Saptarshi Misra

Bangalore

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EDUCATION

Indian Institute of Technology, Kharagpur
MS (by Research), Computer Science and Engineering (Machine Learning), 2015-2018
GPA: **9.29/10**

Kalyani Government Engineering College, West Bengal University of Technology
B.Tech, Computer Science and Engineering, June 2015
GPA: **8.58/10**

South Point High School, West Bengal Council of Higher Secondary Education
Higher Secondary, Pure Science, May 2011
Marks: **90.25%**
Ranked 26th among all candidates who appeared

Secondary, May 2009
Marks: **88.62%**

EXPERIENCE

IBM India Software Labs
Machine Learning Engineer , (2019 - present)
1. Developing an NLP + Deep Learning based tool for fuzzy schema matching for an IBM Cloud product. The challenge involved is restricted access to actual customer data and noise/inconsistencies in the header data for the schemas. Filed a patent on this work.
2. Writing unit tests, contract tests and integration tests and deploying the product in IBM Cloud.

IBM India Cognitive Systems Labs
Machine Learning Engineer, (2018 - 2019)
1. Developed usecases for SnapML (a distributed machine learning package developed at IBM Zurich Research Labs) around finance, insurance and retail industry.
2. Integrated and optimized different components from industry leading RAPIDS frameworks with pai4sk (scikit-learn optimized for Power Systems).
3. Regularly used github enterprise, CI/CD frameworks for maintaining the codebase.
4. Integrated and optimized word movers distance API from IBM Zurich Research Labs with pai4sk and developed usecases around that.
5. Used CUDA for optimizing parts of the codebase.
6. Authored **2 ip.com disclosures**.
7. Mentored and advised the team on core machine learning concepts.

RESEARCH INTERESTS

Deep Learning, Machine Learning, Data Mining, Artificial Intelligence, Algorithms

PUBLICATIONS

Journal:

1. Saptarshi Misra, Sudeshna Sarkar, Pabitra Mitra. *Statistical downscaling of precipitation using long short-term memory recurrent neural networks*, Theoretical and Applied Climatology, DOI: 10.1007/s00704-017-2307-2.

2. Saptarshi Misra, Hiteshri Shastri, Sudeshna Sarkar, Pabitra Mitra, Kaustubh Salvi. *Statistical Downscaling of High Resolution Precipitation in India using Convolutional Long Short Term Memory Recurrent Neural Networks*, Climate Dynamics (submitted).

Patent:
1. *Metadata Based Mapping Assist.* Reference No.: 202004536US01 (Filed with USPTO, December 2020)

Book Chapter:
1. Hiteshri Shastri, Dr. Kaustubh Salvi, Dr. Shashikanth Kulkarni, Saptarshi Misra, A review of multiple criteria decision-making methods in reference to water resources and climate science applications, Climate change and its impact on Water and Energy Management : MCDM and ANN Approaches, Ed by M. Mujumdar, (Pub: Springer) In press

PROJECTS AND INTERNSHIPS

Extreme Blue Internship, IBM India Software Labs, Bangalore : As a part of Extreme Blue internship program, worked on a project on Enabling Popular Machine Learning Algorithms in Apache Spark GPUEnabler Plugin. The aim of the project was to select few popular machine learning algorithms like logistic regression, kmeans, etc. and implement native CUDA code for NVIDIA GPU attached to IBM Power Server and test the performance improvement compared to the CPU versions. Got 6X performance improvement for kmeans and 10X for logistic regression for considerably large datasets. *https* : *//github.com/misrasaptarshi/eb_cuda*

Feature Extraction and Analysis of Climate Data using Machine Learning/ Deep Learning techniques, Indian Institute of Technology, Kharagpur : Presently I am working on this project funded by MHRD at IIT Kharagpur as a part of my MS coursework. I am presently working on developing better machine learning/deep learning model compared to existing models to predict rainfall and temperature at fine resolutions using statistical downscaling techniques.

Predicting the structure of cascade from temporal distribution of retweets and user features in Twitter, Indian Institute of Technology, Kharagpur : The aim of the project was to predict and model structural information of a tweet cascade compared to existing models based on the temporal information of retweets and the features of seed user of cascades. Main motivation was to find what types of tweets/hashtags initiate the formation of large cascades.

