**Ramachandra P**

**Sr Deep Learning Engineer**

**Mail: ramachandrapdl3@gmail.com Mobile: 9513180042**

**OBJECTIVE:**

To Work in a dynamic professional environment with a growing organization and use my skills, abilities and ideas to achieve professional growth while being resourceful for the organization.

**PROFESSIONAL SUMMARY:**

* Having **3+ years Experienced Deep Learning Engineer** with a demonstrated history of working in the IT & Services Industry. Skilled in Deep Learning, Computer Vision, NLP, Machine Learning, TensorFlow, Keras, PyTorch, OpenCV, Python.
* **Implemented Project** by using TensorFlow2 & PyTorch on **Computer Vision (**Generative Adversarial Networks (**GAN**), **CNN** (Convolution Neural Networks) & Variational Autoencoder(**VAE**), Neural Networks etc & **NLP (**BERT, Transformers, **NER**,RNN, LSTM**) &** building Scalable ML Solutions.
* Hands on experience & Excellent command & Expertise on **Deep Learning** state of the art algorithm namely – **Neural Networks, CNN, ANN, DNN, GAN, VAE, Auto-encoder, RNN, LSTM, GRU, Back-propagation, Image Classification, Objection Detection** & many more…
* Hands on experience in **Deep Learning** technique on **(fine-tuning, Image Classification, Object Detection, R-CNN, YOLO, ResNet, U Net, Transfer Learning, Instance Segmentation, Semantic Segmentation, OCR, Tesseract)**.
* Hands on Experience in **Machine Learning** state of the art algorithm namely - **Random forest, Decision Trees, Naive Byes, SVM, KNN, PCA, NLP, Gradient Boosting, Supervised/ Unsupervised Learning, Clustering**, **K-Means, Classification & Regression,** Feature Engineering etc…
* Crystal - Clear understanding on **Mathematical Intuition** behind major Machine Learning & Deep Learning Algorithms.
* Hands on experience in **NLP methods** such as Sentiment Analysis, Entity Extraction, Text Mining, **TFIDF, Named Entity Recognition(NER),** PosTagging (POS), Tokenization, Lemmatization**, Word Embedding, Word2Vec, GLOVE,** Skip Gram & Neural Networks – RNN, LSTM, **BERT, Transformers,** ELMO, GPT etc.
* Experience in working with **end to end deployment** on large volume of data.
* Ability to apply Machine Learning to problems that **deal with Text & Language.**
* Experience with containerization (**Docker**) & data visualization (**Tableau**).
* Experience in working with **ML/DL Frameworks (TensorFlow2.0, PyTorch, Keras, scikit-learn, OpenCV, etc.)**
* Familiarity with popular cloud computing platforms (**AWS, Amazon SageMaker, S3, EC2)** & Google Cloud (**GCP, Google Colab)**.
* Sound Knowledge on data query and processing tools **SQL** & No SQL MongoDB.

**TECHNICAL SUMMARY:**

* **Programming Language**: **Python** (Data Structure, Advanced & OOPS), Apache Spark (PySapark).
* **Framework** : **TensorFlow2.0, PyTorch, Keras, Scikit-learn, Sklearn, OpenCV,** HuggingFace, MLFlow, Databricks.
* **Libraries & Packages : SpaCy, Hugging Face, Sklearn, NLTK, ,Flask, NumPy, Pandas,** Matplotlib , SciPy**,** Seaborn, Git & Github
* **Cloud Platforms : AWS, Amazon SageMaker, AWS EC2, S3, Google Cloud (GCP, Google** Colab) & IBM Watson Studio.
* **Containers : Docker**
* **Databases : SQL, MongoDB**
* **BI Tools : Tableau (Visualization).**
* **Statistics :** Hypothesis Testing, Bayesian Statistics, properties of distributions
* **Technology** : Artificial Intelligence(AI), Machine Learning(ML), Natural Language Processing(NLP), Deep Learning(DL), Computer Vision, Video Analytics (NVIDIA), etc.
* **ML/DL Algorithms** : **Computer Vision(**CNN, R-CNN, GAN, VAE, YOLO, Tesseract, RNN, LSTM & many more) **&Natural Language Processing**(BERT, Transformer, NER, RNN, LSTM, Naïve Bayes, Word Embedding etc..) **&Machine Learning**(Random forest, Decision Trees, Naive Byes, SVM, KNN, PCA, NLP, Gradient Boosting, Supervised/ Unsupervised Learning, Clustering, K-Means, Time Series Forecasting, EDA etc).

