## Raktim Mitra

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## Personal Statement:

## A science enthusiast with deep interest for physics, maths , biology and computer sciencestudying at Indian Institute of Technology , Kanpur . My primary interests are QuantumComputing, Bioinformatics, Software Developement and Relativity . I am also in love with football, painting and music .

## Educational Qualifications:

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| Year | Degree | Institute | CPI/% |
| 2019(expected) | B.Tech,Computer Science and Engineering | Indian Institute of Technology,Kanpur | 9.8/10 |
| 2015 | Higher Secondary Exam(WBCHSE) | Ramakrishna Mission Vidyalaya,Narendrapur | 97.2% |
| 2013 | Madhyamik Examination(10th,WB board) | Ramakrishna Mission Vidyalaya,Narendrapur | 95.6% |

## Academic Achievements:

➦Secured **All India Rank - 172** in **JEE-Advanced 2015** amongst 1,50,000 candidates.

➦ Secured **All India Rank - 310** in **JEE-Mains 2015.**

➦ Secured **All India Rank-2** in West Bengal Joint Entrance Examination in Engineering(2015).

➦ Secured **All India Rank-16** in West Bengal Joint Entrance Examination in Medical(2015).

➦Recipient of **Kishore Vaigyanik Protsahan Yojana Scholarship**-2013 (with all india Rank

190)

➦Participated in VIJYOSHI(VIgyan Jyoti Shibir) camp as a KVPY fellow in November 2014 at science city Kolkata .

➦Selected in the **top 1%** (top 300) in National Standard Examination in Physics and in **top 10%** in Chemistry (NSEP, NSEC) conducted by **IAPT**(2014).

➦Participated in Indian National Physics Olympiad and Indian National Chemistry Olympiad (**INPhO,INChO 2014-2015**)

➦ 2nd in Kolkata Zone in IGNITE talent search by VIT in association with Times of India .(2013)

➦Participated in Metal Quiz organised by Indian Institute of Metallurgy at Jadavpur University .(2013)

➦DST-Inspire internship science camp at Jagadish Bose National Science Talent Search,Kolkata.(2013)

Awards:

* **Mamraj Agarwal Rashtriya Puraskar** given Governor, West Bengal Sri Keshari Nath Tripathi .(for securing 5th state rank in Higher Secondary examination .)
* **Felicitation by Chief Minister,West Bengal Srimati Mamta Banerjee** for securing 5th state rank in higher secondary examination .

Technical Proficiency:

C, JAVA, HTML/CSS, Bash, XML, Git, Android Studio, C++, Material Design, Solidworks, Python, Arduino, ROS, Inkspace, Gazebo, OpenCV, Vim, SQLite3, Gnuplot, R,

Octave, Xilinx Webpack Software, MIPS assembly language , Hardware description language Verilog, Latex , PowerPoint .

Projects:

➦**Quantum Computation (quantum postulates, algorithms, query complexity)**

**Mentored by:** [**Prof.Rajat Mittal**](http://www.cse.iitk.ac.in/users/rmittal)

**from(Nov’16 - ..ongoing)**

Studying quantum algorithms , lower and upper bounding methods to query complexity of quantum black-box algorithms and working on relevant problems .

➦**Course Project (TA202) Manufacturing Processes-II :**

Design and fabrication of a working "Juicer" using piston and gear assembly. Works involved Milling, Turning using Lathe , Drilling and Fitting .

➦**Course project (CS201) on Discrete Geometry: Sylvester-Gallai theorem and its implications.**

The reading project consisted of studying sylvester-gallai theorem and its proofs and implications and concept of Real Projective Plane .

[**Link to presentation slides**](https://www.cse.iitk.ac.in/users/nitin/courses/CS201-2016-17-I/pdfs/talk7.pdf)

➦**Course project (TA201) Manufacturing processes-I :**

Design and fabrication of a working **Goods-Keeper with** idea derived from “London-eye” .

As technical director of the group works involved design and drawing and coordinating the manufacturing process and also helping in marketing , costing and business plan building.

➦ **Android App with SQLite database on Birds Of IIT Kanpur “Aves@IITK”(May’16 - June’16)**

**Mentored by:** [**Prof. T V Prabhakar**](http://cse.iitk.ac.in/users/tvp/)

Made an app for birdwatchers with android-studio and mySQL with almost 100 Birds, Images of them along with description separated categorywise .

The data is thanks to Mr. Vikram Grewal .

