



Praveen Kumar Ramesh

DATA SCIENCE · MACHINE LEARNING · DEEP LEARNING · COMPUTER VISION

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Summary

I am an aspiring researcher and motivated individual, interested in Computer Vision and Machine Learning. I would like to work on real life application, exploiting these fields. I am good speaker with great leadership skills.

Education

SSN College of Engineering

B.E. COMPUTER SCIENCE AND ENGINEERING
2017 - 2021

9.09 CGPA

Kalavakkam

The Hindu Senior Secondary School

12TH STANDARD
2016 - 2017

94.8%

Indra Nagar, Chennai

The Hindu Senior Secondary School

10TH STANDARD
2014 - 2015

9.8 CGPA

Indra Nagar, Chennai

Experience

Goldman Sachs

ANALYST

Bangalore

Aug 2021 - Present

Solarillion Foundation

RESEARCH ASSISTANT AND TEACHING ASSISTANT

Chennai

Jan 2019 - Present

Goldman Sachs

INTERN

Bangalore

May 2020 - Jul 2020 & Jan 2021 - Jul 2021

Admatic Solution Pvt. Ltd.,

INTERN

Adyar, Chennai-600009

Apr 2019 - June 2019 (2 months)

Honors & Awards

2019 **Campus Ambassador**, GECE

Global Education and Career Forum

2019 **Winner**, State Math Quiz for undergraduates

SSN College of Engineering

2019 **Merit Scholarship**, Accelerate Diversity Scholarship

Cognizant Technology Solution

2019 **Winner**, Java Coding Competition - National Symposium

Madras Institute of Technology

2019 **Winner**, Reverse Coding - National Symposium

College of Engineering, Guindy

2018 **Merit Scholarship**, 3rd Rank in 1 year

SSN College of Engineering

2015 **Praveen Uttarardh**, Passed with Distinction (77%)

Dhakshin Bharath Hindi Prachar Sabha

Languages

English · Tamil · Hindi · German

Programming Languages

C · C++ · Python · Java · SQL · LaTeX · MATLAB · HTML · CSS · JavaScript

Skills

OpenCV · Tensorflow · Keras · PyTorch · Pandas · Flask · Arduino · Android Studio · Tkinter

Publications

Critical State Detection for Adversarial Attacks in Reinforcement Learning (Accepted)

ICMLA 2021

Defending Against Localized Adversarial Attacks on Edge-Deployed Monocular Depth Estimators

ICMLA 2020

Species Recommendation using Machine Learning - GeoLifeCLEF 2019

CLEF CONFERENCE 2019

Number Plate Segmentation Using Deep Learning Models [\[submitted\]](#)

CURRENT SCIENCE

Projects

Transfer Learning for Deep Reinforcement Learning

TEAM MEMBER

Undergraduate Project

May 2020

- We showed that pre-training in adversarial condition can make RL agents robust to environmental variations
- I actively contributed to the solution and implemented attacks for the agents.

Behavioral Model: Industry 4.0

PROJECT TEAM LEADER

Industry Project

May 2020

- Implemented behavioral model for Emergency Stop, Nut Runner and Vision System in a factory's production line.
- These models provide necessary feedback to a **PLC** or a process using **OPC DA protocol**.
- **Tkinter** was used to design GUI for this project.
- Our simulation models passed all the test cases and our team secured the **first place**.

Intelligent Stock Trading Agent [\[link\]](#)

PROJECT TEAM MEMBER

Mini-Project

Feb 2020

- The objective of this project is to build an agent that can intelligently buy, sell or not perform any action with respect to a stock.
- **LSTMs**, **Deep Q Networks**, **Actor Critic methods** and **Genetic Algorithm** were used to train the agent to make decisions.

Smart Attendance Management System [\[link\]](#)

PROJECT TEAM MEMBER

Smart India Hackathon - Prelims

Jan 2020

- As a part of Smart India Hackathon, we tackled the problem statement propose by the Ministry of Youth and Affairs of India. We were asked to create a robust yet fool proof attendance management system with minimal hardware requirements.
- We created a webapp using JavaScript and an Mobile App using **REACT Native**.
- I worked on **Face verification** and **Speech Verification** part of the project.
- The actual face image was encoded to a feature vector and input image was vectorised. The **cosine distance** between these vectors was used as metrics.
- The **MFCC** features were extracted from the speech signal and a **Gaussian Mixture Model** was modeled using these vector representation of these speech signal.

K-Stack [\[link\]](#)

Angel Hackathon

PROJECT TEAM MEMBER

June 2019

- K-Stack is a web application that provides facilities to communicate with groups who share interests in same field of study.
- Users can communicate with other fellow group member by either a text chat or a real time video chat. This provides free online classes with the users mutually benefiting each other.
- My role in the project as a ML Engineer is to **automate the survey process** and to ensure the classes are rated properly. I trained a deep learning model to perform **toxicity search** over the chat and predict how good the conversation went. Based on the results the users are awarded points.
- We used Google Vision API to perform **emotion analysis** over the frames of video at constant frequency. The output of this approach was also considered during the rating process.
- Our project got good appreciation from the judging committee. We were commended for the innovation in the idea.

