

# Bharath Y P

SENIOR MACHINE LEARNING RESEARCHER · DREAMERS INC

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## Summary

As a Senior Machine Learning Researcher specializing in Reinforcement Learning, I've led the development of sophisticated trading agents at Dreamers Inc, contributing to significant advancements in automated trading technologies. My expertise spans from crafting AI-driven credit scoring models and fraud detection systems at Shield to enhancing quantitative trading strategies at Niveshi. At MoneyView, I leveraged data science to optimize financial recovery metrics and streamline operations, demonstrating my ability to innovate and drive efficiency. My career is characterized by a relentless pursuit of excellence, collaboration with industry experts, and a proven track record of delivering impactful technological solutions across diverse applications.

## Experience

### Dreamers Inc

Remote

SENIOR MACHINE LEARNING RESEARCHER - REINFORCEMENT LEARNING - CONSULTANT

May 2023 - Current

- Lead the development and implementation of cutting-edge reinforcement learning agents designed for executing trades on various trading exchanges, driving forward the company's ambitions in automated trading technologies.
- Spearhead the R&D initiatives focused on crafting profitable trading agents, leveraging advanced reinforcement learning techniques and algorithms to navigate the complexities of financial markets.
- Designed and developed a versatile in-house trading environment with Python and Cython, capable of supporting both simulation-based training and live trading operations, thereby enhancing the adaptability and effectiveness of trading strategies.
- Played a pivotal role in managing and mentoring a junior researcher, fostering a collaborative environment and guiding the team towards achieving key project milestones and objectives.
- Engaged in continuous dialogue with industry experts, incorporating their insights and feedback to address challenges and refine trading models and strategies, ensuring alignment with current market dynamics and regulatory standards.

### SHIELD

Bengaluru, India

MACHINE LEARNING RESEARCHER

May 2022 - May 2023

- Developed an alternate credit scoring model using mobile device data, enhancing creditworthiness assessment beyond traditional metrics.
- Engineered a user profiling system to categorize individuals (e.g., Businessman, Parent, Student) based on device data, enabling personalized client services by using recommendation system built on sparse data with Python.
- Formulated a fraud detection framework leveraging AI to identify and analyze fraudulent behaviors from device information, significantly reducing malicious activities.
- Identified other sources of alternative data from mobile devices, enriching the company's analytics capabilities for diverse internal applications.

### Niveshi - RL Based Quant Trading Fund

Gurugram, India

SENIOR MACHINE LEARNING RESEARCHER - REINFORCEMENT LEARNING

July 2021 - April 2022

- Continuous research and implementation of latest AI/ML Papers and testing the new models for trading performance upgrades.
- Fine-tuning of RL Algorithm and Trading Environment code and hyper-parameters to improve the agent's performance and training speed.
- Implemented efficient ways to debug the issues arising in the model during training.
- Worked with the Founders and other team members to develop and test out various strategies.
- Worked in parallel with Quantitative Researcher to improve different trading metrics of the RL Agent.
- Migrated existing Python code from Tensorflow-v1 to Pytorch, thereby moving away from legacy framework.

### MoneyView - Personal Loan Lending company

Bengaluru, India

DATA SCIENTIST - COLLECTIONS

Jan. 2019 - July 2021

- Customer Behaviour Modelling to predict payment patterns and optimal calling date which improved debt recovery rate for a few user segments by 30% after implementing strategies accordingly.
- Developed end to end customer's email segmentation and classification using NLP techniques and SVM model via Python for the customer support team. This reduced the email response time from the support agents by 40%.
- Streamlined and automated the entire process of auto-debit registration and auto-debit initiation by modularizing the system. This helped in providing flexibility to perform tests and implement strategies. Was single-handedly accountable for the entire Auto debit system.
- Tested and deployed strategies to improve debt recovery metrics using AB testing methodology.
- Redesigned and simplified the existing tools and systems used for the collections process which was being used regularly by the team.
- Worked cross-functionally with analytics, engineering, product and customer support team to improve business metrics.

### Indian Statistical Institute, Center for Soft Computing Research

Kolkata, India

COMPUTER VISION RESEARCH INTERNSHIP - SUMMER RESEARCH FELLOWSHIP PROGRAMME, I.A.S.

Jun. 2018 - Jul. 2018

- Developed a Multiple Object Tracking algorithm which is capable of handling occlusion conditions.
- Implemented Kalman filter in python to predict most probable trajectory of moving objects from signals generated by the detection algorithm.
- Trajectory, velocity, and acceleration of objects were tracked in real time on Raspberry Pi for Surveillance system.

## HackLab Innovations

Bengaluru, India

ROBOTICS AND COMPUTER VISION RESEARCH INTERNSHIP

Jul. 2017 - Aug. 2017

- Trained a Convolutional Neural Network model from scratch to predict optimal grasping angle for specified objects using a robotic arm.
- Implemented object localization algorithm using CNN via sliding window technique on Tensorflow framework.
- Developed the code to solve pick and place tasks in a production line on Dobot Magician robotic arm.

## Skill Set

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### Professional Skills

- **Programming Languages:** Python ,R ,C++, C, MATLAB
- **Frameworks and Libraries:** Pytorch, Tensorflow, OpenCV, XGBoost, SKLearn, NLTK, Numpy, Pandas, MYSql, Athena, Optuna
- **Softwares and IDEs:** Spyder, VSCode, RStudio, MATLAB

### Relevant Skills

- Industrial experience in building production level Python code for machine learning models such as Deep Neural Networks, Reinforcement Learning Agents, Decision Trees, XGBoost and Clustering models to name a few.
- Reinforcement Learning, Supervised Learning, Natural Language Processing, Computer Vision
- Credit and Collection Risk, User behaviour modelling, User Funnel analysis, AB Testing.
- Strategy testing and implementation.
- Data Wrangling and Exploratory data analysis.
- Key Metrics Visualization and Monitoring.

## Education

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### B.M.S.C.E. (Businayana Mukundadas Sreenivasaiah College of Engineering) - Bengaluru

Bengaluru, India

BACHELOR'S DEGREE IN ELECTRICAL AND ELECTRONICS ENGINEERING - CGPA 8.6

Aug. 2015 - May 2019

## Projects

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### HACKATHONS

2015 - 2020

- Developed Hardware and Python Code for Iris Tracking and Eye Gaze point prediction which can be used to identify early stages of eye related disorders such as Glucoma, ADHT. Received Patent Grant for this project from the college.(B.M.S.C.E)
- Movement activity and Face detection Security System with instantaneous SMS and Email Notification using Node Red framework - Instructables Grand Prize Award
- Currency denomination identification tool using OPENCV for the Visually Impaired - Hackathon Winner
- Legal Documents Case Wise Classification and Named Entity Recognition using BERT - Hackathon

### COLLEGE AND HOBBY PROJECTS

2015 - 2020

- Researched on Inverse Reinforcement learning techniques for continuous states/actions environment.
- Object Tracking and Trajectory Estimation using Kalman Filter under occlusion
- Stock market trading Environment Designing and Simulation for Reinforcement Learning.