[**View code on github or download the app**](http://timkartar.github.io/App2/)

➦ **ACA semester project**(Association of Coding Activity,CSE department ,IIT Kanpur, Feb’16 to APril ‘16):*Mentored by*: Mohit Kumar Garg (IIT Kanpur graduate from cse department(2016))

***“****Android App development for text extraction from image****”*** (team of 4 students)

We used tesseract library and built it with gradle into android studio . The app enabled users to capture a photo and english text were recognised, extracted and displayed after processing the image. [**Video**](https://drive.google.com/file/d/0B4phCB11zO1WSU9PTWFQZi1OekE/view?usp=sharing)[**(code on github)**](https://github.com/timkartar/App2/tree/master/ocr2/app/src/main)

➦ part of **Autonomous Underwater Vehicle** Project(‘VARUN’, under **Robotics Club,IIT Kanpur** ) from October ‘15 to April ‘16.Works involved using OpenCV with ROS , Mechanical design of AUV in solidworks, waterproof connector design, Arduino with ROS.

[**Documentation made on Git during the project**](https://docs.google.com/document/d/1K3UGI2lEId069-YsHZwSXuE_FqPa7dGFiabQbPFWvEM/edit?usp=sharing)

Mentoring/Teaching experience:

➦**ACA semester project(**Association of Coding Activity,CSE department ,IIT Kanpur, Jan’17 to ongoing)

Mentored 6 students in their android development project .

➦Have taken remedial classes to to help academically needy students in phy103 course .

Hackathons:

➦Participated in Google DevFest organised by Google Developer Group, IIT Kanpur

in association with E-Cell and won the prize of completion by building a commercial app to facilitate local worker and customer connection along with comprehensive business plan .

Online Courses:

* **Finding Hidden Messages in DNA (Bioinformatics I) by University of California, San Diego on Coursera.** [**Certificate**](http://timkartar.github.io/certificate_bioinfo1.pdf) **earned on January 30, 2017**

**Audited the course titled “**[**HTML, CSS, and Javascript for Web Developers” by Johns Hopkins University**](https://www.coursera.org/learn/html-css-javascript-for-web-developers/home) **on coursera.org .**

Communication Skills:

* Native Languages known : Hindi,Bengali and Sanskrit .

Foreign Languages : English(proficient) , French(level-I, course ongoing, academic year 2016-17 )

Positions of Responsibility:

* **Student Guide (Counselling Service, IIT Kanpur):** Helped new students to mingle with their new college life and acted as a link between students and counselling service to keep an eye on overall emotional and mental well-being of new students at IIT Kanpur .
* **Academic Mentor(Counselling Service , IIT Kanpur)(course PHY103 : Introduction to Electrodynamics):** Under the agenda of Counselling Service, IITKhelping needy students in the mentioned course and taking Remedial Classes as arranged by counselling service,IITK .

Volunteer Experience:

* **CSAW’16 IITK :**

Volunteered to ensure smooth conduction of Cyber Security Awareness Camp hosted by IIT Kanpur in November 2016 **.**

* **Antaragni’16 volunteer , Fine Arts Events :**

Volunteered to ensure smooth conduction of fine arts events in Antaragni 2016.

Extracurricular Activities:

* Secretary at Association of Coding Activities, CSE Dept. , IIT Kanpur.
* **Galaxy’17(Feb,2017):** Coordinated and participated in Fine Arts Events from Mughals pool .

**Antaragni 2017 :** Oil Painting featured in Antaragni fine arts exhibition .

**Secretary(Fine Arts Club, Student Gymkhana, IITK):** Took up the duty of secretary of fine arts club and helped in conducting fine arts events in **Freshers’2016 .**

**Oil Painting in canvas as Summer Project under fine arts club iitk .**

**Galaxy’16**(Feb,2016): Participated in Fine Arts Events from Mughals pool to go on to win Overall Fine Arts Trophy .

**Freshers’ Inferno’15:** Won football tournament as a part of the football team . Came 2nd in carom tournament from mughals pool .

**Musicals in Freshers’15 IIT Kanpur with Music Club , Students’ Gymkhana:** Participated in the Old Hindi Songs Medley as a vocal artist . Also have got skills in Harmonium.

Relevant Coursework:

* **Real analysis and multivariate calculus mth101**

**Linear Algebra and differential Equation mth201**

**Data Structures and Algorithms eso207 (ongoing)**

**Computer Organization cs220(ongoing)**

**Probability and Statistics mso201(ongoing)**

**Abstract Algebra cs203**

**Discrete Mathematics cs201**

**Quantum Mechanics - I pso201**

**Introduction to Electrodynamics phy103**

**Introduction to Psychology psy151**

**Language and Society eng124**

**Principles of Biotechnology lif101**

**Computing Laboratory cs251(ongoing)**

**Communication Skills com200**