Harris Ahmad

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EDUCATION

University at Buffalo - SUNY   **January 2025 - May 2028**
PhD, Computer Science   *GPA: 3.7*
- Teaching Assistant: Modern Networking Concepts (Spring'25)

Lahore University of Management Sciences   **September 2020 - May 2024**
Bachelor's, Computer Science
- Teaching Assistant: Object Oriented Programming in C++ (Spring'23, Fall'23), Distributed Systems (Fall'23)

PROFESSIONAL EXPERIENCE

University at Buffalo - SUNY   **January 2025 - Present**
Research Software Engineer   *Buffalo, NY*
- Implemented 3 concurrency and replication protocols such as primary backup, chain replication and two phase locking in Go to test their effectiveness in systems that are suited for collaborative AI. This work is a part of an ongoing (NSF grant).
- Testing the protocols using CloudLab's 4-node architecture showed these existing protocols are unfit for nodes that collaborate in real-time.
- Currently developing a distributed transaction reordering & coordination system for another NSF funded project by designing and implementing a snapshot-based architecture in C++ and Go that reduces lock contention and minimizes transaction abort rate, achieving a significant throughput improvement. We're submitting this to OSDI'26.

Linq Americas   **July 2024 - December 2024**
Software Engineer   *Dallas, TX (Remote)*
- Built on-the-fly media generation API using FastAPI and MongoDB that reduced page load time by 60%, dynamically generating asset thumbnails as users scroll through 10K+ item inventories.
- Deployed successful SSO authentication using OAuth 2.0 & FusionAuth enabling enterprise users to access systems with existing credentials.
- Created admin debugging and playground dashboards that exposed system metrics via direct OS calls, reducing troubleshooting time from hours to minutes for 50+ support tickets.

Its IT Group   **May 2024 - August 2024**
System Engineer   *Lahore, PK*
- Redesigned the backend in node.js and MongoDB of an AR app for VTuber/karaoke 3D avatars leveraging WebSockets for real- time comments, notifications and likes across 5K+ daily active users.
- Implemented 3D model pipeline to process LiDAR scans, building USDZ to GLB converter enabling Unity integration, reducing manual measurement time by 80%.

Interactive Media Lab, LUMS   **October 2023 - March 2024**
Research Software Engineer   *Lahore, PK*
- Built Awaaz-e-Sehat health platform using Python Flask framework on AWS Lambda, reducing API response time from 5s to 500ms handling 10K+ daily medical queries.
- Designed serverless data pipeline AWS (Lambda, DynamoDB, S3) to store and index 50K+ medical recordings, eliminating server costs while scaling automatically.
- Built medical transcription service using Whisper API and GPT-4, converting doctor consultations and medical history recordings to structured clinical notes with 95% accuracy, processing 1K+ recordings daily.

Networks and Systems Group, LUMS   **May 2022 - December 2023**
Research Software Engineer   *Lahore, PK*
- Discovered the impact of varying video bitrates across main-video resolutions: 720p causes ~3x higher latent buffer loss than 360p (10.1 MB vs 3.4 MB), finding let to recommendations for adaptive ad-insertion/ABR changes to cut loss and cost.
- Collected data for 17600 YouTube videos and 46600 YouTube ads across 8 countries. This is the first large corpus of YouTube data, with 15+ features, that includes buffer data for each video. The dataset and codebase are publicly available.
- Published findings in Proceedings of the ACM Web Conference 2024 (WWW'24).
- Built a distributed scraper using Selenium/PyTube to collect YouTube metrics, parallelizing across 20 machines gathering 2TB+ of performance data over a year.
- Paper link: https://harris-ahmad.github.io/files/ytafford-www'24.pdf

SKILLS

Skills: C/C++, JavaScript, TypeScript, Go, Haskell, Bash, PowerShell, Python
Frontend: React.js, Vue.js, Quasar, AngularJS, Next.js, HTML/CSS, D3.js, jQuery, Redux.js, Electron.js
Backend: Node.js, Django, Flask, FastAPI, Express.js, Nest.js, GraphQL, gRPC, REST APIs, WebSockets
Databases: Postgres, MongoDB, Mongoose, MySQL, Redis, Elasticsearch, ScyllaDB, CockroachDB, Oracle, BigQuery, NoSQL, RDBMS
Cloud/DevOps: AWS, Google Cloud Platform, Microsoft Azure, Digital Ocean, Docker, Kubernetes, Jenkins, Heroku, Vercel, Firebase, RabbitMQ
Tools: Git, Postman, Selenium, Vim, Wireshark, Android Studio, Wordpress, Amazon Quicksight, Wireframe
ML/AI/Data: Pytorch, Tensorflow, Scikit-learn, Pandas, NumPy, SciPy, LangChain, LLM, GPT-4, Whisper API, Natural Language Processing (NLP), Data Science, Jupyter
Concepts/Other: Linux/Unix, SEO, OAuth 2.0, Solidity, Operating Systems, High Performance Computing (HPC), Microservices