecasting, Predictive Modeling, Market Data Processing, Backtesting, Concurrency, Distributed & Cloud Computing, High-Performance Computing, Natural Language Processing (NLP)