

# Shubham Mohapatra

+1 812 606 7637 • shmoha@iu.edu • shubhpatr.github.io • shubhpatr  
in shubhammohapatra

## Education

- Indiana University, Bloomington

Master of Science in Data Science,

Expected Graduation: June 2023

Indiana
- CS Club: Technical Content Producer

Related Coursework: Cloud Computing, Machine Learning, Introduction to Statistics

Skills: AWS, GCP, GoogleAPIs, Python, MySQL, Octave
- Delhi Technological University, New Delhi

Bachelors of Technology in Electrical Engineering, CGPA(8.0),

Graduated: May 2018

Delhi, India
- 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.

Chief Solution Architect, Director

June 2020 - August 2021

Delhi, India
- 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% availability

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.

Solution Architect

July 2018 - April 2020

Delhi, India
- 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

Developed a web application built using ReactJS and FastAPI to decode and send chest x-ray images to a tensorflow keras hosted on S3

Trained the model with a 4 layer CNN model having a 97% accuracy tested and validated with more than 5000 inputs
- MHC Class-1 Binding Site Predictor

Link Code

Implemented 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

Deployed a simple website that registers users for notifications on coronavirus vaccine slots using ReactJS, ExpressJS, MongoDB, Python and Co-win API.

Enabled 1,000+ registered users to book about 1,500+ vaccine slots seamlessly

## Publications

- Segmentation using Support Vector Machines, ICACCP 2019, Sikkim

Link

Formulated a paper that 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

Designed a 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, AWS, docker, kubernetees, tensorflow, fastai

Databases - MySQL, SQL, MongoDB, PostgreSQL, AWS RDS