

ANKITH REDDY AVULA

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Education

University of Texas Arlington

August 2022 – May 2024

Master of Science in Computer Science **GPA - 4.0**

Arlington, TX

Courses: Cloud Computing and Big Data, Distributed Systems, Algorithm Design, Software Engineering, Distributed Systems, Database Systems, Object Oriented Programming, Operating Systems, Compilers, SDLC

IITDM Kurnool

August 2018 – May 2022

Bachelor of Technology in Computer Engineering **GPA - 3.4**

Kurnool, India

Courses: Data Structures, Database Systems, Object Oriented Programming, Operating Systems, Compilers

Technical Skills

Languages: C++, Java, Python, HTML, CSS, JavaScript, PHP, Scala, Docker, GoLang

Databases: SQL, MongoDB, MySQL

AWS: Lex, Lambda, S3, EC2, DynamoDB, EMR

Big Data Tools: Hadoop, Spark, Pig, SparkSQL

Web: React, Bootstrap, JQuery, Flask, Git, Web API

Frameworks/Libraries: TensorFlow, PyTorch, Selenium, MongoDB, Azure, Linux, Tomcat, JSON, Agile, Linux, Unix

Experience

Computer Science and Engineering at UTA

September 2024 – Present

Volunteer Research Assistant

Arlington, TX

- Implement basic linear algebra operations on Apache Spark using the DataFrames API, where block operations will run on NVIDIA GPUs using NVIDIA RAPIDS.
- Implement the same linear algebra operations to run on NVIDIA GPUs without using NVIDIA RAPIDS, with block operations hand-written in C++.
- Compare the performance of these implementations with existing ones written using the Spark Core API and DataFrames.

Graduate Teaching Assistant

August 2023 – May 2024

- Guided students on Big Data projects, focusing on data processing frameworks, cloud platforms, and Machine Learning tools for Cloud Computing, Big Data, and Algorithms courses.

Volunteer Research Assistant

May 2023 – August 2023

- Conducted study on Efficient Matrix Multiplication implementation using NVIDIA Rapids library in Scala Spark and SparkSQL.
- Worked on implementation of Block Matrix implementation to leverage and test parallel executions in Spark Environment.

Samsung

May 2021 – November 2021

Research Intern

Remote

- Developed an audio source separation model to isolate sound categories (vocals, music, drums, etc) from mixed audio tracks using **Python, TensorFlow, UNets, Auto-Encoders, and Librosa**
- Implemented Fourier Transforms to convert audio signals into spectrograms for frequency domain analysis and custom UNet-based extraction.
- Optimized model architecture, hyperparameters, and performance, achieving accurate separation of sound sources across diverse audio inputs.

Ismriti

June 2019 – July 2019

Data Science Intern

Kanpur, India

- Developed a real-time facial emotion recognition system that recognizes and classifies the live facial emotion of the user using **Python, CNN, TensorFlow, and OpenCV**
- Solved the data scarcity and class imbalance problem by augmenting the data, dataset creation and increasing the size of samples which have very less representation among other classes to make the model unbiased.
- Integrated the model with OpenCV for dynamic, real-time emotion detection, optimizing for real-world scenarios with improved performance and precision.

Projects

ELECTRICAL SUBSTATION SEGMENTATION | Python, Pytorch, Attention UNet

- Ranked **Top 10 in IEEE-ICETCI 2021** Competition organized by **ISRO** on ‘Machine learning-based feature extraction of Electrical Substations from Satellite data’
- Developed an Attention UNet for the semantic segmentation of large remotely sensed images to extract small objects like electrical substations.
- Enhanced model precision by retraining images with mIoU below a certain threshold (τ), expanding the training dataset with less confident images.

TWITTER SENTIMENT ANALYSIS USING DEEP LEARNING | Python, Pytorch, Tensorflow, BERT

 **GitHub**

- Implemented feature-based learning with BERT, including CNN, LSTM, and BiLSTM, for sentiment analysis on Twitter data and explored different combinations to predict sentiments (positive, negative, neutral, or irrelevant) associated with Twitter entities.
- Handled sentiment analysis dataset, recognizing “irrelevant” as a distinct category, Collaborated on Jupyter Notebooks with team for testing and experimentation on models.

MULTI-THREADED FILE SYNC SYSTEM | Python, Async, RPC, Multi-Threading, Parallel Computing


- Developed a distributed system enabling seamless file operations (upload, download, rename, delete) between client and server using RPC-based communication protocols.

- Implemented a helper threads for parallel executions and server efficiency along with following two phase commit fault tolerant mechanisms

TRAFFIC AWARE SCALING OPTIMIZATION IN OPENFAAS | *Python, GOLang, OpenFaaS, Flask*


- Proposed and Implemented a traffic aware scaling algorithm for the OpenFaaS platform for changing the static parameters during scaling
- Improved run times and request handling by 30% for Data Science Functions written in the FaaS cloud model and reduced the response time by 50% against default Static Scaling

BLOGGING WEBSITE | *JavaScript, PHP, CSS, HTML, BootStrap, MySQL, Software Development*

 **Github**

- Led the web application development of a full-stack blogging website using HTML, CSS, JavaScript as front-end, back-end as PHP, and MySQL, with features like user authentication, message posting, and replies.
- Managed deployment on a local server with XAMPP, enabling Apache and MySQL server configuration. Collaborated with a team to build a feature-rich blogging platform with robust user interaction capabilities.

NEIGHBOURHOOD ANALYSIS USING PYTHON | *Python, Folium, Foursquare API, Geocoder*

 **Github**

- Analyzed New York City neighborhoods by utilizing datasets and Foursquare API to identify areas with Indian cuisine restaurants, assessing their distribution and popularity.
- Performed data cleaning and visualization by merging location data with restaurant ratings and tips, using Folium to create choropleth maps highlighting key areas with high user ratings and potential for new Indian restaurants.