

# Sagnik Chatterjee

✉ sagnik.chatterjee@tifr.res.in

✉ chatsagnik@gmail.com

🌐 chatsagnik.github.io

## Education

- Jul 2019 – Jun 2025    📖 **Ph.D.** in Computer Science and Engineering.  
**Advisor:** Prof. Debajyoti Bera.  
Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi).
- Aug 2013 – Aug 2017    📖 **B.Tech.** in Computer Science and Engineering.  
Maulana Abul Kalam Azad University of Technology, West Bengal (MAKAUT). **GPA:** 8.10/10.

## Employment

- DEC 2025 – Present    📖 **Visiting Fellow (Postdoctoral Researcher)** at STCS, TIFR Mumbai.  
**Host:** Prof. Jatin Batra.
- SEP 2017 – MAR 2019    📖 **Staff Consultant**, Oracle Financial Services Software Limited, Bangalore.

## Research

### Ph.D. Thesis

- 1    **S. Chatterjee**, “Designing quantum learning algorithms for classical objects,” Available at <https://repository.iiitd.edu.in/xmlui/handle/123456789/1758>, PhD thesis, IIIT-Delhi, May 2025.

### Conference Proceedings

- 1    **S. Chatterjee**<sup>†</sup>, M. Mukherjee<sup>†</sup>, and A. Sethi<sup>†</sup>, “Generalization bounds for dependent data using online-to-batch conversion,” in *Proceedings of the 28th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2025. [🔗 URL: https://proceedings.mlr.press/v258/chatterjee25b.html](https://proceedings.mlr.press/v258/chatterjee25b.html).
- 2    **S. Chatterjee**, T. SAPV, and D. Bera, “Efficient quantum agnostic improper learning of decision trees,” in *Proceedings of the 27th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2024. [🔗 URL: https://proceedings.mlr.press/v238/chatterjee24a.html](https://proceedings.mlr.press/v238/chatterjee24a.html).

<sup>†</sup> denotes equal contribution.

### Journal Articles

- 1    **S. Chatterjee**, R. Bhatia, P. S. Chani, and D. Bera, “Quantum boosting using domain-partitioning hypotheses,” *Quantum Machine Intelligence*, vol. 5, no. 2, pp. 1–20, 2023. [🔗 DOI: 10.1007/S42484-023-00122-3](https://doi.org/10.1007/S42484-023-00122-3).

### Under Review

- 1    **S. Chatterjee**, “The Quantum Learning Menagerie (A survey on Quantum learning for Classical concepts),” 2026. arXiv: 2602.01054. [🔗 URL: https://arxiv.org/abs/2602.01054](https://arxiv.org/abs/2602.01054).
- 2    S. Das<sup>†</sup>, **S. Chatterjee**<sup>†</sup>, and J. Batra, “Robust learning of SIMs,” 2026.
- 3    M. Mukherjee, **S. Chatterjee**, and A. Sethi, “Perfect secret key generation for a class of hypergraphical sources,” 2026. arXiv: 2601.10697. [🔗 URL: https://arxiv.org/abs/2601.10697](https://arxiv.org/abs/2601.10697).
- 4    Y. Saxena, T. Sapv, **S. Chatterjee**, and R. K. Lee, “Generalized cross-resonance scheme for maximally-entangling two-qutrit gates,” 2026. arXiv: 2504.15265. [🔗 URL: https://arxiv.org/abs/2504.15265](https://arxiv.org/abs/2504.15265).

<sup>†</sup> denotes equal contribution.



### Workshop Papers and Posters

- 1    **S. Chatterjee** and V. Kungurtsev, *Quantum solutions to the privacy vs. utility tradeoff*, 2023. arXiv: 2307.03118.

- 2 **S. Chatterjee**, R. Bhatia, P. S. Chani, and D. Bera, *Quantum boosting using domain-partitioning hypotheses*, Short Talk at the 6th Quantum Techniques in Machine Learning (QTML 2023). Poster presented at the 25th International conference on Quantum Information Processing (QIP 2022), 2022. arXiv: 2110.12793.
- 3 **S. Chatterjee** and D. Bera, *Applying the quantum alternating operator ansatz to the graph matching problem*, Extended Abstract at the The 20th Asian Quantum Information Science (AQIS) Conference, 2020. arXiv: 2011.11918.

