

# Nikhil Mande

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Born: September 29, 1989  
Nationality: Indian

## Current position

*Post-Doctoral Fellow*, [Department of Computer Science, Georgetown University, Washington, DC](#)

## Research Interests

I am broadly interested in the area of approximation theory and computational complexity theory. More specifically, I have an interest in approximation theory, communication complexity, boolean circuit complexity, and the connections between them.

## Education

Present	(Dec, 2018 - ongoing): Post-doctoral fellow, <a href="#">Department of Computer Science, Georgetown University, Washington, DC</a> . Hosted by <a href="#">Justin Thaler</a>
2018	(November, 2018) PhD in Computer Science, <a href="#">School of Technology and Computer Science, TIFR, Mumbai</a> Thesis title: "Communication Complexity of XOR functions" PhD Advisor: <a href="#">Arkadev Chattopadhyay</a>
2013	MSc in Applications of Mathematics (specialization: computational mathematics), <a href="#">CMI, Chennai</a>
2010	BMATH(HONS), <a href="#">ISI, Bangalore</a>

## Projects and theses

2014-2015	Project as part of PhD credits requirement titled "On the complexity of powering over finite fields in constant depth circuits" at TIFR under the guidance of <a href="#">Arkadev Chattopadhyay</a>
2013	Masters thesis: "Spectral Graph Theory" at CMI, under the guidance of <a href="#">Prajakta Nimbhorkar</a>
2009	"Minimum variance hedging of American and European options using the binomial model" at TCS, Hyderabad under the guidance of <a href="#">M. Vidyasagar</a> . Sponsored by the <a href="#">Indian Academy of Sciences</a>

## Awards

2016-2018	TCS Research Scholar Fellowship
2013	CMI Gold Medal of Excellence

## Publications

### JOURNAL ARTICLES

- 2018 “Separation of Unbounded-Error Models in Multiparty Communication Complexity”, with Arkadev Chattopadhyay, in [Theory of Computing](#). [ECCC report](#)

### CONFERENCE PUBLICATIONS

- 2019 “Sign-Rank Can Increase Under Intersection”, with Mark Bun and Justin Thaler, to appear in [ICALP, 2019](#). [ECCC Report](#)
- 2019 “The Log-Approximate-Rank Conjecture is False”, with Arkadev Chattopadhyay and Suhail Sherif, to appear in [STOC, 2019](#). [ECCC Report](#)
- 2018 “A Short List of Equalities Induces Large Sign Rank”, with Arkadev Chattopadhyay, in [FOCS, 2018](#). [ECCC Report](#)
- 2017 “A Lifting Theorem with Applications to Symmetric Functions”, with Arkadev Chattopadhyay, in [FSTTCS, 2017](#). [ECCC report of an extended version](#)

### PREPRINTS

- 2018 “Lower Bounds for Linear Decision Lists”, with Arkadev Chattopadhyay, Meena Mahajan and Nitin Saurabh, 2019. [ECCC report](#)

## Talks

- 2019 “A Short List of Equalities Indices Large Sign Rank”, invited speaker at [Spring 2019 Conference on Applied Mathematics, George Washington University](#), Washington D.C.
- 2017-2018 “Weights at the Bottom Matter When the Top is Heavy” (talks given at Tel Aviv University, Hebrew University of Jerusalem, Carnegie Mellon University, Columbia University). [Slides](#)
- 2016 “Small-Error Versus Unbounded-Error Protocols in the NOF Model” at [Low-Depth Complexity Workshop](#), St. Petersburg. [Slides](#)
- 2016 “Unbounded-Error Communication Complexity of XOR Functions” at [NMI Workshop on Complexity Theory](#), IIT Gandhinagar. [Video](#)

## Teaching experience

- 2016 TA for Arkadev Chattopadhyay for the course *Automata and Computability*
- 2013 TA for Prajakta Nimbhorkar for the course *Design and Analysis of Algorithms*

## Professional activities and services

- 2014-2016 Reviewer/subreviewer for FOCS, STOC, FSTTCS, CCC, ICALP, STACS, RANDOM, SICOMP, IEEE Trans. IT [Student seminar](#) coordinator, STCS, TIFR
- 2017 Co-organizer, [STCS day](#), TIFR.

## Extracurricular activities

I have held several national records in the category of blindfolded speedcubing and solving the Rubik's cube in the fewest number of moves (fewest moves challenge) in the past. My full speedcubing profile can be found [here](#).

I have been associated with the [World Cube Association](#) as a senior delegate for India and South East Asia, and as a member of the WCA Regulations Committee.