

# Ashish D'Souza

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## EXPERIENCE

- Akuna Capital** | Software Engineer II | *Post-Trade Technology* | Chicago, IL Aug '23 - Present
- Built and maintained in-house trade monitoring software; implemented complex surveillance logic to supervise messaging activity, prevent fines, detect market manipulation, track trading efficiency, ensure market maker status, and adhere to exchange/regulatory requirements
  - Proposed new design for a distributed surveillance architecture that scales with high market volatility and trading activity. Successfully led this team-wide rearchitecture project to process billions of daily quotes in realtime while also reducing costs.
  - Supported key product/exchange expansions and trader operations with accurate market maker obligations and incentives monitoring
  - Extensive experience with order entry and market data protocols across equity, option, and future exchanges (and PFOF/other ATS)
  - Managed 3 interns, providing mentorship and constructive feedback, guiding all to receive return offers for full-time SWE/quant positions
  - Software:** Python, Scala, JavaScript, Databricks, Postgres, Kafka, React, Grafana, Kubernetes, AWS, etc.
- Citadel Securities** | Software Engineer Intern | *Citadel Execution Services* | New York City, NY Sep '22 - Dec '22
- Developed high-performance C++ trade reconciler for live messages with multithreading for extreme scalability
  - Validated messages originating from retail and institutional trade routing systems with historical database records for all CES flow types
- Akuna Capital** | Software Engineer Intern | *Post-Trade Technology* | Chicago, IL Jun '22 - Aug '22
- Wrote an audit trail generator to efficiently parse terabytes of order entry messages on-demand in response to exchange inquiries
  - Created market maker quoting surveillances to ensure the company meets exchange standards for newly traded cryptocurrency options
- Amazon** | Software Engineer Intern | *Magnus Ranking, Search Science & AI* | Palo Alto, CA May '21 - Aug '21
- Built distributed computing platform to further improve GPU-accelerated training speed by parallelizing advanced ML models
  - Enabled multi-GPU training on multiple machines for BERT, GPT-3, DNN models using PyTorch with distributed data parallelism
- MerchLogix** | Software Engineer Intern | *Database Team* | Atlanta, GA May '20 - Aug '20
- Developed audio transcription database with PostgreSQL and scripted advanced database management functions using Perl

## EDUCATION

- Georgia Institute of Technology** | Atlanta, GA May 2023
- Bachelor of Science in *Computer Science* — Threads: Intelligence & Information Internetworks — GPA: 3.93

## PROJECTS

- Homelab** | <https://github.com/computer-geek64/homelab> | <https://uptime.ashishdsouza.com> Dec '18 - Present
- Deployed and maintaining international fleet of 16+ servers both on-prem and in the cloud, providing various services to myself and others
  - Requires work and experience in nearly every field of technology including devops, systems, networking, security, databases, software, etc.
  - Software:** Docker, Kubernetes, Ansible, Git, Jenkins, Linux, macOS, Nginx, Wireguard, Iptables, Postgres, MySQL, Python, Go, etc.
- EmBoxd** | <https://github.com/computer-geek64/emboxd> (44 stars) Feb '25 - Jan '26
- Live sync web server for Letterboxd users with self-hosted media platforms, synchronizing watch activity with browser automation
  - Software:** Go, Playwright, Docker, GitHub Actions
- Guardian** | <https://github.com/computer-geek64/guardian> → <https://gitea.ashishdsouza.com/ashish/frigate> Jan '22
- My home surveillance and CCTV system that features motion detection and synchronized live audio and video streams over native HTTP
  - Implemented a multiprocessing load balancer to improve performance for multiple cameras, and leveraged shared memory for IPC
  - Separated image processing from web server into a background process with a message queue, reducing overhead for multi-user streaming
  - Software:** Python, Docker, Nginx, Nginx Unit, Flask, Redis, FFmpeg, OpenCV, Motion, Jenkins
- Politify** | <https://github.com/computer-geek64/politify> Feb '21
- Determines the political bias among public figures by analyzing their tweets in an unbiased way using publicly available data on the internet
  - Designed back-end API and DBMS, web scraped tweets and wiki sources to obtain information on public figures for dataset aggregation
  - Trained BERT model for political classification and used cloud ML services to create keyword-based sentiment analysis helper model
  - Software:** Python, PyTorch, Transformers, CUDA, Pandas, Flask, PostgreSQL, ReactJS, Selenium, OpenAI GPT-3, Google Cloud
- Huffskew** | <https://github.com/computer-geek64/huffskew> Jan '21
- An optimization of the Huffman compression algorithm for highly skewed alphabet distributions using an ordered replacement method
  - Software:** C++, Boost Libraries

## SKILLS

- Programming Languages:** Python, Go, C++, C, Java, SQL, Bash, JavaScript, HTML/CSS, L<sup>A</sup>T<sub>E</sub>X, Ruby, Perl, PHP, R
- Software:** Git, Docker, Kubernetes, Kafka, Databricks, Spark, Redis, Nginx, Apache2, Ansible, Jenkins, Grafana, AWS, GCP, Azure
- Databases:** PostgreSQL, MySQL, Redis, MongoDB, Apache Cassandra, SQLite, MariaDB
- Operating Systems:** Linux (Arch, CentOS, RHEL, Debian, Fedora, Ubuntu, Raspbian, Kali, Qubes), Windows, macOS