

# Prerona Chatterjee

---

School of Technology and Computer Science  
Tata Institute of Fundamental Research  
Dr. Homi Bhabha Road  
Navy Nagar, Colaba  
Mumbai, 400005

Office: A-206, TIFR Mumbai  
Phone: (22) 2278-2949  
Email: [prerona.chatterjee@tifr.res.in](mailto:prerona.chatterjee@tifr.res.in)  
Homepage: [www.tifr.res.in/~prerona.chatterjee](http://www.tifr.res.in/~prerona.chatterjee)

## Personal

Born on 8th October 1992.

Nationality: Indian.

## Research

Affiliation: Third year graduate student in STCS at TIFR, Mumbai.

Advisor: [Ramprasad Saptharishi](#).

Areas: Algebraic circuit complexity, polynomial identity testing, algebraic independence testing.

General interests: Algebra, Complexity Theory, Topology.

## Education

I.C.S.E., La Martiniere for Girls, Kolkata (under CISCE), 2009. (95.6%)

Major Subjects: English, Mathematics, Science, Social Science, Computer Applications

I.S.C., La Martiniere for Girls, Kolkata (under CISCE), 2011. (93%)

Major Subjects: Mathematics, Physics, Chemistry, Computer Science

B.Sc. (Hons.), St. Xaviers College, Kolkata (autonomous under Calcutta University), 2011 - 14. (6.53/10)

Major Subjects: Mathematics (Hons.), Computer Science, Physics

M.Sc. in Maths and Computing, IIT Guwahati, 2014 - 16. (9.74/10)

**Recieved Institute Silver medal for obtaining highest CPI in the department**

M.Sc. & Ph.D. in Computer Science, Tata Institute of Fundamental Research, Mumbai, 2016 - Ongoing.

Completed Masters requirements and registered for PhD in January, 2018

A list of the relevant marksheets can be found [here](#).

## Awards and Fellowships

Awarded fellowship by NCERT for clearing the [National Talent Search Examination](#).

Awarded the [Institute Silver Medal](#) from IIT Guwahati for obtaining highest CPI in the department.

## Theses and Projects

M.Sc. Project at TIFR: *Towards Algebraic Independence based PITs for arbitrary fields*

Under the guidance of Ramprasad Saptharishi (June 2017 - Nov 2017)

M.Sc. Project at IITG: *Primality Testing Algorithms*

Under the guidance of Sagarmoy Dutta (Jan 2016 - Apr 2016)

## Papers

*Constructing Faithful Homomorphisms over fields of finite characteristic*

With Ramprasad Saptharishi

Under submission

## Talks

*Faithful Homomorphisms and PIT*

Bootcamp on Polynomial Identity Testing, IIT Kanpur, November 2018

Based on joint work with Ramprasad Saptharishi

*Constructing Faithful Maps over Arbitrary Fields*

WACT 2018, Universite Paris Diderot, March 2018

Based on joint work with Ramprasad Saptharishi

## Co-Curricular Activities

In May 2019, I helped Siva Athreya and Anita Naolekar in organising the *Summer School for Women in Mathematics and Statistics* as a tutor. This school was aimed at girls who are in their first year of under-graduate studies and are interested in Mathematics and Statistics.

In January 2019, I gave a public talk titled *Can computers do everything?* as part of the public talk series *Chai and Why?* hosted by the TIFR Outreach team.

In November 2018, I gave a talk aimed at 9th-10th standard students in the annual event, *Frontiers of Science*, hosted by the TIFR Outreach team.

## Additional Academic Details

### *Conferences and Workshops*

WACT 2019 (ICTS, Bengaluru, India, March 2019)

ACM India Grad Cohort 2018 (IIT Bombay, Mumbai, India, July 2018)

WIT 2018 (Harvard University, Boston, U.S.A., June 2018)

WACT 2018 (Universite Diderot, Paris, France, March 2018)

FSTTCS (CMI Chennai 2016, IIT Kanpur 2017, Ahmedabad University 2018)

NMI workshop on Arithmetic Complexity (IMSc Chennai, February - March 2017)

### *Student Talks*

Compactness Theorem in Propositional Logic: A Topological Proof

Lowerbounds on the size of Sweeping Automata (based on Sip80)

Inductive Time-Space Lowerbounds for SAT (based on Wilo6)

Unbalanced Random Matching Markets (based on AKL17)

Non-commutative circuits and the Sum of Squares problem (based on HWY10)

Quadratic Lowerbounds for Homogeneous ABPs (based on Kum17)

Lowerbounds for General Algebraic Circuits (based on Raz08)

### *Miscellaneous*

A list of relevant courses I have taken can be found [here](#)

In February 2018, I helped Ramprasad Saptharishi and Anamay Tengse in organizing the [STCS Annual Talks](#)