



EDUCATION

- ★ **Vellore Institute of Technology (VIT), Vellore** ⇒ *Bachelor of Technology in Electronics and Communication Engineering with Specialization in Internet of Things* [Undergraduate (UG)] JULY 2018 - JUNE 2022
- **CGPA:** 9.17 on a scale of 10 [Among the top 10% of students (12 / 137) in the department] VIT SpecialAchiever.pdf
 - **Scholarship:** Merit Scholarship for rank 6 of 130 students in the stream for the year 2018-19 Academic Merit.pdf
 - **Relevant Courses:** Python Programming - **S (10/10)**, Calculus for Eng.- **S (10/10)**, Object Oriented Programming- **S (10/10)**, Signal Analysis and Processing- **A (9/10)**, Communication Eng.- **A (9/10)**, App. of Differential and Difference Eqn. - **S (10/10)**, Data Structures & Algorithms - **A (9/10)**, Principles of Computer Communication- **B (8/10)**, Statistics for Engineers- **S (10/10)**, Applied Linear Algebra- **A (9/10)**, IoT System Architecture- **B (8/10)**, IoT Fundamentals- **A (9/10)**, Deep Learning- **A (9/10)**, Neural Networks & Deep Learning- **A (9/10)**, Advanced Microcontrollers - **S (10/10)**, Applied Numerical Methods- **A (9/10)**, IoT Edge Nodes & Its Applications- **B(8/10)**, IoT Domain Analyst- **A (9/10)**, Cloud Computing & Information Security- **A (9/10)**, Information Theory & Coding - **A (9/10)**, Advanced Java Programming - **S (10/10)**, Introduction to Data Analytics - **S (10/10)**, Machine Learning Fundamentals - **S (10/10)**, Artificial Intelligence with Python - **S (10/10)**

INTERNSHIPS AND RESEARCH EXPERIENCE

- ★ **Nanyang Technological University, Singapore** - [*Research Assistant*] Letter of Admission_NTU.pdf
→ JUNE, 2022 - JAN, 2023 (Currently Working) [*Research Assistant under Prof. Tong Ping*]

Outline:

NTU Extension.pdf

- Comparing the performance of existing ML models in picking the first P phase arrival from seismograms in the selected study region using the **Seisbench framework**. Choose the best model as the base model - 1. [SeisBench's documentation](#)
- Understanding the **PmPNet** (base model -2) architecture and analyzing its performance in picking the later PmP depth phase from seismograms in the selected study region. [PmPNet Documentation](#)
- Developing a hybrid DL algorithm, similar to base models' architecture, with **autoencoders, ResNet blocks, CNNs, and RNNs** using **PyTorch** to predict the probability of sP depth phase occurrence in a seismogram and its respective travel/arrival time.
- Training the model using the prepared sP depth phase database for efficient sP phase picking from real-time seismograms.
- Relocating earthquakes' origins using the designed algorithm & performing **seismic tomography** for petroleum exploration.

- JAN, 2022 - JUNE, 2022 (Spring 2022) [*UG Capstone - India Connect @ NTU Visiting Research Student under Prof. Tong Ping*]

Key Outcomes:

NTU Project Workflow.png

NTU Project Report 1.pdf

- Comprehended the principles of Seismology and the characteristics of seismic depth phases, **P & sP phases** in particular.
- Extracted around **200k seismic signals** (= 1 TB of Seismic Data) from open source databases. [IRIS] <https://www.iris.edu/hq/>
- Preprocessed (remove noise, cut and align, remove signals with less SNR) the extracted seismic signals from a study region.
- Calculated **sP-P differential** travel times, and summarized the detection workflow of sP depth phase picking and its features in the **PREM-1D layered, 'iasp91', Earth model** using **TauP module, Seismic Analysis Code, and ObsPy** Python packages.
- **Correlated** the **sP-P differential** travel times with the **focal depth** of earthquakes using the TauP python module. Concluded that the **sP-P differential travel time is sensitive to the focal depth** with an approximately **linear relationship**.
- Transformed the waveforms into Radial and Transverse components w.r.t. the azimuth angle from station to the earthquake.
- Analyzed the seismic waveforms & **manually picked high-quality sP phases** using the summarized detection workflow.
- Prepared a database based on the characteristics of manually picked sP-phases from waveforms.

