Sanjey Selvan-Sumathi

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Master's student at UCSD majoring in Machine Learning & Data Science

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Education

University of California San Diego Sep '21 - present
MS in Electrical and Computer Engineering (ML & DS major)
Courses : Statistical learning, Prob. & statistics for Data science, Neural Networks for Pattern Recognition, Programming for Data Analysis. Next quarter: Data Mining Analytics

Anna university - CEG campus (Chennai, India) Aug '13 - Mar '17
Bachelor of Engineering in Electronics & Communication GPA: 8.84/10.00

Skills

Languages	Python,C++,MATLAB
Libs/Frameworks	Pytorch, Scikit-Learn, NumPy, SciPy, Pandas, Matplotlib, Statsmodels, Jupyter Notebook
Statistics/ML	Exploratory Data analysis, Statistical Analysis, data preparation, classification, regression, clustering, Linear Regression, CatBoost, XGBoost, CNN techniques, SQL

Projects

Fully Convolutional Network for Semantic Segmentation on TAS500 datset **Jan '21 - Feb '21**
- Used **Pytorch** to create Fully connected network with IOU loss function
- Increased the accuracy by doing data augmentation and using custom focal loss function
- Created our own architecture based on **U Net** architecture and achieved 5% increase in accuracy

Stock Trend Analysis and Prediction **Sep '21 - Dec '21**
- Predicted stock trend forecast using technical indicators and historical stock data
- Created own dataset by doing feature engineering to yield optimum features for prediction
- Did Exploratory data Analysis and modeled & compared different ML/DL algorithms
- Achieved highest accuracy of 80% using Logistic regression

Classification of Crop status using XGBoost Algorithm **Aug '19 - Sep '19**
- Classified the Crop spoilage status based on multiple features
- Performed Exploratory data analysis for feature selection & analysis of features
- Modelled different algorithms and achieved max of 90% accuracy with XGBoost algorithm

Deep Neural Net Accelerator of VGG16 model for CIFAR-10 dataset **Sep '21 - Dec '21**
Advisor - Prof. Mingu Kang
- Developed VGG 16 & ResNet model for CIFAR-10 dataset in **Pytorch** and achieved >90% accuracy.
- Mapped the convolution operations to Hardware using **2D syslolic array.**
- Used optimization techniques - quantization aware training, pruning and RLE compression
- For sparse matrix operations, redesigned convolution operations for parallel computations efficiently
- With redesign for sparse matrices, throughput increased by 50%

Image Pattern Recognition for Segregation of foreground background **Sep '21 - Dec '21**
- Image Pattern recognition in MATLAB to segregate foreground and background.
- Used statistical ML techniques - Bayesian estimation, Gaussian Classifier, MAP estimation, Likelihood estimation.

Technical Experience

Senior Design Verification Engineer **Dec '17 - Aug '21**
QUALCOMM Inc. *Chennai, India*
- Worked as RTL Design Verification engineer for 5g Modem IP & Wi-Fi MAC layer - 802.11 standards
- Did automation scripting using **Python**

Achievements/Involvement:
- Got promoted to **Senior role** in short time.
- Won multiple **QualStar** and **ThankQ** awards for quick ramp-up, cross collaboration across various teams, debug support.

COURSE CERTIFICATIONS

- Mathematics for Machine Learning: Linear Algebra & Multivariate Calculus | Coursera
- Neural Networks and Deep Learning | Coursera
- SQL for data science | Coursera

PUBLICATIONS

- Aggregation of data frames in HW for CPU offloading (2019)
- Cascaded implementation of security architecture in HW (2020)