

# RITWIK SAHA

📍 Mandi, Himachal Pradesh, India

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## EDUCATION

<b>Bachelor of Technology(Electrical Engineering)</b>	2016 - 2020
Indian Institute of Technology, Mandi	Overall GPA: 7.6/10
School of Computing and Electrical Engineering	
<b>CBSE(Higer Secondary)</b>	2016
D.A.V. Public School, Shreshtha Vihar, Delhi	Percentage: 94.4%
<b>CBSE(Matriculation)</b>	2014
D.A.V. Public School, Shreshtha Vihar, Delhi	CGPA: 10.0

## TECHNICAL STRENGTHS

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

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### 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

Probability, Statistics & Random Processes  
Linear Algebra  
Mathematics for Engineers

## POSITION OF RESPONSIBILITIES

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### Summer of Code in Space

*Mentor*

June 2019 - September 2019

*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

*Delegate*

July 2018

*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)

*Video Design Coordinator*

April 2018

*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

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### 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 1<sup>st</sup> 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 extensively used arrays of Arduino and RaspberryPi along with GPS and Bluetooth modules. This was a core IoT project.
- The Project won 5<sup>th</sup> 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.
- Proposed an time-series aware approach to colorize videos.

## PUBLICATIONS

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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

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Deep Learning

Blockchain

Distributed Computing

Data Structures & Algorithms

Computer Architecture

Differential Geometry & General Relativity