RITWIK SAHA

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EDUCATION

Bachelor of Technology(Electrical Engineering) *2016 - 2020*
Indian Institute of Technology, Mandi Overall GPA: 7.6/10
School of Computing and Electrical Engineering

CBSE(Higer Secondary) *2016*
D.A.V. Public School, Shreshtha Vihar, Delhi Percentage: 94.4%

CBSE(Matriculation) *2014*
D.A.V. Public School, Shreshtha Vihar, Delhi CGPA: 10.0

TECHNICAL STRENGTHS

Computer Languages	C/C++, Python, MATLAB
Deep Learning Frameworks	Keras, TensorFlow
Containerization & Orchestration	Docker, Kubernetes, KNative
IoT	Arduino, RaspberryPi
Graph Databases	Neo4J, ArangoDB
Blockchain	Ethereum, Solidity, Web3
Version Control	Git, GitHub
Big Data	Hadoop

EXPERIENCE

Siemens Technology & Services Pvt. Ltd. June 2019 - August 2019
Research Intern

- Set up infrastructure for running serverless applications.
- Leveraged Docker, Kubernetes and KNative for setting up along with various network management framework like Istio.
- Benchmarked the performance of the serverless setup under various load conditions and network topology.
- Documented the relevant code and procedures.

Siemens Technology & Services Pvt. Ltd. December 2018 - Febraury 2019
Research Intern

- Set up blockchain infrastructure with help of Private Ethereum.
- Benchmarked the transaction performance, system resource usage and network performance under a variety of conditions like variable block times, transaction loads, block size etc.
- Designed and partly implemented a supply chain solution on blockchain infrastructure.
- Tried out and partially benchmarked various competing solutions for blockchain like Tendermint
- Documented the relevant codebase and procedures.

Indian Institute of Technology, Mandi June 2017 - January 2018
Research Intern

- Organized and created dataset for IMD rainfall data and soil data from ISRO.
- Ran Machine Learning algorithms on the dataset to predict landslide predictions.

- Published the results in a paper presented at International Conference for Machine Learning and Data Science, 2018 and published on IEEE Xplore.

RELEVANT COURSES

Core Courses
Signals & Systems
Control Theory
Communication Theory
Electromechanics
Network Theory

Computer Science Courses
Data Structures and Algorithms
Communicating and Distributed Processes
Deep Learning
Artificial Intelligence
Computer Organization

Other Relevant Courses
Probablity, Statistics & Random Processes
Linear Algebra
Mathematics for Engineers

POSITION OF RESPONSIBILITIES

Summer of Code in Space June 2019 - September 2019
Mentor *European Space Agency*

- Assigned as project mentor for in SOCIS(Summer of Code in Space) organized by the European Space Agency(ESA).
- The project is about extending the EinsteinPy library to support symbolic calculations in General Relativity.
- The project is fiscally sponsored by European Space Research and Technology Centre(ESTEC) wing of ESA.

Indian Youth Delegation to China July 2018
Delegate *Ministry of Sports & Youth Affairs, Govt. of India*

- Represented Indian contingent as a delegate in Indian Youth Delegation to China - 2018
- Interacted with top officials within the Chinese Government and the Chinese youth.

Exodia(Tech-Cult Fest of IIT-Mandi) April 2018
Video Design Coordinator *IIT Mandi*

- Was tasked with the job of creating teasers, trailers and promo videos of the fest Exodia.
- This improved my video editing skills on Adobe Premiere Pro & After Effects.
- Link to the videos.

PROJECTS

The EinsteinPy Project February 2019 - Present

- Founder of EinsteinPy - An Open-Source Python Library for General Relativity
- Partly sponsored by European Space Agency(ESA).
- Soon to be sub-organization under OpenAstronomy
- GitHub Repository

Exoskeleton for Motion Assistance January 2018 - April 2018

- Designed & Implemented an Exoskeleton intended for military purposes.
- The Exoskeleton enabled the user to lift weights upto 40 kgs without any locomotive hindrance.

- The Project won 1st prize in 2018 edition of the Design Practicum Curriculum.

Safety Device for Fishing Vessels November 2017 - January 2018

- Designed & Implemented a low-cost solution for small vessels to avoid collision with big ships at night.
- The project estensilvely used arrays of Arduino and RaspberryPi along with GPS and BlueTooth modules. This was a core IoT project.
- The Project won 5th prize in 2018 edition of the Inter-IIT Tech Meet held at IIT Madras.

Video Colorization using Deep Learning April 2019

- Used deep learning to colorize black and white videos.
- Used Autoencoder like networks with various skip connections and CNN blocks.
- Poposed an time-series aware approach to colorize videos.

PageRank implementation using Hadoop September 2019

- Used Hadoop streaming API for implementing PageRank algorithm.
- Used powershell scripting to run multiple mappers/reducers in an iterative fashion.

PUBLICATIONS

K. Agrawal, Y. Baweja, D. Dwivedi, R. Saha et al., "A Comparison of Class Imbalance Techniques for Real-World Landslide Predictions", in 2017 International Conference on Machine Learning and Data Science (MLDS), DOI 10.1109/MLDS.2017.21. Published by IEEE.

INTERESTS

Deep Learning

Blockchain

Distributed Computing

Data Structures & Algorithms

Computer Architecture

Differential Geometry & General Relativity