

Youssef Elzein

Youssef95Elzein@gmail.com | linkedin.com/in/youssef-elzein | github.com/YoussefE95 | YoussefElzein.com

EDUCATION

California State University, Los Angeles

Master of Science in Computer Science — GPA: 3.8

Los Angeles, CA

Aug. 2023 – Current

California State University, Los Angeles

Bachelor of Science in Computer Science — GPA: 3.7

Los Angeles, CA

Aug. 2020 – May 2023

TECHNICAL SKILLS

Languages: Bash, C/C++, Java, Python, JavaScript, TypeScript, HTML/CSS, Haskell, SQL, MQL

Frameworks: React, Vue, Express, Node.js, Django

Libraries: OpenCV, Tensorflow, Pytorch, Pandas, NumPy, Matplotlib, Leaflet, ThreeJs

PROFESSIONAL EXPERIENCE

Researcher - AI/ML Deployment in Real-World Cyber Physical Systems

Jul 2024 - Current

California State University, Los Angeles

On Campus

- Deployed multiple Convolutional Neural Networks of ranging complexity with TensorFlow on multiple edge devices in order to estimate the computational ability for each edge device
- Developed Bash scripts for executing a given command and monitoring the command's system utilization
- Automated the process of running and logging the output of each CNN for future analysis
- Researching methods for implementing federated learning on the tested edge devices

DHS Summer Research Team Program

Jun 2024 - Aug 2024

U.S. Department of Homeland Security

Remote

- Developed a system for mass evacuations during significant disasters using machine learning technologies such as Cart Decision Tree, Multilayer Perceptron, Light Gradient Boosting Machine and eXtreme Gradient Boosting
- Automated data collection and data formatting processes for training multiple models
- Created an interactive web application with VueJs and Leaflet for visualizing the collected data and street segments our model covers

JPL MoonTrek Telescope Integration: Faculty Advisor

Aug 2023 - May 2024

California State University, Los Angeles

On Campus

- Created a modular and scalable code base that generates accurate 3D models of the Moon, performs image registration, and overlays data (collected by NASA's JPL) with high precision on top of user's telescope images
- Front-end is built with VueJs and ThreeJs for creating model of Sun/Earth/Moon. Back-end is built with ExpressJs: handles fetching necessary data from JPL for creating the model and also executes image processing scripts for image registration. Image processing is done with OpenCV in both Python and c++ for testing
- After working on this for my senior design project, I moved on to advise the following year of seniors

Mentor Protege Program: Data Analyst Intern

Aug 2023 - Dec 2023

Raytheon

Remote

- Created a system which analyzes batches of mini-displays and classifies any caught defects within them
- Automated the task of manually classifying defects to identify which step of the manufacturing process is failing
- Trained multiple Convolutional Neural Networks for different mini-displays on previously classified images
- Used image processing methods to expand the limited training dataset

PROJECTS

A Reliable UDP Protocol | *Python, Sockets, NetEm, Git*

Jan 2024 – May 2024

- General purpose protocol built on UDP which has been thoroughly tested for latency and loss
- Supports data transmission using acknowledgements, sequence numbers, and re-transmissions
- Communication is based on Sliding Window protocol and utilizes Selective Repeat in the event of an out-of-order sequence number

Retail Sales Forecasting | *Python, TensorFlow, Keras, Git*

Aug 2022 – Dec 2022

- Built a system to make predictions for each family of products in all Corporacion Favorita stores (located in Ecuador) given data about historical sales and indicators for Ecuador's economic standing
- Trained multiple models such as Linear Regression, 10-Fold Cross Validation with Linear Regression, Decision Tree Regression, and Random Forest Regression and checked each of their accuracy with Root Mean Squared Error