Ashwini S. Marathe

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LinkedIn | Github | Portfolio

EDUCATION

Duke University
Master of Science in Interdisciplinary Data Science
Grad: May 2021

Indian Institute of Technology Bombay
Master of Technology in Communications Engineering
Grad: July 2017

Visvesvaraya National Institute of Technology
Bachelor of Technology in Electronics & Communication Engineering
Grad: May 2015

SKILLS

Programming Languages
• Python • R • MATLAB
• NodeJS • Haskell • C
• C++ (intermediate)

Technologies
• PyTorch • Keras • Tensorflow
• SQL • MongoDB • Docker
• Git • Tableau • Hadoop
• Spark • Latex

Cloud
• Google Cloud Platform (GCP)
• Amazon Web Services (AWS)

AWARDS, PATENTS & PUBLICATIONS

• Received best Thesis Award for master's dissertation in IIT Bombay

• Opportunistic Scheduling in Two-Way Wireless Communication with Energy Harvesting, at WiOPT 2017.

• DInEMMo: Decentralized Incentivization for Enterprise Marketplace Models, in Artificial Intelligence meets Blockchain (AIMB) workshop, HiPC 2018

• Filed two patents in the USPTO based on using blockchain technology for enterprise applications

EXPERIENCE

Duke University | Graduate Assistant
Aug 2020-Present | Durham, NC
- Analyzed Natural Language processing techniques to evaluate micro targeting in Facebook political ad campaigns. Implemented an ensemble topic model to identify primary and secondary topic of ads to identify targeting strategies
- Analyzing native American dislocation using census data and electoral district boundaries using Python and GIS
- Teaching Assistant for Data Infrastructure course. Assisted students with assignment and projects using SQL

Capital Group | Data Science and Advanced Analytics Summer Associate
Jun 2020-Aug 2020 | Los Angeles, CA
- Improved the F1-score of news recommendation module of the Lumin app for financial advisors by 50% leading to enhanced click through rate
- Enhanced the model to alleviate **cold start problem** prevalent for high-frequency news articles
- Suggested **data-driven process improvements** for the institutional client services team to optimize client engagement and helped with client segmentation

Conduent Labs | Research Engineer
Aug 2017-Jul 2019 | Bangalore, India
- Enhanced an algorithm to predict temporal and spatial dependence of parking space occupancy using statistical methods, based on sparse data collected by enforcement officers and payment data from parking meters
- Architected & built a **blockchain**-based proof-of-concept in the supply chain domain by identifying the pain points of the source-to-pay process flow using Ethereum platform with NodeJS backend and MySQL database
- Developed visualization backend using NodeJS and MongoDB database to facilitate stakeholder specific view of the network

ACADEMIC PROJECTS

Question Answering system -Deep learning
- Developed an attention-based LSTM natural language processing model for Question Answering system using the Facebook bAbI dataset
- Improved accuracy over state-of-the-art end-to-end memory network in 9 out of the 20 tasks

Image Caption generator - Data Analysis in the Cloud at Scale
- Developed an attention-based CNN and RNN encoder architecture to predict captions for images using COCO dataset.
- Deployed the model as a containerized application over **Kubernetes** and performed load testing using Locust

Spotify Song Popularity Prediction - Data Modelling
- Engineered a data gathering and cleaning pipeline using Spotify developer API and built a Random Forest classification model to predict if a song will be hit with an accuracy of 95%
- Designed an intuitive and easy to use RShiny visualization dashboard to highlight various features of a hit song

Solar PV in Aerial Imagery - Principles of Machine Learning
- Extracted features using HOG and used SVM to detect photovoltaic panels in satellite images with accuracy of 83.3%
- Enhanced the accuracy of the model using deep convolutional neural networks to achieve an accuracy of 99.23%