JEROME FRANCIS

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EDUCATION

T.K.M. College of Engineering, Kollam *August 2016 - 2020*
Bachelor of Technology (B.Tech) *CGPA : 9.3/10*
Department of Computer Science and Engineering(CSE)

Montfort Senior Secondary School, Ashok Vihar (New Delhi) *March 2016*
12th Higher Secondary Examination (Science), CBSE Overall Percentage: 95
10th Secondary Examination, CBSE CGPA : 9.6/10

EXPERIENCE

Ignitarium Technology Solutions P. Ltd., Kochi June - July 2019
Machine Learning Intern

· Analyzed different models for Rail Defect Detection using Semantic Segmentation, and developed rail gap measurement feature using Image Processing Advisor : Jerin Antony, ML Engineer, Ignitarium

Radix Info Solutions P. Ltd. , New Delhi July 2018
Summer Intern

· Learned Machine Learning and Deep learning algorithms and worked on classification of messages.

PROJECTS

Dynamic Music visualisation Ongoing
Designing a pipeline for visualising music through shapes and colors by generating a correlation effect similar to synesthesia.
Milestones achieved : Researched about musical feature extraction and have worked out a music network contain the knowledge.

Improving IVIM Imaging technique April 2020
In my final-year research project, I worked on MRI Imaging particularly the IVIM technique, and worked on different ways to improve it. My job in the team was to focus on the Image Segmentation part where, different methods were studied to identify tumor accurately and robustly in the MRI scans.
Advisor :: Dr. Ansamma John, HOD (CSE), TKMCE

Taxi task using Q-learning Sep 2019
Implemented the taxi task using Temporal-difference technique of Q-learning, where the task is to pickup and drop the passenger from source to destination by using taxi as an agent. Gym's taxi-task environment was used.

Video based RailGap measurement July 2019
Developed a feature to measure rail gaps of rail tracks present in video frames using Semantic segmentation. This measurement is used to detect gaps which exceed a threshold value. Three modes of measurement namely, center-to-center mode, outer-rail to outer-rail mode and inner-rail to inner-rail mode of railway tracks. This project was a part of internship done in July 2019.

Smart Waste Management Jan 2019
An Iot based smart waste management system using smart bins to provide waste-management services with optimal amount of time and cost required for the same using machine learning model. Selected for final round of TEKCON'19 contest

Academic Project : RailSathi Oct - Dec 2018
Worked in a 3-person team to design a railways booking app as a part of the design project. This application aims to provide booking tickets for connecting trains if direct trains are not possible.

Creation of Jazz music using LSTM Oct - Dec 2018
Created a Jazz sampling model using LSTM and feeding Jazz music dataset. It was a part of the assignment in the deep learning course. Technology used : Python, Keras, pydub.

TECHNICAL SKILLS

Languages	Python, C++, C
Database	MySQL
Tools/Libraries	Keras, Numpy, Pandas, Tensorflow, Pytorch
Familiar	Java, Javascript, HTML, CSS, Arduino
General	Data Structures, Algorithms, Object Oriented Programming

MOOCS AND CERTIFICATIONS

CS285 - Reinforcement Learning, UC Berkley Ongoing
Learning about the fundamental theoretical concepts of RL and its applications and implementing the concepts which is present in my Github repo - **Reinforcement Learning**
Things I've Learnt ::

- Policy Gradient (on and off-policy using Importance Sampling)
- Actor-Critic (Improved baseline version of policy gradient)
- Q-Learning (Evolving from Value Iteration, works best for tabular deterministic environments)

Game Theory by Stanford University on Coursera
Learnt about ::

- Representing games and different actions of players.
- Rational and irrational interactions between the players (Dominant Strategies and Trigger Strategies)
- Identifying the Nash Equillibrium of a game (where no player wants to change their decision)

Machine Learning by Stanford University on Coursera
Learnt about ::

- Various types of data visualisation methods
- Measures, metrics and practices used in data pre-processing
- Methods used for different representation problems like Regression, Classification, Clustering, etc.
- Improving a ML pipeline

Sequence and Models by deeplearning.ai on Coursera
Learnt about Recurrent Neural Networks, LSTMs and GRUs

Architecting with Google Compute Engine Specialization by Coursera

Web Development course by UPES ACM chapter

RELEVANT COURSES

Discrete Computational Structures
Graph Theory
Data Structures and Algorithm
Introduction to Database Design
Theory of Computation
Operating System

INVOLVEMENT

Student Mentor for Machine learning, SIG-TKMCE

Member of TKMCE Robotics Club, Research Team

Qualified for final round in Microsoft AI Challenge, 2018

Qualified for final round of IdeaFest 2019 for the product 'monitor24'

Volunteered for IEEE PES quiz, 2016

Member of CSI and ACM , TKMCE chapter in 2016

Participated in IRL robotics league zonal round , 2016