

Suhan Krishna Donthineni

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EDUCATION

Birla Institute of Technology and Science, Pilani
Bachelor of Engineering in Electrical and Electronics Engineering

Pilani, RJ
Aug. 2023 – Present

EXPERIENCE

Antenna Design Intern May 2025 – July 2025
Faculty of Electronics, MCEME Hyderabad, TG

- Designed a microstrip patch antenna targeted towards the Ku-Band, using machine learning to optimize the shape and broadband characteristics.
- Generated a dataset of various antenna shapes, and calculated the broadband characteristics of each one, using MATLAB.
- Trained an ensemble of classical regressors (Random Forest, XGBoost, SVR) to predict broadband performance from physical design parameters.
- Employed Genetic algorithms to optimize antenna geometry, using ensemble model as a fitness function.
- Accelerated EM simulations using MATLAB's Parallel Computing Toolbox to handle long computation times.

Undergraduate Research Assistant January 2025 – Present
Birla Institute of Technology and Science Pilani, RJ

- Heading a team under Dr. Vinti Agarwal, developing a framework to optimize short form content based on viewer retention.
- Designed a data-driven pipeline for short-form content creation, based on an attrition index to quantify virality and user engagement.
- Leveraged Natural Language Processing techniques like sentiment analysis, emotion detection, and readability prediction for enhanced content selection.

Teaching Assistant (Computer Programming) August 2024 – December 2024
Birla Institute of Technology and Science Pilani, RJ

- Helped in managing this graduate-level course by personally tutoring and mentoring over 30 1st year students.
- Delivered guidance on key concepts, including C programming, data structures (arrays, strings, linked lists, hashing, and randomized algorithms), memory management, file I/O operations and shell scripting.
- Contributed in organizing and facilitating weekly practical evaluations, invigilated examinations, and resolved academic and exam-related queries.

PROJECTS

Linear Algebra Toolkit for Machine Learning | C++, Shell

- Designed and implemented a linear algebra framework in C++, offering matrix operations targeted towards the development of classical machine learning models.
- Implemented key algorithms including Gauss-Jordan elimination for inversion, Cholesky and QR decomposition, and a stack-based method for rank determination.
- Leveraged this framework to build classical machine learning models from scratch, such as Support Vector Machines, achieving an accuracy of 91.7% on the Universal Bank Records dataset - comparable to the performance of Sci-Kit Learn's implementation.
- Enhanced robustness through features such as operator overloading, multi-file handling for modularity, and automated build processes.

NBA Player Points Prediction Model | Python, Tensorflow, Pandas, Scikit-Learn

- Designed and implemented a points prediction model for NBA players, based on previous games, modeled on historical data, leveraging seasonal trends in performance.
- Utilized a stacked ensemble approach to combine the strengths of models such as XGBoost, 1-D CNN, LSTM, and GRU.
- Calculated ensemble weights using a custom optimization algorithm based on maximum likelihood estimation and back-propagation.
- Utilized sliding window sequencing to enrich data representation and enhance algorithm learning, enabling the detection and exploitation of performance trends over consecutive games.
- A Dynamic Time Warping algorithm was used to evaluate the models.