



SACHIN LODHI

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Education

California State University Fullerton

Master of Computer Science

Aug 2023 –
Fullerton, CA

Relevant Coursework

- ANN
- Algorithms Analysis
- Artificial Intelligence
- Machine Learning
- Software Methodology
- Database Management
- Internet Technology
- Computer Architecture

Experience

Cal State Fullerton

Sept 2023 – Present

Research Assistant, Project LUMINATE at CSUF

Fullerton, CA

- Led the development of an AI solution within Project LUMINATE, accurately predicting student dropout risk.
- Achieved an impressive 90.4% accuracy with the predictive model.
- Performed 250+ experiments with different configurations to enhance the collective performance from 50% to 80%.

Freelancing

Sept 2021 – May 2023

Research assistant under Dr. Sakshi Arora

Remote

- Collaborated with multidisciplinary experts to advance research in handwritten mathematical expression analysis and computer vision applications.
- Collected data from over 1200 individuals through online and offline methods, resulting in a dataset with a size of 1178.
- Developed End-to-End DNN model for handwritten math expression segmentation, achieving 82.4% mean IOU score.
- Applied transfer learning and implemented various deep learning architectures (PyTorch, TensorFlow) for diverse applications: medical image analysis, educational technology, OCR, object detection, and image classification; contributed to healthcare AI research for early disease detection and developed AI-powered educational tools for automated assessment.
- Published research in Scopus-indexed journals and presented at international conferences.

Projects

ScanSentinel | Python, Flask, Pandas, CNN

November 2023

- Developed app to classify QR codes as malicious or benign, flagging safety without accessing online resources.
- Attained 95.6% accuracy and 94.3% F1 score, improving cybersecurity and reducing cyber-attack risks.
- Expanded accessibility by creating a user-friendly web application and an API-enabled mobile app, allowing users to determine the safety of QR codes without the need for internet access.

DarkViz | Python, Android, Shell

April 2023

- Developed wireless solution for real-time object detection in low-light using YOLOv8.
- Implemented ADB image capture, real-time detection with adjustable frame rates. Effective in near-zero lighting.
- Agriculture-focused, improves object detection in low light with adjustable frame rates with 70%+ accuracy.

U-Net for HME Segmentation | Python, Colab, Flask, Javascript

November 2022

- Enhanced Handwritten Mathematical Expression (HME) segmentation through strategic model optimizations, achieving an 89.5% Mean IoU on diverse images.
- Implemented automation for increased efficiency, reducing dependence on manual segmentation methods.
- Curated and trained model with 1178 samples from 1200 individuals, using mixed manual/automated collection.

Technical Skills

Languages: Python, C++, JavaScript, SQL

Technologies/Frameworks: Computer Vision, Deep Learning, Linux, GitHub, TensorFlow, PyTorch

Leadership / Extracurricular

Titan Rover

Fall 2023 – Present

Autonomous Team Lead @Titan Rover

Cal State Fullerton

- Leading 10-person team for autonomous navigation, collaborating on URC rover integration.
- Developing autonomous driving components: depth sensing, object avoidance, path planning.

Institute of Navigation

Spring 2024 – Present

CS Team Lead @ION

Cal State Fullerton

- Leading the Computer Science team that provides the mobility and the control to the Bot(Lillith).
- Developed Custom Bird Eye View(BEV) tool to convert front view to the top down view.
- Working with the control team to program motor controllers to take action based on the path planning algorithms.