## Teaching

### Instructor (Short Courses)





- Feb 2024  **Designed and taught 3 lectures** at the **Chennai Mathematical Institute**.  
**Topic 1:** The Harrow-Hassidim-Lloyd Algorithm and its extensions.  
**Topic 2:** Block Encoding and Linear Combination of Unitaries.
- Aug 2022  **Designed and taught 3 lectures** for a refresher module at **IIIT-Delhi**.  
**Topic:** C programming for Operating Systems.

### Teaching Assistantship (IIITD)








- Theory of Computation  Winter 2020, Winter 2021, Winter 2024. **[Head TA]**
- Data Structures  Summer 2022. **[Head TA]**
- Intro to Quantum Computing  Winter 2023. **[Sole TA]**
- Modern Algorithm Design  Monsoon 2020, Monsoon 2021. **[Sole TA]**

My duties included designing and conducting tutorials, creating assignments, and holding office hours and remedial sessions for all the above courses.

## Research Visits and Internships

- AUG 2024– SEP 2024  **ACMU, Indian Statistical Institute**, Kolkata.  
**Host:** Prof. Sourav Chakraborty.
- JUL 2023– AUG 2023  **Czech Technical University**, Prague.  
**Host:** Prof. Jakub Marecek, Prof. Vyacheslav Kungurtsev.
- FEB 2017 – APR 2017  **Systems Engineering Intern**, Infosys Limited.
- JUN 2016– JUL 2016  **Data-Science Intern**, AICircle Pte Ltd.

## Invited Talks

- Oct 2025  STCS seminar, TIFR Mumbai.  
*Generalization bounds for dependent data using online-to-batch conversion.*
- May 2025  CS Colloquium, Ashoka University.  
*Efficient quantum agnostic improper learning of decision trees.*
- Mar 2025  Quantum Computing Workshop by Edunautic, IIT Delhi.  
*Full day workshop from fundamentals to hands-on instruction.*
- Jan 2025  Young Scientists Session at QAC 2025 symposium, C-DAC and DIAT Pune.  
*Modern Algorithmic Primitives in Quantum Computing.*
- Oct 2024  ACMU seminar, ISI Kolkata.  
*Generalization bounds for dependent data using online-to-batch conversion.*
- July 2024  Recent Trends in Algorithms Workshop 2024.  
*Efficient quantum agnostic improper learning of decision trees.*
- June 2024  ACMU seminar, ISI Kolkata.  
*Efficient quantum agnostic improper learning of decision trees.*

## Invited Talks (continued)

---

February 2024	Quantum Computing Semester, Chennai Mathematical Institute. <i>Quantum Algorithms for Linear Algebra.</i> <i>Block Encodings and Linear Combination of Unitaries.</i>
September 2023	Center for Quantum Computing Science, University of Latvia. <i>Efficient quantum agnostic improper learning of decision trees.</i> IDA Seminar, Czech Technical University. <i>Efficient quantum agnostic improper learning of decision trees.</i> <i>Quantum boosting using domain-partitioning hypotheses.</i>
March 2022	Theory Seminar, Indian Institute of Information Technology Delhi. <i>Quantum boosting using domain-partitioning hypotheses.</i>
December 2020	Faculty Development Programme, JNTU Anantapur. <i>Quantum Machine Learning.</i>

## Miscellaneous

---

### Awards and Achievements

AUG 2024	IIITD Dean's List for Best Teaching Assistant (Theory of Computation).
APR 2024	AISTATS 2024 Registration Grant.
JAN 2022	QIP 2022 Student Travel Award (Not availed due to COVID restrictions).
FEB 2020	<b>Runners Up, IBMQ Awards</b> - Teach Me Quantum 2019.
OCT 2019	Full Scholarship to attend the 4th Winter School in CSE organized by the IIAS, HUJI, Jerusalem.

### Reviewing

Conference	STACS ('25); ICML ('25,'26); NeurIPS ('24, '25); ICLR ('25,'26); AISTATS ('25,'26).
Journal	Scientific Reports ('24); Quantum ('24, '25).

### Mentoring

JAN 2024 – MAY 2025	Alhad Sethi. B.Tech student at IIIT-Delhi.
JAN 2021 – JUL 2023	Parmeet Singh Chani. B.Tech student at DTU, Delhi. Rohan Bhatia. B.Tech student at DTU, Delhi.

### Workshop

Workshops	Co-organiser and Webadmin for the QISE workshop at FSTTCS 2021.
Seminars (IIIT-D)	Talks on Quantum Computing, Spectral Graph Theory, Theory Reading Group, Ketchup talks.

## References

---

Available on Request