DIVYA NANDLAL SAHETYA
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EDUCATION

Master of Science in Electrical and Computer Engineering, University of Southern California — Los Angeles, CA
Linear Algebra, Probability, Machine Learning, Deep Learning, Algorithms, Cloud Computing — **August 2021-May 2023**

Bachelor of Engineering, Electronics and Communication, Sri Jayachamarajendra College of Engineering — Mysore, India
Image Processing, Digital Signal Processing, Data Structures — **August 2015-May 2019**

PATENTS AND PAPER PUBLICATION

System and method for dynamic translation of speech to Sign Language for Oral Health Education – *IN Patent 201841039995*, *IJRASET*
- Engineered an Automatic Speech Recognition system using CNN for dynamic translation to sign language for oral hygiene education.

System and method for Cleft Speech Training at home – *IN Patent no. 202041045850*
- Devised a machine learning system trained with MFCC features of speech samples for assisting partially speech disordered individuals to improve speech with interactive learning experience.

TECHNICAL SKILLS

- **Programming/Scripting Languages***:* **Python** (NumPy, Scikit-Learn, Pandas, SciPy, Seaborn), C++, Java, PySpark, **PyTorch**, **Keras**
- **Database:** MySQL, MongoDB, **BI**: Tableau, Power BI
- **Cloud**: Amazon EC2, GCP, **DevOps:** Docker, Kubernetes
- **Statistics/Machine learning:** Hypothesis Testing, Ensemble Learning, Hyperparameter Tuning, Bayesian Methods, Regularization, Regression, Classification, k-Means Clustering, Decision Trees, Random Forest, Dimensionality Reduction, SVM, Reinforcement Learning, Time-series analysis.
- **Computer Vision/NLP Algorithms**: CNN, GANs, RNN, LSTM, Transformers, Object Detection - SSD, RCNN, YOLO.

WORK EXPERIENCE

Research Assistant — **Los Angeles, USA**
Biomedical Imaging Group, USC — **May 2022-August 2022**
- Developed a deep learning approach to denoise human and mouse brain MRI images along with the team using auto-encoder architecture.
- Obtained a cleaner image compared to traditional image processing approach employed in the BrainSuite software.

Software Developer — **Bangalore, India**
Siemens Healthineers — **January 2019-July 2021**
- Constructed an end-to-end Python executable tool - Log Sanitizer along with the team to encrypt Patient Health Information to comply with the **HIPAA** and deployed the docker image using K8 and AWS EC2 instance.
- Improved the processing speed of the tool to encrypt ~**1 million** amount of log files from different Business units by using multithreading and multiprocessing.
- Enhanced the performance of conversion of EVTX and EVT files to XML in Python-Evtx and Python-Evt libraries by introducing multiprocessing.
- Collaborated and developed a messaging module between Log Sanitizer tool and file transfer module using JMS Messaging Module and deployed the tool along with the hook on docker and Kubernetes environment.

Engineering Intern — **Mysore, Karnataka, India**
R&D, SKANRAY Technologies — **June 2018-July 2018**
- Studied and surveyed the various biomedical devices and worked on the UART Communication using dspic33F Microcontroller.

ACADEMIC PROJECTS

Music Generation using Transformers | *GitHub*
- Built a transformer model to generate music based on initial few notes in a MIDI file and achieved a loss of 2.10 on the baseline and 1.72 on transfer learning.

Analysis of Supervised and Semi-Supervised Machine Learning for Cervical Cancer Diagnosis | *Github*
- Attained an accuracy of 82.67% with Random Forest with Supervised Learning and attained an accuracy of 90.55% with Semi Supervised learning based on ML Learning theory.
- Designed a machine learning system to detect if a person has the risk of cancer based on the risk factors (categorical) data collected from patients and the results of four diagnosis tests namely Hinselmann, Schiller, Cytology, Biopsy.

Predicting Forest Fire in Algeria Using Machine Learning Techniques | *Github*
- Obtained a highest accuracy of 90% with a Logistic Regression classifier with standardized input and feature reduction using PCA.
- Constructed a comparative machine learning system to predict forest fires using various classifiers on a dataset containing numeric and categorical features.

American Sign Language Recognition using Deep Learning Techniques | ***Github***
- Formulated an image recognizer using pre-trained ResNet (ResNet18, ResNet34, ResNet50) models in PyTorch.
- Deployed the model and obtained an accuracy of 96%, 98% and 100% respectively on the test set.
- Extrapolated the model to test on an external American Sign Language dataset and achieved a highest accuracy of 74% for ResNet50.

LEADERSHIP & SERVICE

- Vice-Chairperson, IEEE SJCE Student Branch, Mysore, India — **2018-2019**
- Presented a Poster at **Global Bio-India Meet 2019** on '**System and method for Cleft Speech Training at home** ' — **2019**
- **Grace Hopper Conference (GHC) Attendee** — **2022**