Automatic Number Plate Recognition System [\[link\]](#)

Industry Project

PROJECT ASSISTANT

Dec 2018 - July 2019

- APNR is a model that aims to automate the surveillance vehicle entering and exiting the factory.
- The project makes use of **U-Net** segmentation algorithm to segment the number plate from the image. The model was custom trained.
- The project employs three **CNN models**, one to validate the selection of number plate from the image and another for the **Optical Character Recognition (OCR)** for alphabets and another OCR for numbers to resolve the problem of inter-class similarities.

School Of Curious

Internship

PROJECT TEAM MEMBER - INTERN

Apr 2019 - June 2019

- The project was aimed to make learning more interactive using Machine learning and computer vision.
- The primary motive of the project is to reduce the cost of using specialized smart boards. We achieved this by placing an affordable camera at a constant relative position to the projector and white board. With proper image processing techniques combined with well **trained deep learning models** we were able to achieve equivalent outputs.
- I also worked on **stereo images** and **generation of point cloud images**, a **3D reconstruction of 2D images**, to find the original height of a distant object without a reference scale.
- I learnt how to be systematic and document all codes properly.

GeoLifeCLEF [\[link\]](#)

CLEF Conference 2019

PROJECT TEAM MEMBER

Mar 2019 - May 2019

- This is a research project for a competition conducted as a part of International conference (ImageClef).
- The aim of the research is to find the occurrence of all species for the particular latitude and longitude using environmental data at that location.
- Under the guidance of Dr.C.Aravindan and Dr.P.Mirunalini we were able to successfully make 12 submissions for this task.
- Out of 54 submissions made all of our submissions were **placed in top 30**, and our best submission got **6th rank**.
- Our working notes paper got a **valuation score of 3 (strong accept)**.

Flight Delay Prediction [\[link\]](#)

PERSONAL

Jan 2019 - June 2019

- This is a research project that aims to predict the delay of the flight based on the weather condition and time of departure.
- There are two different datasets containing the information of flight and weather. The task is merge these two datasets and pre-process them such that it is applicable to the model used for **classification and regression** task.
- The project was successfully completed with a **validation score of 0.9441**.
- The documentation of the work can be found [\[here\]](#).

Machine Hand: Arduino

TEAM MEMBER

Sep 2018

- Machine hand is an Arduino project that translates the motion of human hand into a robot hand motion.
- The Data required for simulation is collected from a **IMU sensor** that is attached to a person's hand and the motion is simulated by a servo attached to the robot hand.

Air Hockey: Game in C++ [\[link\]](#)

TEAM LEADER

Nov 2016 - Jan 2017

- Air Hockey is our take on the game commonly played in many amusement places.
- The project employs C-graphics and a C++ file handling system to give absolute smoothness in the working.
- The game also provides a single player mode with 4 varying level of difficulties.

Extracurricular Activities

U&I - NGO

Chennai, India

VOLUNTEER

July 2020 - Present

- Volunteered to teach English and basic arithmetic to underprivileged kids in the local community.
- Spent 2 hours a week teaching and engaging in fun activities with the students in the NGO.

DevFest2020 - SSN

REVIEWER

- Reviewed the contestants codes and gave suggestion to code professionally.
- I was in-charge of reviewing python automation code.

SSN College of Engineering

Apr 2020 - Present

Invente:3.0 - SSN

ORGANISER

- Organise a event called Code relay, a multi-disciplinary event emphasising few important disciplines of Computer Science
- I set the question paper for the ML and AI discipline for the event.

SSN College of Engineering

Jan 2020

I-CELL Community - SSN

SPEAKER & LEADER

- Gave a series of 10 lectures on **Git**, **Machine Learning** and its mathematical frame work, **Image Processing** and **Artificial Neural Network**.
- Organised hands-on sessions for all these topics, solving real world problem statements.
- **Open source contribution** was also explained in detail.
- All reference material can be found [\[here\]](#)

SSN College of Engineering

Sep 2017 - Present

Computational Thinking Workshop

ORGANIZING COMMITTEE MEMBER & WORKSHOP HOST

- Helped in conducting workshop for first year undergraduates to emphasises the importance of computational thinking.
- Hosted a 4 hour workshop session on android development using 'Thunkable'

SSN College of Engineering

Aug 2018 & Aug 2019

Teach A School - SSN

STUDENT VOLUNTEER AND TEACHER

- TAS is a SSN community the woks for a noble cause to give educational support for those who are in need.
- We went to nearby government schools where there are insufficient number of teachers to handle the kids and helped them.

SSN College of Engineering

Aug 2018

Online courses

2018	Machine Learning A-Z™: Hands-On Python [certificate] , UDEMY	Completed
2018	Digital Image Processing Using OpenCV python3 [certificate] , UDEMY	Completed
2018	A-Z Deep Learning using python [certificate] , UDEMY	Completed
2019	Liner Algebra: 18.06 , MIT-OCW	Completed
2019	Multivaribale Calculus , MIT-OCW	Completed
2019	Machine Learning , Coursera	In Progress
2020	Neural Networks and Deep Learning [certificate] , Coursera	Completed
2020	Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization [certificate] , Coursera	Completed
2020	Structuring Machine Learning Projects [certificate] , Coursera	Completed
2020	Convolutional Neural Networks [certificate] , Coursera	Completed
2020	Sequence Models [certificate] , Coursera	Completed

Research Community

Institute of Electrical and Electronics Engineers

MEMBER

2018 - present

95416197

Association of Computer Machinery

MEMEBER

2017 - present

1749623