Shubham Mohapatra

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Education

Indiana University, Bloomington — **Indiana**
Master of Science in Data Science, — *Expected Graduation: June 2023*

Related Coursework: Cloud Computing, Machine Learning, Introduction to Statistics
Skills: AWS, GCP, GoogleAPIs, Python, MySQL, Octave

Delhi Technological University, New Delhi — **Delhi, India**
Bachelors of Technology in Electrical Engineering, CGPA(8.0), — *Graduated: May 2018*

Related Coursework: Electronic Digital Circuits, Analog Electronics, Filters, Information Technology, CS Fundamentals, Digital Electronics
Skills: MATLAB, EagleCAD, Altium, Arduino IDE, RaspberryPi OS, PIC programming

Work Experience

Mushin Innovation Labs Pvt. Ltd. — **Delhi, India**
Chief Solution Architect, Director — *June 2020 - August 2021*

Head Software Developer and Solution Architect of various factory automation projects. Instrumental in ground-up development of a novel IoT gateway technology.

- Developed a novel sensor monitoring firmware using python on RaspberryPi and setup an aws MQTT broker for data movement
- Designed live sensor data dashboard using VueJS, PHP Laravel and MySQL with upto 0.8s delay
- Fabricated a pilot factory auditing software using MERN stack catering to MSIL and Honda compliance norms under 6 months
- Designed cloud architecture for 10+ web applications using Elastic Load Balancers and EC2 web servers for 90% availibility
- Integrated Google Maps API for live tracking of 100+ assets and Google Sheets API for real time calculation and generation of reports

Team Computers Pvt. Ltd. — **Delhi, India**
Solution Architect — *July 2018 - April 2020*

Crucial in development of various cloud based web applications pertaining to healthcare and manufacturing industries

- Migrated existing WHO health based application with 1000+ records to AWS and a Disaster Recovery setup with RTO of upto 1min
- Created a CI/CD pipeline using Git, Jenkins and Ansible and an AWS implementation using CodeCommit, CodeDeploy and CodePipeline
- Mentored the development of a ChatBot using Amazon Lex for Telecom Regulatory Authority supporting upto 100+ utterances
- Designed the architecture for 50+ highly scalable web applications using docker containers deployed on Nginx with reverse proxy

Projects

Pneumonia Detector Web App
Code

A web application built using ReactJS and FastAPI to decode and send chest x-ray images to a tensorflow keras model saved on AWS S3. The model is a 4 layer CNN model with 97% accuracy tested and validated with more than 5000 inputs

MHC Class-1 Binding Site Predictor
Link Code

A matrix based methodology python implementation to calculate potential binding sites for a virus on 47 MHC Class-1 Alleles with a threshold setting of upto 10%. The matrices were imported via webscrapping and app was developed using NextJS and Python FastAPI

Covid-19 Vaccine Notifier
Link Code

A simple website that registers users for notifications on coronavirus vaccine slots using ReactJS, ExpressJS, MongoDB, Python and Co-win API which enabled 1,000+ registered users were able to book about 1,500+ vaccine slots seamlessly

Publications

Segmentation using Support Vector Machines, ICACCP 2019, Sikkim
Link

This paper introduces an algorithm for segmentation of a particular class using the decision boundary hyperplane of a linear SVM model. The results are then compared to the results of Logistic Regression for all labels.

Implementation of a 2 Wheel Self-Balanced Robot, ICACCP 2019, Sikkim
Link

This paper studies a CAD based methodology in designing the robot with set physical properties and accordingly the calculation of the torque, speed, direction of motion requirements to balance the robot is done. The robot is subjected to an environment similar to a real environment with gravitational, friction and normal forces acting on it. The simulations were done using MATLAB simscape multibody.

Skills and Expertise

- **Languages:** - Python, C, C++, JavaScript, R, MATLAB, Octave
- **Certifications:** - AWS Cloud Practitioner, Bioinformatics(UCSD), Machine Learning(IBM), Python for Researchers(HarvardX)
- **Frameworks:** - MERN, MEAN, Next.js, Laravel-VueJS, flask, fastapi, docker, kubernetees, aws, tensorflow, fastai
- **Databases** - MySQL, SQL, MongoDB, PostgreSQL, AWS RDS

Other Interests

- Volunteering, Music, Football and Gaming