RITU RAJ SINGH

ACADEMIC PROFILE

Degree/Certificate	Institution	Percentage/CGPA	Year
IDD (Mathematics & Computing)	Mathematical Sciences IIT (BHU), Varanasi	8.44	2022

Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Sem VII	Sem VIII	Sem IX	Sem X
8.04	7.62	8.07	7.80	9.84	9.35	-	-	-	-

Degree/Certificate	Institution	Percentage/CGPA	Year
CBSE (XII)	B.N.S ENGLISH SCHOOL NARIA BHU VARANASI	84.60	2016
CBSE (X)	B.N.S ENGLISH SCHOOL NARIA BHU VARANASI	91.20	2014

SKILLS

Area of Interests	Machine Learning/Deep Learning, Open Source, Mathematics, Parallel Computing, Algorithm and Data structure
Tools & Technologies	Keras, TensorFlow, Numpy, Pandas, Scikit Learn, Matplotlib, Azure
Programming Languages	C++/C, Python, Java(Basic)

INTERNSHIP/TRAINING

NumFocus Sponsered Project 2019   1 May'19- 30 July'19

Organization: SymPy | Guided by: Ondřej Čertík, Aaron Meurer

- Developed a module to solve the general type of hypergeometric ordinary differential equations(ODEs)
- Developed a module to solve Differential Equations in Terms of Bessel Functions
- Refactor the ordinary differential equation(ODE) module

Technologies Used: Python, Git, Travis Cl, Mathematics

PROJECTS

UG Project: Retinal Blood Vessels Segmentation   Jan'2020 - Present

Supervisor: Dr Sunil Kumar, Department of Mathematical Sciences IIT (BHU) Varanasi

- Implemented a Linear Constrained Coding(LLC) algorithm for image classification
- Build and finely-tuned an LLC with Max_Ppoling to classify among 2 groups with an average accuracy score of 93%
- Currently building Saliency, and Adaptive LLC algorithm

Technologies Used: Python, MatLab, Image Processing

Milan:WebApp   October 2018

Team Name:Sunami | Event Microsoft Codefundo++

- Developed an application for recognition of lost people by faces using Face Recognition on the data submitted by lost people relatives
- Stored the submitted data in Microsoft Azure database and use it in Face Recognition
- Deployed automated Microsoft Azure Face Recognition API and database on the Heroku platform to answer queries/issues related to lost people

Technologies Used: Microsoft Azure Face API, Heroku, Python

Exploratory Project: Diabetic Retinopathy Detection   August'18- December'18

Supervisor: Dr Sunil Kumar, Department of Mathematical Sciences IIT (BHU) Varanasi

- Build an attention model similar to Natural Language Processing(NLP) attention models for Image Processing
- Build and finely-tuned a neural network to classify among five retinal groups with an f1 score of .54

Technologies Used: Keras, Python, Image Processing

Website: Departmental Society(MACS) Website   2019-2020

POR : Joint Secretary (Resource and Developement)

- Developed a website for Mathematics and Computing society(MACS)
- Build the design and feature of the website with resource and development team
- Hosted it on Hostinger

Technologies Used: HTML/CSS, Java Script

WorldQuant | Research Consultant   July'19-October'19

- Selected after achieving Gold Level in WorldQuant Global Alpha Challenge
- Developed trading signal(alphas) for back-testing for trading in different universes(EU/Asia/US) and different tiers(Top 100/ Top 500/ Top 1000) using quant finance models

Exposure: Finance, Stock Market

POSITION OF RESPONSIBILITY

- **Google Summer of Code(GSOC) Mentor** of the SymPy organization for the session 2019-2020

- **Captain of Volleyball team(Part III)** for Mathematics and Computing Society(MACS) sports meet 2018
- **Joint Secretary (Resource and Development)** of Mathematics and Computing Society(MACS) for the session 2019-2020

HONOURS AND ACHIEVEMENTS

- **Prastuti19: Recognizance** stood 1st among all college participants, a machine learning event on the prediction of electrical energy of the plant
- **Flipkart Grid**: Stood among the top 5 teams in our college and overall 19th(in a team) in Flipkart Grid Level 1 machine learning challenge among 6500 teams from all over India
- **Departmental Sports Meet-2019** Participated(Captain) in a team and had secured 1st position in Volleyball
- **Codefest18 Enigma**: Stood 1st in sophomore among 560 participants in Codefest Enigma, a Natural Language Processing (NLP) online hackathon on predicting the number of upvotes an article will get based on the data of other articles

EXTRA-CURRICULAR ACTIVITIES

- Participated in PyData global proposal writing workshops 2020
- Participated in Prastuti18: Recognizance (in a team) a machine learning event and successfully completed round one, in which we have to classify image objects in ten groups
- Participated in a startup weekend Varanasi powered by Google, where we worked on our startup idea for two days in a row and pitched it to the guests
- Contribution to open-source organization Vowpal Wabbit(owned by Microsoft), SymPy, SymPy Benchmarks, scancode-workbench
- Microsoft AI Challenge 2018: Participated(in Team) in Microsoft AI challenge India and made it to the final phase of the competition. The problem statement was to select the most relevant answer among all options provided a question and experimented on CNNs, BM25, BM25+, and BM11.

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