

# ADITYA BASU

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## EDUCATION

Degree	Institute	CGPA/%	Year
Bachelor of Technology, Instrumentation Engineering Minor, Computer Science and Engineering Micro-Specialization, Entrepreneurship and Innovation	Indian Institute of Technology, Kharagpur	9.24/10	2023
All India Senior School Certificate Examination	Delhi Public School Ruby Park, Kolkata - CBSE	94.40%	2019

## SCHOLASTIC ACHIEVEMENTS

- **Holding Department Rank 9** in Instrumentation Engineering under the Department of Electrical Engineering.
- **JEE Mains 2019:** Secured an All India Rank of **891** (*out of 1.3 million*) and **99.933 percentile** in JEE Mains 2019.
- **JEE Advance 2019:** Secured an All India Rank of **2079** (*out of 1.3 million*) in JEE Advance 2019.
- **NSEP:** Ranked in the **top 1%** nationwide in National Standard Examination in Physics 2018 and invited to take **INPhO**
- **NSEA:** Ranked in the **top 1%** nationwide in National Standard Examination in Astronomy 2018 and invited to take **INAO**
- **ISI Scholar(B.Math):** Ranked **37th** all over India (*out of 20,000+ students*) in the entrance test to ISI Bangalore in 2019.

## INTERNSHIPS, PROJECTS AND RESEARCH EXPERIENCE

**Winter Intern, Complex Networks Research Group, IIT Kharagpur** *Dec '20 - present*

**Placing (Historical) Events on a Timeline: A Classification cum Co-ref Resolution Approach**

*Prof. Animesh Mukherjee, Dept. of Computer Science and Engineering, IIT Kharagpur*

- **Prepared** and **annotated** datasets taken from The Collected Works of Abraham Lincoln and Mahatma Gandhi.
- Leveraged **Generative Adversarial Learning** for **event classification** and **clustering** methods for **co-ref resolution**.
- **Designing** a novel strategy to improve the performance of event co-ref resolution by generating **Knowledge Based Tags**.

**Exploring the Filter Bubble: The Effect of Using Recommender Systems on Content Diversity**

(Nguyen et al. , WWW'14)

*Sep '20 - Nov '20*

*Prof. Saptarshi Ghosh, Dept. of Computer Science and Engineering, IIT Kharagpur*

- **Reviewed existing literature** of **collaborative filtering algorithms** used in various recommendation systems.
- **Scrutinized** a novel strategy to divide ratings into **rating blocks** and consumers into **following** and **ignoring groups**.
- Learnt the **Tag Genome algorithm** used to measure **content diversity** and analysed **consumed recommendation**.
- Used statistical measures to measure the **narrowing effect** of recommendation systems.

**Evaluating NAND Trees [Code]**

*Jan'20 - present*

*Prof. Palash Dey and Prof. Partha Pratim Chakrabarti, Dept. of Computer Science and Engineering, IIT Kharagpur*

- **Analysed** and **implemented** a **sublinear time** randomized **short-circuiting algorithm** to evaluate NAND trees.
- **Created** a program to verify **convergence of probabilities** of case-wise evaluation of **random NAND trees**.

## RELEVANT COURSES DONE

**Computer Science:** Social Computing, Algorithms<sup>\*</sup>, Machine Learning<sup>M</sup>, Deep Learning<sup>M</sup>, Natural Language Processing<sup>M</sup>, Programming and Data Structures<sup>\*</sup>, Signals, Systems and Networks<sup>\*</sup>, Introduction to Electronics<sup>\*</sup>, Analog Electronics<sup>\*</sup>

**Mathematics:** Probability and Stochastic Processes, Statistics, Linear Algebra, Mathematics for Computer Science<sup>M</sup>, Differential Equations, Transform Calculus, Multivariable Calculus [ <sup>M</sup>: MOOC, <sup>\*</sup> has an associated lab component]

## TECHNICAL SKILLS

**Language/OS:** Python, C, C++, Java, SQL, LaTeX, HTML, CSS, Octave, Windows, Linux

**Libraries:** SNAP.py, pyTorch, Tensorflow, Scikit, C++ STL, openCV, spaCy, fastText, NumPy, Pandas, Matplotlib

**Tools:** Git, MS Office, Visual Studio Code, Jupyter Notebook, MATLAB, SOLIDWORKS, LTspice, PyCharm, Qt Creator

## POSITIONS OF RESPONSIBILITY AND EXTRA CURRICULARS

**Mentor, Programming Doubt Sessions, Student Welfare Group, IIT Kharagpur:**

*Dec '20 - present*

Taught several topics of the Programming and Data Structures course to freshmen, organized tutorial and doubt clearing sessions.

**Associated Board of the Royal Schools of Music, London:**

Awarded Distinction in Grade 2 Piano (Theory), Merit in Grade 1 Piano (Practical)

**Member, Aquatics Team, Rajendra Prasad (RP) Hall of Residence, IIT Kharagpur:**

*Dec '19 - present*

Participated in inter-hall swimming and water polo events, co-ordinated a squad of seventeen.

**Member, Debating Society, IIT Kharagpur:**

*Sep '20 - present*

Part of a team which represented my college in "Speak Up 9.0", an Asian style debating tournament, grabbed **5th best speaks**.