

# Sagnik Chatterjee

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## Current Position and Research Interests

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I am a Ph.D. candidate at **IIIT Delhi**, advised by **Dr. Debajyoti Bera**. My main research interests include quantum algorithms, optimization, and learning theory.

## Research Work

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MAR'22 OCT'21	<b>Quantum Boosting using Domain-Partitioning Hypotheses</b> Poster accepted at QIP'22 and TQC'22. Submitted to QTML'22. Pre-print at <a href="https://arxiv.org/abs/2110.12793">https://arxiv.org/abs/2110.12793</a> .
FEB'21 DEC'20 NOV'20	<b>Applying the Quantum Alternating Operator Ansatz to the Graph Matching Problem</b> Poster presented at QIP'21. Extended abstract acceptance at AQIS'20. Pre-print at <a href="https://arxiv.org/abs/2011.11918">https://arxiv.org/abs/2011.11918</a> .

## Education

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JUL '19 to present	<b>Indraprastha Institute of Information Technology, Delhi</b> Doctoral Student (Ph.D.) in <i>Computer Science</i> Dissertation area: <i>Quantum computing</i>
AUG '17	<b>Maulana Abul Kalam Azad University of Technology, Kolkata</b> Bachelor of Technology in <i>Computer Science and Engineering</i> (8.10/10)
APR '13 APR '11	<b>Don Bosco School, Bandel</b> Indian School Certificate Examinations (91.75 %) Indian Certificate of Secondary Education (95.4 %)

## Teaching Experience

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Summer 2022	Teaching Assistant for <b>Data Structures and Algorithms</b> course.
Winter 2020, 2021	Teaching Assistant for <b>Theory of Computation</b> course.
Monsoon 2020, 2021	Teaching Assistant for <b>Modern Algorithm Design</b> course.

## Selected Co-Curricular Activities

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MAR '22	Gave an invited talk on quantum boosting algorithms at the IIT-Delhi theoretical CS seminar. Slides at <a href="https://bit.ly/3MkjN91">https://bit.ly/3MkjN91</a> .
DEC '20	Gave a talk on Quantum Machine Learning at a Faculty Development program hosted by Jawaharlal Nehru Technological University, Anantapur. Slides at <a href="https://bit.ly/qmlslides">https://bit.ly/qmlslides</a> .
FEB '20	Selected to attend a workshop on <b>Sensitivity, Query Complexity, Communication Complexity and Fourier Analysis of Boolean Function</b> organized by the <b>Indian Statistical Institute</b> , Calcutta. <a href="https://bit.ly/isiworkshop20">https://bit.ly/isiworkshop20</a> .
JAN '20	Received 2 <sup>nd</sup> place in the <b>IBM Q Awards</b> , Teach Me Quantum category. <a href="https://bit.ly/ibmqawards20">https://bit.ly/ibmqawards20</a>
DEC '19	Selected to attend the 4th Winter School in Computer Science and Engineering (on <b>The Mathematics of Quantum Computation</b> ) organized by the <b>Israel Institute for Advanced Studies</b> , at the Hebrew University of Jerusalem. <a href="https://ias.huji.ac.il/SchoolCSE4">https://ias.huji.ac.il/SchoolCSE4</a> .

## Selected Extra-Curricular Activities

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AUG '22 onwards	Organizer and coordinator for Ketchup talks, at IIIT Delhi. <a href="https://twitter.com/KetchupIIITD">https://twitter.com/KetchupIIITD</a> .
DEC '21	Only grad student to be part of the organizing committee for QISE'21 workshop (co-located with FSTTCS). <a href="https://acm-goa.github.io/QISE/">https://acm-goa.github.io/QISE/</a> .
FEB '20	Helped organize the Indo-German Spring School on Algorithms for Big Data 2020, at IIIT-Delhi. <a href="https://sites.google.com/view/abd2020/home">https://sites.google.com/view/abd2020/home</a> .
FEB '20	Organized the first Quantum Computing Meetup in New Delhi, at IIIT-Delhi in association with the IBM advocates of India. <a href="https://bit.ly/indiaqc">https://bit.ly/indiaqc</a> .
DEC '16	Represented MAKAUT-Inhouse at ACM-ICPC Amritapuri Regionals 2016.

## Industry Experience

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NOV '18 to MAR '19	<b>Oracle Financial Services Software Limited</b> <b>Staff Consultant:</b> Developed data models. Programmed generation of scheduled reports during EOD operations in the bank. Bank successfully went live in December 2018.
SEP '17 to OCT '18 <i>Technology Stack</i>	<b>Associate Consultant:</b> Customized the business logic of our core product FCUBS. FLEXCUBE, BI-Publisher, JAVA, JSP, Weblogic, JS, SOAP, Spring, Hibernate, Oracle 12c, SQL.
FEB '17 to MAY '17 <i>Technology Stack</i>	<b>Infosys Limited</b> <b>Systems Engineering Intern (Full Stack Developer):</b> Agile methodology. JAVA, Weblogic, Angular, REST, Spring, Hibernate ORM, Oracle 12c, SQL, PL/SQL.
SUMMER 2016 <i>Technology Stack</i>	<b>AlCircle Pte Ltd</b> <b>Data-Analyst Intern (Python Application Developer):</b> Created an application to source content for the editorial team. Crawler+Database Insertion+Automated Updates. Python, MySQL, REST.

## Key Skills

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PROGRAMMING LANGUAGES	Java, C++, C, Python, JavaScript, SQL, UNIX shell, MATLAB
PROPRIETARY PRODUCTS	QISKIT, PennyLane, FLEXCUBE, BI-Publisher, Weblogic, Tomcat, Oracle 12c
MARKUP LANGUAGES	HTML5, CSS, XML, $\LaTeX$ , Markdown

## References

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Dr. Debajyoti Bera	Associate Professor, Department of Computer Science, Indraprastha Institute of Information Technology (IIIT) Delhi <b>Email:</b> dbera@iiitd.ac.in
Dr. Rohit Vaish	Assistant Professor, Department of Computer Science, Indian Institute of Technology (IIT) Delhi <b>Email:</b> rvaish@iitd.ac.in
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