**EDUCATIONAL SUMMARY:**

* Master’s Degree - **MCA at Utkal University**, Bhubaneswar(NAAC A+) | Aug 2013 to June 2016 - 7.85/10

**CERTIFICATIONS:**

1. **Machine Learning, Stanford University, Coursera.**

<https://www.coursera.org/account/accomplishments/certificate/PVURMPYQJK2Q>

1. **Deep Learning Specialization**, **Deeplearning.ai, Andrew Ng, Coursera.** <https://www.coursera.org/account/accomplishments/specialization/certificate/CB7J6KSBUZS8>
2. Data Science Professional Certificate IBM, Coursera

<https://www.coursera.org/account/accomplishments/specialization/certificate/VUKZ29PLBHEB>

1. Getting Started With **AI On Jetson Nano**, NVIDIA. <https://courses.nvidia.com/certificates/293cf46a5521495d89cd7a2b76263f73>
2. Natural Language Processing with Sequence Models, deeplearning.ai, Coursera. <https://www.coursera.org/account/accomplishments/certificate/L8E38NWG4D6S>
3. Convolution Neural Network (CNN) with Computer Vision. Verify: <https://www.coursera.org/account/accomplishments/certificate/EKPPF95755B>

**PROFESSIONAL EXPERIENCE:**

Feb 2020 – Till Date HCL Technologies

**Sr Deep Learning Engineer**

**PROJECT NO. 1**

**# OBJECT DETECTION USING CUSTOM DATASET WITH TENSORFLOW2 & KERAS**

**Domain :** Healthcare

**Client**  : Boieng, HCL Technologies,

**Duration :** Feb 2021 – Till Date

**Team Size :** 5

**Individual Role :** Sr Deep Learning Engineer

**Project Description:**

Built a real-time object detector that can find vehicle number plates in images. Used a pre trained model & fine tuned it on a small dataset to adapt it to the task at hand.

**Responsibilities:**

* Prepare a custom dataset for object detection.
* Detect vehicle plates from raw pixels.
* Use Transfer Learning (Retina Net) to fine-tune the model.
* Make Prediction on test images.
* Evaluating object detection by using performance metrics IoU & mean average precision(MAP) .
* Mentor and Coach Dev. Team.
* Deploy the application to the Production on AWS Cloud.

**PROJECT NO. 2**

**# HUMAN ACTIVITY RECOGNITION USING CNN (CONVOLUTIONAL NEURAL NETWORK) ON TENSORFLOW2 & KERAS**

**Domain :** Media Communication

**Client :** HCL Technologies, AIG

**Duration :** Feb 2020 – Feb 2021

**Team Size :** 6

**Individual Role :** Sr Deep Learning Engineer

**Technology : Python, Tensorflow, Keras, Scikit-learn, Importing Libraries, CNN, Neural** Networks, Computer Vision, Google Colab, Statistics.

**Project Description:**

Under This Project, We used WISDM dataset contains data collected through controlled, laboratory conditions. The total number of examples is 1098207. The dataset contains six different labels (Downstairs, Jogging, Sitting, Standing, Upstairs, Walking. In addition to this, we used accelometer data to train the model so that it can predict the human activity.

**Responsibilities:**

* Design & develop CNN Model from scratch.
* Load & Preprocess the dataset.
* Balance & Standardisation of data.
* Create Frame by using SciPy library.
* Under this project, we used 2D Covolutional Neural Networks to build the model.
* Used Tensorflow-Keras to build the CNN Model.
* Used mlxtend to plot the Confusion Matrix.
* Design & develop CNN Model from scratch.

**PROJECT NO. 3**

**# SENTIMENT ANALYSIS WITH BERT & TRANSFORMER USING HUGGING FACE**

**Domain :** Media Communication

**Client :** Boeing, HCL Technologies

**Duration :** Feb 2021 – Till Date

**Team Size :** 6

**Individual Role :** Sr Deep Learning Engineer

**Technology : Python,** PyTorch, AWS Cloud, AWS SageMaker, Google Colab, Hugging Face Library, Flask, Docker, Research Paper, Transformer**, BERT, Transformer, NLP, AI, ML, DL.**

**Project Description:**

This is a Sentiment Analysis Product which is implemented by BERT stands for Bidirectional Encoder Representations from Transformers, which is the State of the art pre trainning for NLP. Under this project, fine-tune BERT for Sentiment Analysis & doing text pre-processing (special tokens, padding and attention masks) and build a sentiment classifier using the amazing Transformers library by Hugging face.

