Ranji Raj Nair

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Social Network

YouTube Channel

Linkedin Profile

Github Profile

Languages

German

English

Programming Skills –

Python

R

SQL

Soft Skills

Teaching

Communication

Analytical

Concepts

K-means Clustering

Linear Regression

Logistic Regression

Decision Trees

k-Nearest Neighbour

Neural Networks

Natural Language Processing

Naive Bayes

Education

Study Programmes

2019 – pursuing — **Master Studies** — Otto von Guericke University, Magdeburg, Germany
Focus: Computer Science-Data and Knowledge Engineering

2012 – 2016 — **Bachelor Studies** — Datta Meghe College of Engineering, India
Focus: Information Technology

2000 – 2012 — **Primary and Secondary Schooling** — SIO's Vani Vidyalaya, India

Data Science work

Master-Machine Learning — Implementation of ML algorithms (Linear regression, Neural Networks, Naive Bayes) from scratch designed to work on masked data sets without using external libraries.

Master-Assignment — Chatbot implementation-A small domestic chatbot as part of programming assignment which does document classification and filtering and returns the response text(IDE: Spyder, Libraries: NLTK, sklearn).

Master-Voluntary Task — Global Pandemic Predictor - a simple linear regression machine learning model for predicting the total cases of pandemic from OWID dataset. Built using Python libraries (Pandas, NumPy, Statsmodels, Pickle, Matplotlib, Seaborn). Model is further represented as a Flask Web Application with a backend database connectivity to SQLite3 using SQLAlchemy. Later deployed to Heroku PaaS on Cloud Platform (Webserver used: Waitress, Version control: git bash). As an alternative also Dockerized this application to decommission the need of storing onto local setup or virtual environment.

Master-Scientific Seminar — emojivoto - a simple example application containing three dockerized microservices and a website. Website illustrating list of emojis you can vote for and a leaderboard with the emojis with the highest votes with the full-fledged application running on SysEleven cluster.(Application environment was on Linux, Ubuntu 18.04 distribution. Kubernetes components used: Ingress, Helm, Pods, Deployments, Services, Horizontal Pod Autoscaler)

Master-Scientific team project — Android application to detect morphed passport images. (Development of Android application called 'Demorpher' which takes the user image and compares with a pre-existing morphed image. The resultant would produce the demorphed image with matching accuracy.)

Research Papers

2020 — **Android Application for detecting morphed passport images**
Otto von Guericke University
Demonstrating how a live image of the user face acquired at uncontrolled environment, can be used to restore the de-morphed image from the morphed image stored in the travel document.

2019 — **Bio-metric benchmark based on Handwriting and Hand Geometry Modalities**
Otto von Guericke University
Identification of inter-class and intra-class variance including the impact of forgeries concerning security aspect.

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Other Competencies

- Machine Learning
- Deep Learning
- Heroku
- Tensorflow
- Linux
- Docker
- Kubernetes
- Git
- Scikit-learn
- Flask
- statsmodels.api
- Overleaf
- NLTK
- spaCy

Tool set

- Jupyter Notebook
- Spyder
- VScode
- R studio

Publications

2018 **Computer Organization and Architecture**
TEK97
Book on Microprocessor Architecture and Techniques

2018 **Analysis of Algorithms**
TEK97
Book on common data structure algorithms

2017 **Structured Programming Approach**
TEK97
Book on Basic C language practices

2017 **Operating Systems**
TEK97
Book on internals of OS

Certifications

2020 **Introduction to Neural Networks and Deep Learning** Great Learning Academy
Building Neural Networks from scratch, Implementing Gradient Descent and Gradient checking with Sigmoid unit for weight updation, Interplay of learning rate.

2020 **Time Series Analysis with R** Great Learning Academy
Basics of time series analytics, Approaches used for Time Series forecasting, Decomposition Method, Irregularity in decomposition, Model Forecast theory, Exponential Smoothing function.

2020 **Introduction to R Programming** Udemy
Basics of tibble, vectors, matrices, ggplot2, and other data visualizations.

2019 **Introduction to Python Programming** MySirG.com
Writing code using PEP8 standard, Basics of python data types and data structures, NumPy, Pandas, Matplotlib, Seaborn, Object-oriented concepts in Python.