**Athulraj Puthalath**

**Machine Learning Engineer**

Mob: 9567753533

[athul8raj@gmail.com](mailto:athul8raj@gmail.com)

**Career Objective:**

To work in a competitive and multidisciplinary but collaborative environment where I could unite my motives with the organizational goals, so that both would be mutually benefited.

**Academic Details:**

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| **EDUCATION** | **BOARD OF EDUCATION** | **YEAR OF PASSING** | **AGGREGATE OR CGPA** |
| B Tech (Mechanical Engineering) | College of Engineering Trivandrum (Kerala University) | 2015 | 8.03 |
| XII Standard | CBSE | 2011 | 93% |
| X Standard | CBSE | 2009 | 94.8% |

Github URL:

https://github.com/Athul8raj/MyRepo

Deployed Url on Pythonanywhere:

http://athulraj.pythonanywhere.com/

**Technical Skills:**

**Machine Learning Techniques**

**Regression:**

1. Linear Regression with scikit-learn and pandas/numpy:

Performed linear regression on time series data of Google’s stock from 1982 to present, achieved 98 percent accuracy and tried to forecast for next 15 days and visualize using matplotlib library.

1. Practical approach to Linear Regression:

Took random 2d data and followed an algorithmic approach to find the MSE, R^2 and ways to manipulate both these items

1. Logistic Regression with scikit-learn and pandas/numpy:

Executed logistic regression method on famous Breast cancer dataset from Kaggle and achieved 99 percent accuracy to predict whether the patient has malignant tumor or otherwise

**Classification:**

1. K-Nearest Neighbors with scikit-learn:

Performed KNN on breast\_cancer\_wisconsin dataset and achieved 96 percent accuracy

1. Practical approach to KNN:

Algorithmic approach using Euclidean distance as method of classification and compared the performance to that with using scikit learn dataset

1. Support Vector Machine using scikit-learn:

Linear dataset solved using SVM to achieve 98 percent accuracy

1. Soft Margin SVM with Gaussian Kernel:

Random non-linear dataset analyzed using different kernels like polynomial and gaussian and their contours plotted.

1. Practical Approach to SVM:

Algorithmic approach using SVM constraints and convex optimization to practically solve a random dataset

**Unsupervised Learning:**

1. Flat Clustering with k-Means using scikit-learn:

Kaggle’s Titanic dataset is analyzed and grouped into 2 clusters based on the passenger’s survival

1. Practical Approach to K-Means:

Euclidean distance along with proximity is used to cluster data points into groups

1. Hierarchical Clustering with Mean Shift using scikit-learn:

Titanic dataset is clustered using bandwidth method of Mean shift

1. Dynamic Bandwidth for Mean shift:

Random dataset is clustered by assigning different weights for bandwidths from data points

**Ensembles:**

XgBoosting with scikit-learn:

A superconductor dataset from UCI Machine Learning Repository is fed through a XGboost regression algorithm to minimize the loss between estimated and predicted thermal conductivity of the superconductors. Tuning parameters included the max depth of the tree, learning parameter and number of samples in a leaf.

**Deep Learning Techniques:**

Artificial Neural Network with Tensorflow:

A deep neural network comprising of 2 hidden layers of MNIST data is run against 10000 test images with 82 percent accuracy. Various hyperparameters are tuned to manipulate validation accuracy and loss.

Convolutional Neural Network with Tensorflow, Keras and Tensorboard:

Dogs\_vs\_Cats dataset from Kaggle is fed through a three layer Sequential Keras model neural network with convolutional, max-pooling and dense layer. The validation accuracy and loss is analyzed using Tensorboard.

Recurrent Neural Network with Tensorflow, Keras and Tensorboard:

Dataset of various crypto-currencies are analyzed using a recurrent neural network and used for forecasting 15 days into future. A basic LSTM cell along with a dense network is used. Validation accuracy and loss are analyzed using Tensorboard.

**Transfer Learning Techniques:**

Using Pre-trained Model with Tensorflow, Keras and Tensorboard:

A pre-trained CNN model using Dogs\_vs\_Cats dataset is used to classify horses and Human. A sequential Keras model along with 3 hidden CNN layers is fused with a Dense layer to correctly classify between horses and humans.

Fine Tuning with VGG16 net for classifying Dogs\_v\_Cats dataset:

VGG16 net is fine tuned to classify images generated through Keras with Tensorflow ImageGenerator class and achieved accuracy close to 98 percent.

