Arka Mitra

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Education

Indian Institute of Technology,Kharagpur *Kharagpur,West Bengal*
B.Tech in Electronics and Electrical Communication Engineering *July,2017 - PRESENT*
- CGPA-9.34/10.00, till 4th semester

Indian Institute of Technology,Kharagpur *Kharagpur,West Bengal*
Minor degree in Computer Science and Engineering *July 2017-PRESENT*
- CGPA-9.40/10.00

All India Senior School Certificate Examination *Kolkata,West Bengal*
South Point High School *2017*
- 94.8% in CBSE

Madhyamik Examination *Kolkata,West Bengal*
South Point High School *2015*
- 92.80% in WBBSE

Internships

Early Earthquake Detection System *Professor Tarun Kanti Bhattacharya*
Indian Institute of Technology, Kharagpur *May 2019-July 2019*
- Helped in the detection of P and S wave from a series of miniseed data by using STA-LTA and other algorithms. Current work going for the identification of S wave from P wave.

Improvement on CheXpert Dataset *Professor Debdoot Sheet*
Indian Institute of Technology Kharagpur *June 2019-August 2019*
- Various experiments with different models and methods to tackle the uncertain data were implemented.
- Applied RISE after final training to detect the regions of the picture that described where the disease was.

Computational Chemistry integrated with Machine Learning *Professor Shamik Sural*
Indian Institute of Technology Kharagpur *October 2018-Ongoing*
- Applied PSO and other optimisation techniques for finding the most stable cluster of Molecules.
- Reduced time of convergence of the various algorithms by imposing planarity on plausible molecules.
- Showed correlation between aromaticity and energy for aromatic molecules.
- Developed a neural network and integrated it with other optimisation technique to further improve the optimisation time.

Question Answering with Dynamic-Clip Attention Mechanism *Professor Pawan Goyal*
Indian Institute of Technology Kharagpur *August 2019-Ongoing*
- Implemented the paper on question answering with dynamic attention-clip with different methods in the latest keras and theano versions.
- Applied it to verify and predict specifications based on products.

Papers

Modified Particle Swarm Optimization Algorithms for the Generation of Stable Structures of Carbon Clusters, C_n ($n = 3$–6, 10) *Prof Shamik Sural,Pratim Chattaraj*
Frontiers Chemistry *2019*
- Application of PSO (and comparism with other optimistaion techniques)integrated with Density Functional Theory for the optimisation of Molecule energy.
- Was the second author in the paper.

Search for a Single Deep Convolutional Neural Network to Beat an Ensemble in Screening Chest Radiograph *Professor Debdoot Sheet*
Ongoing *2019*
- Implemented various models in Pytorch to improve on the benchmark set by the ChexNet and tackled the uncertainties in the dataset in three distinct ways.
- Was the second author in the paper.

Towards Integrating Firefly Algorithm with Density Function Theory for Global Optimization of Al42- Clusters and its Implication in Aromaticity

Prof Shamik Sural,Pratim Chattaraj

ONGOING

2019

- Studied more algorithms and further ways to optimize. Improved the rate of convergence by imposing planarity on certain molecules.
- Studied the correlation between Aromaticity and Energy of Aromatic Structures along with the application of Density Functional Theory.
- Was the first author in the paper.

Honors & Awards

2018	**IIT Kharagpur**,	Obtained a Department change by being in top 2% out of nearly 1400 students.
2017	**JEE Advanced**,	Obtained a rank within top 0.1% students of India for admission into IITs.
2015-16	**KVPY**,	Qualified for fellowship under Indian Institute of Science for pursuing basic science research.
2017	**WBJEE**,	Secured rank 22 in West Bengal Joint Entrance Examination out of 0.1 million candidates
2017	**NSEA,RMO**,	Cleared RMO and NSEA.
2017	**ISI**,	Cleared ISI with a rank of 14.
2017	**NEST**,	Secured an All India Rank of 32 in NEST 2017.

Technical Skills

Indian Institute of Technology, Kharagpur

PROGRAMMING LANGUAGES AND FRAMEWORKS

- Programming Languages: C,C++,Python,MATLAB
- Computational Frameworks: Numpy,Matplotlib,Scipy,Pandas,Sklearn,Skimage
- Machine Learning Frameworks: Keras, Pytorch
- Operating systems:Linux(Ubuntu),Windows
- Others:LaTeX,,Git

Coursework

Indian Institute of Technology,Kharagpur

RELEVANT COURSEWORK

- Semiconductor Devices | Electromagnetism | Algorithms and Data Structures | Probability and Stochastic Processes | Matrix Algebra | Digital Electronics | Analog Electronics | Analog Communication | Control Systems | Microwave Engineering | Machine Learning

Online Courses

- Machine Learning Course By Andrew Ng
- Deep Learning Specialization By Andrew Ng
- Machine Learning Course in Udemy
- CS224n- Natural Language Processing
- Fastai course

Extracurricular Activity

National Service Scheme(NSS)

Kharagpur,West Midnapore

VOLUNTEER AT NSS,IIT KHARAGPUR

July 2017-May 2019

- Won the Best Volunteer Award at the NSS Annual Camp
- As the volunteer, took surveys in the village of Gopali, West Midnapore, regarding the hygiene and education of villagers,and undertook teaching of primary schoolchildren each week.

IEEE Student Branch

Kharagpur,West Midnapore

WEBMASTER,IIT KHARAGPUR

June 2019-Ongoing

- Webmaster of IEEE Student Branch IIT Kharagpur and thus endowed with the responsibilities of maintaining the IEEE Servers and volunteering in the activities done by the student branch.

Student Welfare Group

Kharagpur,West Midnapore

MENTOR

July 2019-Ongoing

- Mentor to a group of five freshers meant to help them adjusting to the campus life and academics.

Tutorbin

India

TUTOR

February 2019-Ongoing

- Tutor in an online portal that helps in improving the academic performance of others.
- Considered one of the best tutors with a consistent 4.8 out of 5 rating over a long time.