Rishin Rahim

Data Science and Machine Learning

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Education

Master of Science in Information Technology, June 2014
Indian Institute of Information Technology and Management Kerala

Bachelor of Technology in Information Technology, April 2011
College of Engineering Perumon | Cochin University of Science and Technology (CUSAT)

Work Experience

Unisys India
Senior Engineer, 1 year, April 2020 - Present

Tata Consultancy Services
5 Years 6 Months, October 2014 - April 2020

Enview Research & Development -
Research Intern , 6 Months, January 2014 to May 2014

Projects

- **CloudForte™, Unisys, Bengaluru**
  - Intelligent Capacity Management : Built time series forecasting models to predict computing and disk utilization and calculate/predict the cost savings, Recommendation Models that help the user to make better decisions regarding upscaling or downscaling of resources. A dashboard that helps the end user to visualise the trends in utilisation and allocation and monitor the devices that need attention.

- **InteliServe™, Unisys, Bengaluru**
  - Built Bidirectional LSTM classification Models to assist conversation AI in identifying and classifying the intent of a text conversation
  - Built NLG Utterance Models to generate text conversations from Knowledge base
  - Integrated ML models with Amelia Conversational AI and helped in improving its performance

- **Contract Digitisation™ - AI Platform for Legal Documents, TCS Robotics, Bengaluru**
  - Built Entity recognition using NLTK library built-in methods and entity and classification model based on LSTM algorithm implemented using Keras Neural network, to extract metadata form Contract documents
  - Built classification models with RandomForestTree and other ensemble algorithms to recognise standard agreement clauses and values attached to it.
  - Built multilayered CNN models to identify handwritten clauses and attributes.
  - Training was performed as a batch process using apache airflow. Model was compiled and stored as pickle file. Prediction was done through a RESTful API built with flask.
  - Developed Dashboard /application interface including an ETL distributed queuing system, to monitor the different legal agreements, providing global overview of data through unique data visualisation.

- **UNSPSC classifier and Information Extractor, TCS Robotics Kochi**
  - Built a hierarchical product classifier based on RandomForestTree that classify products based primarily on their UNSPSC Code, brands and titles into a large taxonomy.
  - Built a Webscrapper using beautiful soup python library to extract data from relevant web URLs.

- **SmartQE™ - Smart Quality Engineering and Analysis Tool, TCS Assurance AI Lab Kochi**
  - **Root Cause Analysis :** Built a Root Cause Analysis NLP classification model based on maximum entropy algorithm implemented using Apache OpenNLP.Built clustering model based on lingo algorithm, implemented using Carrot^{2,} an Open Source Search Results Clustering Engine.Developed topic modelling models using LDA.
  - **Test Suite Optimization** : Built a Test suite Optimisation NeuralNet Model implemented with a Keras neural network with three input layers used Adam optimiser, binaryCrossEntropy as loss function, RELU and softmax as activation functions.Eliminated test case redundancy, improved test coverage and optimised the test effort.
  - **Software defect prediction:** Developed and deployed a Defect Prediction model that predicted the number of defects in future application release using multivariate subset linear regression and Correlation based feature selection.Training was performed as a one off process and model was compiled and stored as pickle file. Prediction was done through a RESTful API built with flask.
  - **Test case Similarity check**: Built a similarity check model that measures the degree of similarity between different test step execution using cosine similarity based NLP algorithm.

- **Master's Thesis** :Threshold logic Object Detection using FPGAs .Thesis Advisor : Dr Alex P James
  Two novel techniques for object detection are presented, one based on Resistive threshold logic and other based on the binary XNOR operation.The design and verification is done using Verilog hardware description language. Simulation and timing analysis is presented.The design is then synthesised and mapped into FPGA.

- **Neurosurgical eLog :** Advisors: Dr K.Srinivasan, Dr. Girish Menon
  Web application to record and evaluate the surgical logs. Currently deployed and active in Sree Chithra Thirunal Institute of Medical Science & Technology.

Courses & Certifications

- **Machine Learning** Andrew NG, Coursera
- **Tensorflow in Practice Specialization:** deeplearning.ai, Coursera
  Introduction to tensorflow, Convolutional Neural Networks in Tensorflow, Natural language processing in Tensorflow, Sequences, Time series and Prediction
- **Statistics with Python Specialization** - University of Michigan, Coursera
  Understanding and visualising data, Inferential Statistical Analysis,Fitting statistical models to data

Skills

- **Machine Learning**: Classification, Clustering, Regression, Ensemble algorithms, Neural Networks, Deep learning, Natural Language Processing, Anomaly Detection, Time Series Analysis
- **Statistics** : Probability, Descriptive statistics, inferential statistics, hypothesis testing.
- **Programming languages**: Python (Tensorflow, Keras, SciKit-Learn, Pandas, NumPy), R, Java
- **Application Development** : Python-flask, FastAPI, Celery, html5, CSS, Javascript
- **Database :** Postgres, mysql
- **Visualization**: Python (Matplotlib, Seaborn, plotly), D3.js