Shrey Thakkar

+1-480-919-5759 sthakka9@asu.edu linkedin.com/in/shreythakkar0801 shreythakkar.com

Education

Master of Computer Science **May 2025**
Arizona State University, Tempe, Arizona

Bachelor of Technology in Information and Communication Technology **May 2023**
Pandit Deendayal Energy University, Ahmedabad, India *3.84/4.00*

Experience

Research Intern, Indian Space Research Organisation, Ahmedabad, India **January 2023 – May 2023**

- Resolved a unique challenge by developing a solution to provide GNSS navigation using Low Earth Orbit (LEO) satellites originally designed for broadcasting, lacking atomic clocks commonly found in dedicated navigation satellites.
- Formulated and implemented a mathematical algorithm in MATLAB after conducting extensive research.
- Conducted rigorous testing of algorithm harnessing data directly retrieved from LEO satellites, attaining a commendable position accuracy rate of 89.9%.

Software Development Intern, Fortius Infotech, Ahmedabad, India **August 2022 – December 2022**

- Engineered a web application for managing digital billboards and broadcasting video advertisements, leveraging ReactJS for frontend development and Node.js for backend development.

Data Scientist, eAgent, Houston, USA **November 2021 – March 2022**

- Leveraged Numpy and Panda libraries to efficiently preprocess and update over 20 daily raw data files on website server, ensuring data accuracy and accessibility.
- Employed data visualization tools, including Seaborn, to derive valuable insights and predictive patterns from data, enabling anticipation of future electricity rates, and participated in development of a full-stack web application using MongoDB, ReactJs and Node.js technology for company's innovative project.

Projects

An Effective EEG Signal-Based Sleep Staging System using Machine Learning Techniques.

- Created an automated sleep staging system published in IEEE Xplore, designed to classify sleep stages by monitoring EEG wave patterns and eliminating need for physician supervision. This system was designed using Python to extract EEG signals from 153 polysomnography recordings, including data from 37 males and 41 females aged 25-101 years.
- Enhanced model performance through application of supervised machine learning techniques, including K-Nearest Neighbors (KNN), Random Forest, Artificial Neural Networks (ANN), and Convolutional Neural Networks (CNN), achieving an accuracy of 93.3%. Utilized libraries such as scikit-learn, NumPy, Pandas, Seaborn, and TensorFlow to improve classification accuracy and overall system effectiveness.

Computer Vision in Biomedics

- Led a comprehensive project focused on computer vision in biomedical imaging, utilizing chest X-ray datasets such as Chest X-ray 14, MIMIC, Chexpert, VinDrCXR, and others. Implemented advanced deep learning architectures (PEAC, UperNet, Unet++, Swin, etc.) for segmentation, localization, and classification, achieving accuracy rates exceeding 90%.
- Built specialized PyTorch dataloaders for efficient data integration, and employed rigorous evaluation methods (ROC curves, AUC, DICE coefficients) to fine-tune models. Addressed challenges in dataset heterogeneity and computational constraints while integrating cutting-edge techniques to increase project performance.

Scalable Video Analysis Platform Using AWS Serverless Architecture

- Developed a scalable video analysis application using AWS Lambda, S3, and IAM, leveraging serverless computing with FFmpeg for video splitting and ResNet-34 for face recognition.
- Optimized application performance and security within AWS, applying CloudWatch for monitoring and custom auto-scaling techniques to enhance resource management and cost efficiency.

Physiodoktor

- Led the development of a real-time exercise tracker using Python, MediaPipe, and OpenCV for exercise repetition counting. Built a JSON-configured architecture to support multiple exercise types, enhancing versatility and scalability.
- Collaborated with engineers from MAANG companies to create a full-stack solution with a ReactJS/TypeScript frontend and FastAPI backend. Designed user-centered webpages in Figma and utilized WebSocket for seamless real-time video streaming, greatly improving user experience.

Technical Skills

Languages and tools: Java, C, C++, python, embedded C , object oriented programming, debugging, data structures, git, JIRA
Web Development Technologies: HTML, CSS, JS, bootstrap, React-JS, MYSQL, CMS, d3.js
Databases: MySQL, Oracle SQL Plus, SparkSQL, MongoDB
Machine Learning: Numpy, Pandas, Scikit-learn, Seaborn, supervised learning, CNN, ANN, Opencv , NLP, Tensorflow, Keras , artificial intelligence, PyTorch, ResNet18, Swin transformer