Suman Majjari

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Education

Texas Tech University **Aug. 2023 – May 2025**
Master's in Computer and Information Sciences, ***CGPA - 3.58*** *Lubbock, Texas*

Experience

IIITDM Kancheepuram University **Chennai, TamilNadu**
Full Stack Web Developer Intern *May 2021 – Jul. 2022*

- Led a team of 4 in developing web modules for a university portal using PHP to help 150+ employees manage data.
- Used Bootstrap and CSS to create responsive designs for 10 web pages, integrating AJAX for real-time communication.
- Designed RESTful APIs to manage employee data and optimized MySQL connectivity using PHP's MySQLi extension.
- Applied hierarchical role-based access control with inheritance to secure 5 access levels and enable granular permissions.

Projects

BraTS Brain Tumor Segmentation (BraTS2020) | *Python, NumPy, TensorFlow* **Aug. 2024 - Nov. 2024**

- Engineered a modified DUCKNet architecture in TensorFlow for brain tumor segmentation on the BraTS2020 dataset, achieving an 88.72% Dice Coefficient on validation data.
- Designed and implemented an optimized data preprocessing pipeline to enhance MRI-based diagnosis accuracy and model generalization.
- Conducted model training and fine-tuning on a 40GB NVIDIA A100 GPU, utilizing NumPy and TensorFlow for efficient large-scale deep learning workflows.

MediaHUB | *Node, MongoDB, Express, JavaScript* **Jan. 2024 - Apr. 2024**

- Developed a web app for exploring digital media using Express.js and Node.js with responsive design and real-time data through RESTful APIs.
- Built an efficient asynchronous comment system with AJAX for threading and file uploads using Multer middleware.
- Implemented robust secure user authentication with Passport.js, enabling personalized ratings and session management.
- Designed a scalable MongoDB database infrastructure with Mongoose to support CRUD operations, deployed on Heroku.

MST Visualizer and Time Analysis | *Visualisation, Python and DSA* **Aug. 2023 - Nov. 2023**

- Implemented Borůvka's, Reverse-Delete, Prim's, and Kruskal's MST algorithms in Python, optimizing Union-Find with path compression and rank heuristics for efficient edge selection.
- Performed extensive benchmarking of the 4 MST algorithms across dense, sparse, and average graph types using timeit, validating empirical complexity through 1000+ iterations.
- Built a robust MST visualization framework with NetworkX and Matplotlib, emphasizing critical edges and weight distributions for insightful algorithm comparison.

Pneumonia Diagnosis from Chest X-ray Images | *Python, NumPy, TensorFlow and Keras* **Jan. 2023 - Apr. 2023**

- Designed and implemented a deep learning system for pneumonia detection using CNN, MobileNet, and EfficientNetB0 models, achieving 93%, 97%, and 99% validation accuracy respectively on chest X-ray images.
- Built an optimized data preprocessing and model training pipeline, enabling efficient training and real-time inference for clinical deployment.
- Performed comparative analysis with prior models (DenseNet-169, VGG-19), demonstrating superior classification accuracy and reduced computational cost using EfficientNetB0 and MobileNet architectures.

Technical Skills

Languages: Python, C, C++, HTML, CSS, JavaScript, PHP.
Databases: SQL, MySQL, PostgreSQL, MongoDB.
Frameworks: MERN Stack, React.js, Node.js, Express.js, Bootstrap.
Developer Tools: VS Code, PyCharm, CodeBlocks, Canva, Git, GitHub, Postman, JIRA, PhpMyAdmin.
Operating Systems: Linux, Windows, Mac OS.

Awards & Achievements

- Secured **1st** rank at Texas Tech University by Solving 500+ Problems on **GeeksforGeeks**.
- Honored with the highly **Competitive Computer Science Department Scholarshi**p, granted for outstanding academic achievements and a demonstrated commitment to excellence in the field.
- Awarded **Graduate School Competitive Scholarship** for the first year of my Master's at Texas Tech University.
- Received a Certificate of Excellence in Design and Innovation for my team's exceptional academic project.
- Secured the **Foundation for Excellence (FFE)** scholarship for all four years of my Bachelor's as a top student.