Kareem Elhemaly

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Education

University of South Florida Tampa, FL
Bachelor of Science in Computer Engineering *Spring 2026*
Cumulative GPA: 3.71/4.00; Dean's List 2024-2025
***Relevant Courses**: Computer Organization—Program Design—Computer Logic Design—Data Structures—Computer Architecture—Computer System Design—Analysis of Algorithms*

Projects

USF Smart Navigation | *React Native, Expo, Javascript, RESTful API, Firebase Firestore* February 2025
- Developed a **cross-platform** mobile application using React Native, Expo, and Firebase Firestore.
- Designed and implemented RESTful API integrations with Google Maps API to support **dynamic routing, real-time location tracking, and accessibility-friendly pathways**.
- Built a secure authentication system with Auth0 and Microsoft Authentication.
- Optimized Firestore queries, **reducing read/write by 30%** and **lowering database costs by $20/month**.

Huffman Code | *C++, Binary Search Trees, Stacks, Maps* November 2024
- Designed and implemented a Huffman coding algorithm for **lossless data compression** achieving up to **70% compression rate** on text files with high character frequency disparity.
- Utilized binary trees, priority queues, and hash maps to encode and decode text with an **average time complexity of O(n log n)**.
- Validated implementation with **100% test coverage** using the Catch2 framework to test accuracy and reliability.
- Reduced storage requirements by an average of **60% across tested datasets**.

Dijkstras Algorithm | *C++, Data Structures, Graph Theory, Algorithms* September 2024
- Optimized Dijkstra's Algorithm implementation to compute shortest paths in **under 10 ms** for sparse graphs with 1,000 nodes and 10,000 edges.
- Achieved **scalability to 10,000 nodes and 100,000 edges**, ensuring execution **within 0.5 seconds**.
- Validated algorithm with **100% accuracy** using standard datasets and benchmark tests.
- Efficiently managed memory usage, consuming approximately **50 MB** for large graphs.

Experience

Software Engineering Intern June 2024 – August 2024
Orange *Cairo, Egypt*

- Developed and optimized a scalable data pipeline using Python, PostgreSQL, and Hadoop, improving data processing efficiency by 40% and reducing query execution time from 5s to 3s.
- Automated system monitoring and maintenance tasks with Perl and Shell scripting, reducing manual workload by 30+ hours per month and cutting system downtime by 20%.
- Containerized applications with Docker and integrated them into Jenkins CI/CD pipelines, reducing deployment time by 50% and minimizing failed deployments by 35%.
- Debugged and optimized existing software systems, identifying bottlenecks and improving execution efficiency, reducing system crashes by 25%.
- Collaborated with cross-functional teams in an Agile environment, actively participating in 12+ sprint planning meetings, stand-ups, and code reviews to deliver features on time.

Leadership and Activities

Clubs: SHPE, USF Robobulls, USF E-council, USF ACM, Colorstack, Google Developer Student Club
Events: FutureScape 1.0, USF ACM AI Convention, USF Engineering Expo

Technical Skills

Languages: Python, C/C++, SQL (Postgres), JavaScript, Typescript, HTML/CSS, Java, Perl, Shell, Swift
Frameworks: React, React Native, Hadoop, Next.js, Tailwind CSS, Node.js, Express, Flask, REST API, Angular, Vue, Django, Pytorch, Scikit-learn, Tensorflow, Matlab, NumPy, Matlab, Plotly
Developer Tools: Copilot, Jenkins, GitHub, Expo, Docker, Google Cloud Platform, VS Code, PyCharm, Eclipse
Expertise: AI/ML, cross-functional collaboration, full-stack, front-end, back-end