Web application for displaying recharge data extracted from MySQL database, Vodafone India Pvt. Ltd., June-July 2014 : Worked on a project to display the recharge statistics collected from their master database at regular intervals of time in the form of a bar chart and a pie chart as a web application for proper analysis of their server functioning and load balancing.

Creating an ALV for passport report in SAP-ABAP HR module, Gas Authority of India Limited, Noida: Worked on SAP-ABAP and created an ALV report in HR module.

Wireframe modelling and shading of a 3D car, Indian Statistical Institute, Kolkata: This project was aimed at developing a wireframe model of a car and presenting a complete shaded realistic view of the car. This provided a proper knowledge of developing a 3D model from scratch.

Interface design of a Personal Digital Assistant at Stesalit Infotech Ltd., January 2013: The objective of this project was to develop a PDA (Personal Digital Assistant) with the help of C++ which would be of utmost help to the common masses.In order to provide a optimized utilization of the PDA, it was designed in Bengali.

SKILL SET

Languages: Python, Theano, Keras, Tensorflow, Pytorch, C, C++, Java, ABAP
Operating System: Linux, MAC, Windows
Tools: Scikit-learn, Gensim, NLTK, Spacy, Matlab, R, Octave, Cuda, Dockers, Jenkins, Eclipse, , LaTeX, OpenGL, QtCreator

ACHIEVEMENT

Selected as a **reviewer for Journal of Hydrology**, one of the top journals in the field of hydrology.

Became **School topper in the National Science Olympiad (organised by NSO)** in Class 12 in 2011 and ranked 432(among top 500) all over India in the second level.

Received **National Merit Scholarship award(by MHRD)** for distinctive performance in Higher Secondary Examination.

Became **topper in the department** and got 4th highest marks in the college in B.Tech considering all departments in 4th semester and became 2nd in 6th semester.

Received **1st prize at the digital electronics based event titled Hurtlocker at Techtix13, the Techno Management fest of Kalyani Government Engineering College**. It was a timed event where participants were given real life circuits dealt with while diffusing a bomb.

TRAINING/ WORKSHOP ATTENDED

Attended **Indian Workshop on Machine Learning (IWML) 2016** held at IIT Kanpur with travel grant and registration fee waiver.

Attended a **2-day Certified Ethical Hacking Expert(Integrated Level 1&2) workshop at Bengal Engineering and Science University (BESU), Shibpur** under the banner of Techfest, IIT Bombay.

Undergone a **15 days summer training on "Network Management" at Nettech Pvt. Ltd.**, Kolkata from 1st to 15th July, 2012.

Attended a **5-day workshop at ISI,Kolkata on Computational Aspects of Game Theory** in June 2014.

EXTRA-CURRICULAR ACTIVITIES

Ex-member of **Machine Learning/ Deep Learning Research group** at department of Computer Science and Engineering, IIT Kharagpur. Was a member of **Industry Relationship Cell** of my past college. Passionate about **singing** and learnt singing formally for about 3 years, learnt painting and received **Senior Diploma in painting**,did **anchoring** in a college event and also took **active part in the formation of the coding community of the college**.

INVITED TALK

Was invited to give a talk on Computer Science and Engineering and its prospects to the senior female students of Kendriya Vidyalaya, Kharagpur (10th August, 2016) as a part of the IEEE Women in Engineering, Kharagpur section's initiative to encourage female students to pursue engineering as a career

GRADUATE COURSEWORK

Machine Learning, Design and Analysis of Algorithms, Parallel and Distributed Algorithms, Complex Networks

TEACHING ASSISTANTSHIPS

Programming and Data Structures Theory and Laboratory, Artificial Intelligence, Foundations of Algorithm Design and Machine Learning.

REFERENCES

Sudeshna Sarkar, Professor, Department of Computer Science and Engineering and Head, Centre of Excellence in Artificial Intelligence, IIT Kharagpur, (+91) 3222 28 3494(O), sudeshna@cse.iitkgp.ernet.in

Pabitra Mitra, Professor, Department of Computer Science and Engineering, IIT Kharagpur, (+91) 3222 28 2356(O), pabitra@cse.iitkgp.ernet.in

Sambhunath Biswas, Ex Professor, Machine Intelligence Unit, Indian Statistical Institute, Kolkata.