Ritu Raj Singh

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EDUCATION

Bachelor and Master of Technology in Mathematics and Computing (Honours),
IIT BHU, Varanasi
2017 – 2022
CGPA: 8.53 / 10

SPORT CODING

Google Kick Start, *Achieved a rank of 1101.*

Google Code Jam, *Achieved a rank 1749 and 423(In India) in round 1.*

Facebook Hacker Cup, *Achieved a rank 1487 and 173(in India) in round 2.*

CERTIFICATE AND AWARD

Google Summer of Code Mentor @SymPy

Kubernetes on IBM Cloud Beginner Level Certificate.

LinkedIn Skill Assessment Badge of Python, Git, Machine Learning.

Codefest Enigma CSE department., *Stood 1st in sophomore among 560 participants, a Natural Language Processing (NLP) online hackathon.*

Flipkart Grid, *Stood among the top 5 teams in our college and overall 19th in Flipkart Grid Level 1 machine learning challenge among 6500 teams.*

RELEVANT COURSES

Computer Science
Data Structures | Algorithms | Digital Image Processing | Operating System | Digital Signal Analysis and Application | Machine Learning

Mathematics
Probability and Statistics | Mathematical Modeling and Simulation | Optimization Techniques | Numerical Analysis | Differential Equation

TECHNICAL SKILLS

Python | C/C++ | Java Basic | Data Science/Image Processing Stack | NodeJs | JavaScript | Docker | Basic Kubernetes

PROFESSIONAL EXPERIENCE

Research Intern @ ISRO
08/2021 – present
- Working as a research student for the Indian Space Research Organization(ISRO) with Professor T.Som(**Bio-Link**).
- Currently developing a 3D point cloud semantic segmentation model using satellite data.

Security & Analytics @ Citrix Intern
summer20
- Created a geofencing recommendation system from the login session data of users from different products of Citrix.
- Used the concept of Unsupervised learning to create the recommendation system and got exposure to Big Data analytics in Databricks.
- Created and deployed the geofencing recommendation system pipeline using Azure Databricks.

NumFocus Sponsered Intern @ SymPy
Summer 19
- Developed a module(**Link to Code**) in python to solve the general type of hypergeometric ordinary differential equations(ODEs)
- Created documentation and wrote unit tests for the implemented code.

PROJECTS

Retinal Blood Vessels Segmentation
Created a supervised SVM model for classifying severity level of retinal blood vessels from Images by extracting features vector from the saliency map of images using the concept of Locality Constrained Linear coding(LLC) and SIFT descriptor. The concept behind this was to make the model fast and reliable for real-world use by avoiding the complex deep neural network. This was developed using Python, Keras, and MatLab on public data under the supervision of departmental professor Dr. Sunil Kumar.(**Code Link**)

Diabetic Retinopathy Detection
Developed a deep neural network model using the concept of transfer learning by taking Inceptionv3 as a base model for finding early detection of diabetic retinopathy. This was developed using Keras and Python on a public dataset under the supervision of departmental professor Dr. Sunil Kumar.(**Code Link**)

Health Monitoring System
Created a simple UI by combining NodeJs, Python, and Unsupervised machine learning to monitor a patient's health over time. It takes patient health data as a CSV formate and predicts the condition of patients as Normal, Mild, Sever, Urgent Medical treatment requirement. It has a feature of finding the nearest location of Hospitals/Medicine shops by checking the availability of medicine/machines/space as per your health condition from your location. (**Code Link**)

Departmental Website
Created a static website from scratch for Mathematics and Computing society(MACS), when I was joint secretary of the Development team. This was developed using javascript, PHP, HTML, CSS.(**Code Link**)

Face Recognition System For Lost People
Developed an application(team: 3 members) for recognition of lost people by faces images using the Face matching API of Microsoft.(**Code Link**)