



## EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2021	B.TECH	IIT Kharagpur	8.85 / 10
2017	Higher Secondary School Examination	Candlewick Public School / CBSE	91.8%
2015	Secondary School Examination	Tagore Public School / CBSE	10 / 10

## PROJECTS

<b>Visual Object Tracking</b>	<b>Deep Learning, Computer Vision</b>	<b>May 2019 - Till date</b>
Term project under the supervision of Jayanta Mukhopadhyay, Professor, IIT Kharagpur [github.com/itsShnik/VisualObjectTracking] <ul style="list-style-type: none"><li>Implemented MOSSE filter based correlation algorithm with an accuracy of 35% working at around 640 frames per second</li><li>Implemented Kernelized Correlation Filter (KCF) algorithm with an accuracy of 44% working at around 120 frames per second</li></ul> However, both these algorithms suffered from the problem of occlusion and object re-appearance <ul style="list-style-type: none"><li>Used adaptive filters with KCF for larger search regions thus adding robustness against these problems</li><li>Implemented a deep-learning based algorithm which uses a fully convolutional Siamese feature extractor, a region proposal network and an image segmentation branch trained offline for one shot object tracking and segmentation. Achieved an accuracy of 60% at around 50 frames per second</li></ul>		
<b>Here I Am [Virtual Assistant]</b>	<b>Web Development</b>	<b>Feb 2019 - April 2019</b>
Term project as a part of course Software Engineering under the supervision of Sudip Mishra, Professor, IIT Kharagpur [github.com/itsShnik/Here-I-Am] <ul style="list-style-type: none"><li>Developed a web application for event reminders, calendar integrated file management and a recommendation system for nearby places and movies</li><li>Used MySQL database for efficient storage of account information, user events and maintaining local cache for faster reload times</li><li>Used HTML and JavaScript with CSS for the web pages and Java Servlets for backend with the tomcat server</li></ul>		
<b>Astrea[Search Engine]</b>	<b>Web development, Natural Language Processing</b>	<b>March 2019</b>
Team project developed as a part of Inter-Hall Software Development Competition, OpenSoft 2019 [github.com/itsShnik/Astrea] <ul style="list-style-type: none"><li>Developed a search engine to search from a given database of more than 53,000 legal documents. Secured the second position</li><li>Created four different pipelines to process queries categorised on basis of a number of factors, using natural language processing</li><li>Extracted the key information from the original documents and created a new database to improve search results' accuracy and speed</li></ul>		
<b>Study on the effects of romantic relationships on happiness of college students</b>		<b>Nov 2018 - Dec 2018</b>
Successfully conducted a survey among more than 550 college students on the effects of romantic relationships on their happiness <ul style="list-style-type: none"><li>Formulated several questions to accurately determine happiness levels before and after a relationship</li><li>Analysed the responses to infer causality between happiness and (romantic) relationships based on more than 10 factors</li></ul>		

[Details can be found on [github.com/itsShnik](https://github.com/itsShnik)]

## SKILLS AND EXPERTISE

**Programming languages:** Python, C/C++ (proficient) | Java, Javascript (familiar)  
**Web and Development:** HTML, CSS, Django, Android  
**Frameworks/Tools:** C++ STL, OpenCV, MySQL, Git, Shell, PyTorch, TensorFlow, Android Studio, Java Servlets

## COURSEWORK INFORMATION

Machine Learning <sup>^</sup> Algorithms 1 & 2 <sup>*</sup>	Deep Learning <sup>^</sup> Formal Language and Automata Theory	Probability and Statistics Discrete Structures	Computer Organization <sup>*</sup> Compilers <sup>*</sup>	Cryptography <sup>*</sup> Data Structures
Signals and Networks	Switching Circuits and Logic Design	Software Engineering		[ <sup>*</sup> Ongoing] [ <sup>^</sup> Online]

## POSITIONS OF RESPONSIBILITY

<b>Secretary, Technology General Championship, Azad Hall of Residence</b>	<b>July 2018 - April 2019</b>
Our team secured the second position in Technology General Championship 2019 with a first position in the Hardware Modelling event <ul style="list-style-type: none"><li>Organized various workshops and interactive sessions to educate the freshmen on topics like Data Analytics, Cinematography and Media Processing</li><li>Ensured the smooth conduction and a robust preparation of the participants in the Technology General Championship events</li><li>Ensured the timely response and attention on any technology related issues in the Azad Hall of Residence</li></ul>	
<b>Junior Coordinator, National Students Space Challenge(NSSC), IIT Kharagpur</b>	<b>July 2017 - May 2018</b>
<ul style="list-style-type: none"><li>Organized various Autonomous and Semi-Autonomous Robotics events, which involved participation of more than a thousand students across the country</li><li>Managed and organized several workshops pertaining to various topics including Gravitational Waves and Astronomical Data Analysis</li><li>Organized telescope sessions on various different occasions including the rare blue moon and the super moon</li></ul>	

## AWARDS AND ACHIEVEMENTS

- IIT JEE Mains 2017 All India Rank 732** : In the top 0.07% amongst more than 11,00,000 students
- IIT JEE Advanced 2017 All India Rank 259** : In the top 0.12% students amongst more than 2,00,00 students
- Cleared Regional Physics Olympiad 2016** : In the top 60 amongst more than 6000 students
- Cleared Regional Astronomy Olympiad 2016** : In the top 60 amongst more than 6000 students
- One of the youngest students ever [15] to have cleared **JEE Main** and **JEE Advanced**

## EXTRA CURRICULAR ACTIVITIES

- Volunteer at **National Service Scheme (NSS)**, IIT Kharagpur [July 2017 - April 2019] and taught the students of a primary school in a village and conducted surveys in Porapara district of West Midnapore. Also a part of the Annual NSS Camp - 2017 where we built a road at Raghunathpur, West Bengal
- Member of the bronze winning inter-hall basketball competition team [2018] of **Azad hall of Residence**
- Member of the silver winning inter-hall English Dramatics team [2018] of **Azad Hall of Residence**
- Contributed four articles on Astronomy and Astrophysics to the annual magazine 'Moonwalk' of **Space and Technology Society**, IIT Kharagpur