**Generative Adversarial Networks(GANs):**

A GAN is fed the mnist data to a descriptor based on a CNN network and random noise is given to a Generator and is used to generate correct random image of mnist test data

**Professional Experience:**

*Machine Learning Engineer at KPMG Global Services Pvt Ltd (Jul 2018* – *Present)*

*Job Responsibilities:*

* *Worked in extensive analysis of various input files using powerful python libraries like* ***Pandas****,* ***numpy***
* *Using Machine learning techniques such as classical* ***Linear regression*** *used to analyze* ***Time Series*** *data*
* *OCR for pdf analysis done through Google’s Cloud Vision API*
* *Created bots which helps in automating various parts of businesses*
* *Involved in careful data wrangling of input based on critical business requirement*
* *Worked on various input file formats like* ***pdf****,* ***csv****,* ***xlsx****,* ***doc****,* ***txt*** *and their manipulation using various libraries*
* *Worked on large data files and their subsequent manipulation*
* *Supported deployment of bots into production server based on* ***Django*** *framework*
* *Worked with* ***lists****,* ***tuples****,* ***dictionaries*** *and* ***functions****,* ***list*** *and* ***dictionaries*** *comprehensions,* ***classes***
* *Worked on problems involving advanced python topics like* ***Iterators****,* ***Generators****,* ***Decorators****,* ***Context******managers, Metaclasses***
* *Daily work update from* ***JIRA****, and collaboration using* ***Confluence***
* *Refactor code and divide them into simpler structures*
* *Guide team members on encountering bottlenecks*
* Coordinating with respective teams if there are issues with upstream or infrastructure

*Python Web Developer at IBM India Pvt Ltd (March 2016 – Jul 2018).*

*Job Responsibilities:*

* *Worked in* ***Flask*** *microframework including web development, setting up databases using* ***SQLAlchemy****, creating jobs based queue using* ***celery, Flask login with flask dance(social platforms logins)***
* *Have knowledge on* ***Common algorithms*** *and* ***Data Structures****.*
* Involved in developing webpages using **Angular** 4 with **bootstrap4**, **css**, **bootstrap, html**.
* Contributed in all phases of development.
* Ensured designs are in compliance with specifications.
* Understand the customer requirements and the end to end functionality.
* Experience of working in both Application Development project covering all the phases of a software development life cycle from requirement gathering, design, development, testing and closure.
* Creating problem tickets for reoccurring incidents and driving to resolution which reduces the inflow of tickets.
* Experience in Production Support for over 16 months in solving issues, giving fixes and working on RCAs.
* Bug fixing and preparing documents for the same with the steps taken to fix.
* Highly keen on learning new skills, technologies and ability to deliver quality product.
* An effective communicator and Quick Learner with the ability to deliver individually and in team.
* Worked on Projects in both **Waterfall** model and **Agile** Methodology and have knowledge on **DevOps** technology

**Technical Summary:**

* Languages: Python, SQL ,Angular
* Tools: Python shell , Anaconda(Spyder, Jupyter), Oracle SQL Developer, PyCharm IDE, Tortoise SVN, Git console
* Comfortable in DevOps and Agile methodology

**Project Experience:**

Project 1:

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| --- | --- |
| Client | **AT&T**, USA |
| Duration | March 2016 to Jul 2018 |
| Project | **ROME (Revenue and Opportunity Managed Environment)** |
| Position | Application Developer |
| Location | Bangalore, India |
| Project Description | ROME team involves with the creation and update of Contract records. Also with the sending signed contracts to customers and to AT&T representatives and storing them in database for future reference. It also involves with the creation of Opportunity, Users, employees, contacts and accounts. |
| Contribution | * Functional and Technical requirement reviews. * Extensively worked on REST APIs * Self-Designed and developed scripts, Configuration for the given requirements * Unit testing using Simulated and Real time data using Python’s unit test module * Preparing Unit Testing and Assembly Testing documents. * Mentored Graduate Hire and Provide Knowledge Transfer on functional and technical topics to new joiners. * Debugging Production issue and Root cause analysis of the same. * Ensuring that quality product is delivered by peer reviewing and providing technical inputs. |
| Environment | Flask microframework with DevOps tools. |
| Recognition | Received **Deep Skill** award from AT&T. Also got many appreciation mails from the customer. |

Project 2:

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| Client | **KPMG US** |
| Duration | Jul 2018 to Present |
| Project | **IA Bots** |
| Position | Executive |
| Location | Bangalore, India |
| Project Description | Involves in creating python modules capable of automating processes. Works with various input file formats and their wrangling based on business requirement |
| Contribution | * Self-Designed and developed scripts, Configuration for the given requirements * Debugging Production issue and Root cause analysis of the same. * Ensuring that quality product is delivered by peer reviewing and providing technical inputs. * Provide inputs to new team members on various business policies and processes * Used Confluence to collaborate and discuss work updates * Used JIRA for project and defect management |
| Environment | Django |

**Hobbies and Interests:**

* Playing and watching football.
* Hitting Gym
* Listening to music.

**Additional Info:**

* DOB: 07/10/1993.
* Languages Known: English, Malayalam, Hindi, Tamil.