- ★ **QuantaVid LLC** - [*Machine Learning Engineer Intern*]

1st OCT, 2020 - 28th FEB, 2021

QuantaVid Internship certificate.pdf

Key Outcomes:

- Designed, developed, enhanced, and implemented AI solutions, particularly w.r.t **NLP** for **automatic generation of videos based on the text input**. Implemented **TextRank algorithm** for extractive summarization of user's text input - module 1.
- **Web-scraped, mined, and wrangled relevant data** to train machine learning models for genre classification of text input.
- Designed a **Naive Bayes-based classifier** for genre classification which obtained an average **accuracy of 93.7%** - module 2.
- Integrated modules 1 & 2 to **auto-generate** a short **2-minute video** description of any blog using relevant images and audio.
- Collaborated with the backend team to integrate the ML Pipeline with the company's platform using **Google Cloud Platform**.

- ★ **Six Red Marbles Inc.** - [*Subject Matter Expert - Mathematics*]

11th DEC, 2020 - 1st JAN, 2021

Six Red Marbles-Cert.pdf

Key Responsibilities: Provided **optimized and accurate solutions** for **500+** University-based high-level mathematics questions from several textbooks for senior-level undergraduate students.

TECHNICAL SKILLS

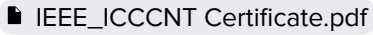
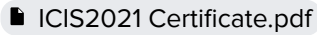
- **IT Constructs** : Data Structures & Algorithms ; OOPS ; DBMS
- **Programming Languages** : Python ; Java ; JavaScript ; SQL ; C ; C++ ; Matlab ; R ; Verilog ; Embedded C
- **Libraries and Frameworks** : Pandas ; NumPy ; Scikit-learn ; PyTorch ; Tensorflow ; Keras ; Matplotlib ; Seaborn ; Plotly ; NLTK ; Gensim ; OpenCV ; Django
- **Web Technologies** : Django ; Flask ; JavaScript ; HTML ; CSS
- **Database Systems** : SQLite3 ; PostgreSQL ; MySQL

➤ **Cloud Platforms** : AWS EC2 ; Firebase ; IBM Cloud & IBM Watson

KEY INTERESTS: AI/ML ; Data Science/Analytics ; IoT & Cloud ; Signal/Image Processing ; Computer Vision ; NLP ; HCI

OTHER SKILLS(TECHNOLOGY/FUNCTIONAL): Exploratory & Explanatory Data Analysis ; Data Visualization ; Backend Dev. ; Embedded Systems ; Public Speaking ; Communication; Leadership


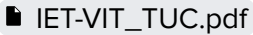
RESEARCH PUBLICATIONS AND PRESENTATIONS

- ★ **Ramaneti, Ketan. (2022). "An Overview of Recent Advances and Applications of Machine Learning in Seismic Phase Picking."** Preprint Version. DOI: <http://dx.doi.org/10.13140/RG.2.2.11669.19689>.
- ★ **"IoT based 2D Indoor Navigation System using BLE Beacons and Dijkstra's Algorithm,"** 2021 IEEE 12th International Conference on Computing Communication and Networking Technologies (ICCCNT), July 6-8, IIT Kharagpur, India, **IEEE Xplore**. DOI: [10.1109/ICCCNT51525.2021.9580047](https://doi.org/10.1109/ICCCNT51525.2021.9580047) ([Link](#))
 - ❖ Presented the research paper at the **IEEE 12th International Conference on Computing, Communication and Networking Technologies (ICCCNT-2021)**, July 6-8, 2021, IIT-Kharagpur, India. 
- ★ **"Improving Solar Panel Efficiency by Solar Tracking and Tilt Angle Optimization with Deep Learning,"** 2021 IEEE 5th International Conference on Smart Grid and Smart Cities (ICSGSC), Tokyo, Japan, June 18-20, 2021, **IEEE Xplore**. DOI: [10.1109/ICSGSC52434.2021.9490485](https://doi.org/10.1109/ICSGSC52434.2021.9490485) ([Link](#))
- ★ **"Image Steganography Using GANs."** In: Lee R. (eds) Computer and Information Science 2021—Summer. ICIS 2021, Shanghai, China. **Studies in Computational Intelligence, vol 985. Springer, Cham.** DOI: [10.1007/978-3-030-79474-3_12](https://doi.org/10.1007/978-3-030-79474-3_12) ([Link](#))
 - ❖ Presented the research paper at the **IEEE/ACIS ICIS 2021 - Summer International Conference**. 
 - ❖ Received a Special Issue Publication (top 13 best papers) at the conference.
- ★ **"Design and implementation of Sun Tracking Solar Panel and Smart Wiping Mechanism using Tinkercad,"** In IOP Conference Series: Materials Science and Engineering, volume 906, 012030, **IOP Publishing, 2020.** DOI: [10.1088/1757-899X/906/1/012030](https://doi.org/10.1088/1757-899X/906/1/012030)

