Elyas Belkhir

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Education

The University of Texas at Dallas Richardson, TX
Bachelor of Science in Computer Science Expected Graduation: Dec 2024

- **Coursework**: Data Structures & Algorithms, Operating Systems, Database Systems, Distributed Systems, Deep Learning, Artificial Intelligence, Compilers, Systems Programming, Linear Algebra
- **Clubs**: *President* of Algorithmic Computing Club, *Developer* at Nebula Labs

Experience

Paycom – Software Developer Intern May 2024 – Aug 2024

- Reduced environment crashes by 20% by creating a model to flag merge requests likely to cause production issues
- Automated a scalable data pipeline for handling model calculations and dashboard updates pulling 400K+ records from GitLab and Jira by utilizing asynchonous requests
- Developed a full-stack dashboard to visualize trends and provide managers insights into merge request reverts using React, C#, and MySQL
- Improved model accuracy to 92% by analyzing code change patterns, extracting features such as commit size and change frequency

UTD Networking Lab – Undergraduate ML Researcher Aug 2024 – Present

- Achieved network intrusion detection recall of 99% using isolation trees and simulated netflow data
- Identified DDoS attacks by processing and analyzing netflow data to group and record network packet information

Nebula Labs – API Developer Sep 2023 – May 2024

- Integrated 6 major university data systems into a single API with a team of 15+ contributors using Golang
- Streamlined service for faster retrievals by 30% by optimizing MongoDB queries and designing middleware in Gin

iCode – Robotics Instructor Sep 2023 – May 2024

- Led a robotics curriculum for a team of 5+ students, focusing on hands-on programming and robotics challenges
- Mentored students in building and programming VEX robots using C++, integrating motors and sensors to develop functional and autonomous systems

Projects

Chip-8 Interpreter | *C++*

- Engineered a CHIP-8 emulator in C++, enabling the execution of original CHIP-8 programs by utilizing memory pointers, custom opcode handling, and graphical rendering via SDL
- Designed a precise instruction cycle and timing mechanism, ensuring synchronization between opcode execution and graphical updates

Anomaly Detection Research Project | *Python, Pandas, Numpy, OpenCV, PyTorch*

- Implemented and compared machine learning models (RNN with LSTM, 3D CNN) for real-time anomaly detection using Python, OpenCV, and PyTorch, achieving up to 76.15% accuracy
- Developed a data preprocessing pipeline with ResNet50 for feature extraction, optimizing video frame processing

Facility Pulse | *Swift, Python, Firebase, Flask*

- Created a Swift iOS dashboard app that monitors and displays the health of building systems with a team of 4
- Spearheaded the creation of a random forest classifier model with an accuracy of 95% capable of predicting a facility system's next service time
- Secured 3rd place in the CBRE sponsor challenge, outperforming 20+ competing projects

Technical Skills

Languages: Java, Python, C/C++, C#, Go, JavaScript/TypeScript, SQL, HTML/CSS, PHP
Libraries & Frameworks: Flask, RabbitMQ, Node, .NET, React, Hadoop, Kafka, Kubernetes, Redis, Docker, Postgres
Concepts: Machine Learning, Human Computer Interaction, Data Science, Data Analysis, Software Engineering, Web Frameworks, Databases, Full stack, Frontend, Backend, Cloud Computing, Parallel Programming, Microservices, Virtual Memory, Multithreading, Embedded Systems, REST API, Statistics, Probability, NLP