

Pronoma Banerjee

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EDUCATION

Birla Institute of Technology and Science, Pilani, Goa <i>B.E. Computer Science, Integrated MSc. Mathematics</i>	Aug '19- Present CGPA: 8.46/10
Delhi Public School, Ruby Park, Kolkata <i>Class XII</i>	2017-2019 CBSE: 95.2/100
Loreto House, Kolkata <i>Class X</i>	2006-2017 ICSE: 97.8/100

EXPERIENCE

Swecha (Andhra Pradesh Free Software Foundation) <i>Summer Engineering Intern (Remote)</i>	Gachibowli, India June 2021 - July 2021
<ul style="list-style-type: none">Contributed to the open source project for building a web-extension for fake news detection.Created a database by scraping some trustworthy sites, and implemented a model for doc-to-doc comparison, measuring cosine similarities for classification and textual entailment.Extended our model for Hindi news classification and to classify news texts obtained from images and videos.	
Graphics Research Group, IIIT Delhi <i>Summer Research Intern (Remote), Supervisor: Dr. Ojaswa Sharma [GitHub Link][Report]</i>	Delhi, India May 2021 - July 2021
<ul style="list-style-type: none">Prepared 3D volumes from the CT, MRI and cryo-sectioned images obtained from the VKH dataset.Performed rigid and deformable volumetric registration of the volumes using SimpleITK, Elastix frameworks in python and 3D Slicer and MIRT softwares. Analysed the differences in results and suggested improvements.Performed volumetric segmentation on the dataset to fix the class mismatch obtained in the provided dataset.	
Indian Statistical Institute, Kolkata <i>Summer Research Intern (Remote), Supervisor: Dr. Subhamoy Maitra [GitHub Link]</i>	Kolkata, India June 2020 - July 2020
<ul style="list-style-type: none">Designed a version of Quantum tic-tac-toe using C programming, inspired from this paper.Calculated the probabilities of winning, in both quantum and classical systems, when using different states of the board, applying different strategies.Studied ways of developing a subgame perfect Nash Equilibrium for the game, and tried to generalize the ideas to other similar dynamic games.	

PROJECTS

Adversarial Deep Learning <i>Society for AI and Deep Learning (SAiDL), BITS Goa</i>	August 2021 - Present
<ul style="list-style-type: none">Contributing to the open source book project by implementing algorithms and checking them against adversarial examples, using PyTorch.	
Deep Learning in Biomedical Image Processing <i>Supervisor: Dr. Sukanta Mondal</i>	March 2021 - Present
<ul style="list-style-type: none">Studying the applications of Tensorflow and PyTorch frameworks for object detection and phenotypic classification of biological images in nucleus detection, malaria stage classification and brain tumor classification.Trying to implement some deep learning models to get best results in the Kaggle competition.	
Modelling the spread of COVID-19 <i>Supervisor: Dr. Danumjaya Palla</i>	March 2021 - April 2021
<ul style="list-style-type: none">Implemented SIR models described in this paper, in MATLAB to predict the spread of the COVID'19 pandemic over a year based on their limitations, equilibrium and stability analysis, interventions and exit strategies.	
Machine Learning in Bioinformatics <i>Study project, Supervisor: Dr. Sukanta Mondal</i>	January 2021 - March 2021
<ul style="list-style-type: none">Identification of Influential Genes for Early Detection of Cancer by performing feature selection using Machine Learning (Random Forest) and Deep Learning (AutoEncoder+DeepLIFT framework).Analysing the genes selected from the transcriptome and their applications in early detection of oral and lung cancers, from a matrix of normalized gene expression (RNA-seq) values from available tumor samples.	

TECHNICAL SKILLS

Languages: Python, C/C++, Java, HTML/CSS, MATLAB

Libraries: Pandas, NumPy, Matplotlib, Keras, Tensorflow, PyTorch, SimpleITK, Elastix

Languages: English, Bengali, Hindi

COURSEWORK

Mathematics: Probability and Statistics, Applied Statistical Methods, Multi-Variable Calculus, Linear Algebra, Graphs and Networks, Operations Research, Introduction to Topology, Mathematical Modelling, Mathematical Methods, Differential Equations, Ordinary Differential Equations, Numerical Analysis, Optimization, Complex Analysis, Abstract Algebra, Real Analysis, Measures and Integration.

Computer Science: Computer Programming, Discrete Mathematics, Object Oriented Programming, Logic in Computer Science, Digital Design.

ACHIEVEMENTS

Merit Scholarship and Workshop: by **INSPIRE-DST** in collaboration with **JBNSTS**, for being among top 0.5% students of West Bengal in boards examinations.

Award: Highest achievement in Science in ICSE (100/100 PCB).

POSITIONS OF RESPONSIBILITY

Course Instructor and Project Mentor- Introduction to Data Science (**QSTP**, BITS Goa).

Academic Mentor- Probability and Statistics (Academic Assistance Program, **CTE**, BITS Goa.)

Project lead- Music Society **website**, from scratch.

COMMUNITIES

CTE - Member of the Center of Technical Education, BITS Goa (till March 2020).

IGEM - Member of the International Genetically Engineered Machines team, BITS Goa.

MuSoc - Lead vocalist at the Music Society, BITS Goa.

Abhigyaan - Volunteer work for the education of mess workers at BITS Goa campus.