ONLINE TECHNICAL COURSES AND CERTIFICATIONS

- ★ **UDACITY - Machine Learning Engineer Nanodegree** <https://confirm.udacity.com/N37EMJJ2>
- ★ **UDACITY - Deep Learning Nanodegree** <https://confirm.udacity.com/RKGH362Q>
- ★ **UDACITY - Natural Language Processing Nanodegree** <https://confirm.udacity.com/CDDG752T>
- ★ **UDACITY - Introduction to Machine Learning with Pytorch** <https://confirm.udacity.com/PAJSGVTP>
- ★ **Neural Networks and Deep Learning (Coursera)** [[Certificate Link](#)]
- ★ **Machine Learning with Python by IBM** [[Certificate Link](#)]
- ★ **Recent Advances in Freeform Electronics** [[Certificate Link](#)]
- ★ **Software Engineering Virtual Experience (JP Morgan and Chase)** [[Certificate Link](#)]

STUDENT ORGANISATIONS (VOLUNTEERING)

- ★ **SKILLSHIP FOUNDATION, VELLORE COMMUNITY - Director of Projects** JUL 2020 - MAY 2021
 - Guiding the student community in building projects to solve real-world problems. 
 - Providing and assisting fellow members with technical skills needed to complete a project.
- ★ **IET-VIT, Student Chapter of IET - Senior Technical Member**  DEC 2018 - NOV 2020
 - Organizing university-level events, and technical workshops, making innovative projects, and publishing research papers
 - Fulfilling the above-mentioned duties and guiding juniors in their fields of interest.

PERSONAL MINI PROJECTS

1. **COVID-19 Tweets' Sentiment Analysis and Classification - NLTK, Gensim, Sklearn, Python** [[Github Link](#)]
2. **e-Healthify: A COVID-19 Risk Predictor using ANN - Python, Keras** [[Github Link](#)]
 - An ANN model that can predict the probability of a person getting affected by COVID-19.
3. **EMG Signal Analysis to control prosthetics using ML - DSP, MATLAB, Python** [[Github Link](#)]
4. **Object Detection and Identification using YOLOv3 for ADAS - Python, OpenCV, PyTorch** [[Link](#)]
 - Implemented the YOLOv3 algorithm in real-time to build an ADAS system for a 'Semi-Autonomous Driver Assistance System' in cars, helpful for elderly people and people with poor reflexes who fail to react in time, resulting in collisions and accidents.
5. **iGuideU: An Indoor Mapping System - Dijkstra's Algorithm, Graph Mapping, OOPS, Python** [[Github Link](#)]
6. **Benjamin and Warren Buffett Filter, Stock Market Filter - Python** [[Github Link](#)]
7. **Stock Market Sentiment Analysis - Python, PyTorch** [[Github Link](#)]
 - Sentimental analysis of the Stock market to predict a company's performance in the market is based on news headlines.
 - The project won the Fintech domain in VIT hack 2019.