

# Avishek De

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## EDUCATION

### Indian Institute of Technology (IIT) Roorkee

Roorkee, India

B.Tech. in Electrical Engineering, Minor Specialisation in Computer Science

Jul 2013 - Apr 2017

- GPA: **8.9/10.0** (First Division with Distinction)

### St. Xavier's Institution, Panihati

Kolkata, India

Senior Secondary School, Science Division

Apr 1997 - Mar 2013

- ISC 2013 Senior Secondary Board Examinations: **98.5%** marks (National Rank - 3)
- ICSE 2011 Secondary Board Examinations: **98.8%** marks (National Rank - 1)

## PUBLICATIONS

### Classification of Extension and Flexion Positions of Thumb, Index and Middle

#### Fingers Using EEG Signal

IIT Roorkee

Industry Oriented Project (Biomedical Lab) | Guide: [Prof. M Felix Orlando](#)

July 2016 - Nov 2016

- Performed analysis and processing of EEG Signals to classify Flexion and Extension actions of index, middle finger and thumb using 3 Hjorth and 3 Wavelet Parameters per channel for ten channels corresponding to the region of the brain controlling hand motions. Offline training (machine learning) was done on MATLAB and a convoluted neural network was implemented on LabView where a window of predefined size (samples) was processed realtime for features and corresponding output for the continuous incoming signals
- Published a [paper](#) in the **6th IEEE International Conference on Control Systems, Computing and Engineering**

## EXPERIENCE

### Goldman Sachs

Bengaluru, India

Senior Analyst, Risk Division

Jan 2019 - current

- Developed a job scheduler using Knapsack algorithm and priority queues for the public cloud platform in Risk division handling more than 40 million jobs daily, improving the availability of essential risk metrics by 1-3 hrs
- Built an **Apache Spark** based simulation and analysis toolkit to understand volatility and trend of compute and runtime metrics for market risk pricing jobs and evaluate outcomes of what-if scenarios.

Analyst, Risk Division

Jun 2017 - Dec 2018

- Improved risk models related to a group of expensive equity derivative trade positions, reducing the overall computation time spent on the calculation of their risk metrics and saving **~\$10 million** annually for the firm
- Developed a job packaging algorithm by using dynamic programming and mathematical methods to reliably predict time and memory requirements and identify the optimal resource bucket for pricing jobs by leveraging historical data cached in **Redis**, reducing the total daily compute spent on risk calculations by 25%
- Developed a micro-services architecture based job distribution framework using **Kafka**, **MongoDB** and in-house graph databases to publish market risk pricing jobs on the public cloud helping in the calculation of multiple risk metrics for more than 3 million trade positions daily

### HealthOnRent

Mumbai, India

Software Development Intern

May 2016 - Jul 2016

- Built an online commerce platform for a healthcare firm, developing both frontend and backend solutions, getting them up and ready for business within 1.5 months
- Developed an **enterprise resource planning** suite to handle order management, inventory and logistics for their unique rental based products and services

### Zeko Online Pvt. Ltd.

Remote Internship

Full Stack Web Development Intern

May 2015 - Aug 2015

- Built an online store for an apparel startup using Wordpress/WooCommerce, focusing on UI/UX and security

### GSS School of Telecommunications, Indian Institute of Technology (IIT) Kharagpur

Kharagpur, India

Summer Research Intern | Guide: [Prof. Saswat Chakrabarti](#)

May 2015 - Jul 2015

- Developed an autonomous flight control board for a quadcopter using an Arduino UNO and the ATmega328 microcontroller, containing a gyroscope, accelerometer and proximity sensor for intelligent movement,

obstruction detection and in-flight stability. Implemented remote control for the quadcopter via 2.4GHz radio frequency communication

## PROJECTS

### Development of a Facial Recognition System for automatic attendance recording

IIT Roorkee

Bachelor Thesis Project | Guide: [Prof. Manoj Tripathy](#)

Aug 2016 – Apr 2017

- Developed an automatic attendance recording system by capturing and processing images online to detect faces using Deep Convolution Neural Networks, and identifying them by comparing against a library of pre-registered faces

### Attitude and Heading Reference System (AHRS) Design

IIT Roorkee

Industry Collaboration Project with [Samtel Avionics](#) | Guide: [Prof. Avik Bhattacharya](#)

Aug 2015 – Dec 2015

- Developed a 9 degree of freedom Inertial measurement unit filter for an Attitude and Heading Reference System using efficient filter algorithms; simulated in MATLAB and implemented on a hardware level

### Antenna azimuth position controller design

IIT Roorkee

Course Project (Control Systems Lab) | Guide: [Prof. Gopinatha Pillai](#)

Oct 2015 – Nov 2015

- Performed an experimental research on the design and optimisation of an efficient PID position controller system for governing the azimuth angle of an antenna at various frequency ranges

## ACADEMIC ACHIEVEMENTS

- Successfully cleared **Chartered Financial Analyst (CFA) Level - I** (June 2019)
- Received Merit-cum-means Scholarship - IIT Roorkee, awarded to top 10% students across the class
- Top scorer** in department, among top 10 across all departments after first year - IIT Roorkee (CGPA: **9.7/10**)
- State Rank: **9** (West Bengal) and National Rank **156** in JEE-Mains 2013
- Awarded **The Telegraph School Awards for Academic Excellence by a student** and **Mamraj Agarwala Foundation Award** (by Honbl. Governor of West Bengal) for ICSE 2011, ISC 2013
- Among **top 1%** students at the state level in National Standard Examination in Physics (NSEP), 2011
- Kishore Vaigyanik Protsahan Yojana (KVPY) fellow** - DST, Govt. of India with National Rank - **127** in 2011

## POSITIONS OF RESPONSIBILITY & VOLUNTEERING

### Community TeamWorks, Goldman Sachs

Bengaluru, India

Social Services Volunteer

Sep 2018, Sep 2019

- Spent an interactive day with children having autism spectrum and other developmental disorders
- Counselled underprivileged students on career choices and opportunities available after high school

### National Service Scheme, IIT Roorkee

Roorkee, India

Social Services Volunteer

Jul 2013 - Apr 2017

- Taught English, Mathematics and Science to underprivileged students belonging to rural areas
- Helped poor villagers earn a living by teaching them to make and sell paper bags to local shops/vendors
- Organised multiple environmental awareness programmes and blood donation camps

### Thomso - the Cultural Fest, IIT Roorkee

Roorkee, India

Event Coordinator (in association with Program Management Section, IIT Roorkee)

Oct 2013

- Organised a T-Shirt painting competition and an on-campus treasure hunt as part of Thomso

## EXTRA CURRICULAR

- Developed a single player (**Computer AI**) 15x15 TicTacToe Board Game at Microsoft Code.Fun.Do 2015
- Developed a two-player strategy mobile game - **Enclave** available on the [Amazon App Store](#)
- Anchor at Cultural Council Valedictory Program (2014,2015,2016), Institute Orientation program (2015,2016)
- Developed the frontend for a **search engine** for discovering web pages, people, images, music and ebooks on the campus intranet, as part of Software Development Section (SDS Labs), 2014

## SKILLS AND RELEVANT COURSES

- Courses - Artificial Neural Networks, Numerical Methods, Data Structures, Design and Analysis of Algorithms, Database Management Systems, Theory of Computation, Discrete Structures, Operating Systems
- Languages/Tools - Java, Scala, C++, C, Python, PHP, MySQL, Node.JS, MongoDB, Verilog, MATLAB, Arduino