**Responsibilities:**

* Implementing various features as per the Product requirement.
* Give idea on various product features.
* Intuitively understand the BERT Research Paper.
* Preprocess the text data for BERT & build PyTorch data (Tokenization, attention masks & padding).
* Use Transfer Learning to build Sentiment Classifier using the Transformer Library by Hugging Face.
* Evaluate the model on test data.
* Predict Sentiment on raw text.
* Key role in Docker Containerization of the application.
* Mentor and Coach Dev. Team.
* Deploy the application to the Production on AWS Cloud.

Nov 2017 - Feb 2020 Tech Mahindra

**Deep Learning Engineer**

**PROJECT NO. 4**

**# GENERATING & TUNING REALISTIC IMAGES USING GENERATIVE ADVERSARIAL NETWORK (GAN) IN TENSORFLOW & KERAS**

**Domain :** Artificial Intelligence

Client : Optus, Tech Mahindra

**Duration :** Jan 2019 – Jan 2020

**Team Size : 5**

**Individual Role :** Deep Learning Engineer

**Technology :** Python,Tensorflow, Keras, Scikit-learn, Anaconda, PyCharm, Importing Libraries, AWS, Flask, Advanced Statistics, AI, DL, GAN, VAE.

**Project Description:**

Generating & Tuning Realistic Artificial images by using Generative Adversarial

Network (GAN) which is the most popular & biggest breakthrough of Deep Learning & AI. And feed into Reinforcement Learning Application for the Surveillance.

**Responsibilities:**

* Preparing the dataset for building Generative Models.
* Applying AI & Data Science end to end life cycle.
* Building Statistical Models by usin Maximum Likelihood.
* Creating Adversial Network using minimax game.
* Key Role on Implementation of GAN.
* Key Player on intuitively understand the original research paper.
* Role played on developing the mathematical intuition behind the Generative Models.

**PROJECT NO. 5**

**# REALTIME TIME SERIES ANOMALY DETECTION USING RNN, LSTM AUTOENCODER**

**Domain :** Healthcare

**Client**  : General Electric, Tech Mahindra

**Duration :** Jan 2019 – Jan 2020

**Individual Role :** Deep Learning Engineer

**Technology :** Python, PyTorch, AWS Cloud, Google Colab, Anaconda, EDA, Artificial Intelligence, ML, DL, RNN, LSTM Autoencoder, Time Series, Anomaly Detection, Healthcare.

**Project Description:**

AI in Healthcare Project for detecting Abnormal Heartbeats from a Heart Disease Patient by using RNN, LSTM Autoencoder.

**Responsibilities:**

* Prepare a dataset for Anomaly Detection from Time Series Data.
* Doing Exploratory Data Analysis (EDA), & Data Preprocessing for train our Autoencoder.
* Build an LSTM Autoencoder with PyTorch.
* Train & Evaluate the Model.
* Choose a Threshold for Anomaly Detection.
* Classify unseen examples as normal or anomalies.

**PROJECT NO. 6**

**# AIRLINE PASSENGER PREDICTION USING RNN, LSTM NEURAL NETWORK**

**Domain :** Artificial Intelligence

Client : General Electric, Tech Mahindra

**Duration :** May 2018 - Nov 2019

**Team Size : 5**

**Individual Role :** Deep Learning Engineer

**Technology :** Python, Tensorflow, Keras, Scikit-learn, Importing Libraries, LSTM, RNN, Deep Learning, Time Series Forecating, EDA, Statistics, AWS Cloud.

**Project Description:**

Predicting the number of passengers in an Airlines. The dataset has two columns Month, & Passengers. Month contain the month of the year, Passengers contain total number of passenger travelled on that particular month.

**Responsibilities:**

* Under this project we used LSTM for a week ahead of Exploratory Data Analysis was done to understand data graphically, it helps us to design the algorithms.
* RMSE was less than the standard deviation for true prediction.
* Building LSTM, RNN Model for better accuracy.
* Key Role in Time Series Forecasting on Multi Step Prediction