Sagnik Mukhopadhyay

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Career Summary

Education

Ph.D. in Computer Science — 2013 - 2017
School of Computer and Systems Sciences, **Tata Institute of Fundamental Research, Mumbai.**
Thesis advised by Prof. Arkadev Chattopadhyay on "Communication Complexity Amplification by Function Composition".

Masters in Computer Science — 2010 - 2013
School of Computer and System Sciences, **Tata Institute of Fundamental Research, Mumbai.**
Thesis advised by Prof. Prahladh Harsha on "A Survey on Uniform Hardness Amplification in NP".

Bachelor of Technology in Computer Science and Engineering — 2006 - 2010
Institute of Engineering & Management, Kolkata.

Employment

Post-doctoral researcher — Jan 2019 - Now
TCS Division, EECS, **KTH Royal Institute of Technology**, Sweden.
Hosted by Prof. Danupon Nanongkai,

Post-doctoral researcher — Sep 2018 - Dec 2018
IÚUK, **Charles University**, Prague.
Hosted by Prof. Michal Koucký,

Post-doctoral researcher — Sep 2017 - Aug 2018
TCS Division, EECS, **KTH Royal Institute of Technology**, Sweden.
Hosted by Prof. Jakob Nordström.

Fellowships & Grants

Research project grant within natural and engineering sciences — 2020 -
Swedish Research Council
under review, co-wrote with Danupon Nanongkai.

Stimulus of Scientific Employment, Individual Support 2017 — granted but not used
Portuguese Science Funding Committee (FCT)

Tata Consultancy Services Ph.D. Fellowship — 2013 - 2017

Visits & Talks

Shonan Meeting: Distributed Graph Algorithms — 2019
Shonan, Japan (upcoming).

IRIF, Université Paris Diderot — 2019
Paris
Host: Sophie Laplante. Visited for 2 weeks.

ACM Symposium on Theory of Computing (STOC) — 2018

Los Angeles
Talk: Simulation beats richness: new data-structure lower bounds.

TCS Division EECS, KTH Royal Institute of Technology 2016
Sweden
Talk: Simulation theorem & fork-lift.

IÚUK, Charles University 2016
Prague
Host: Michal Koucký. Visited for a month.

Workshop on Algorithms in Communication Complexity, Property Testing & Combinatorics 2016
Moscow
Talk: Tribes is hard in message passing model.

Summer School of Lower Bounds 2015
Prague
Host: Michal Koucký.

Indo-UK Workshop on Computational Complexity 2015
Chennai
Talk: Tribes is hard in message passing model.

Conference on Foundations of Software Technology & Theoretical Computer Science (FSTTCS) 2015
Bangalore
Talk: Towards Better Separation between Deterministic and Randomized Query Complexity.

Symposium on Theoretical Aspects of Computer Science (STACS) 2015
Munich
Talk: Tribes is hard in message passing model.

Research

Link to DBLP Profile

Publications

— Conferences —

Lifting theorems for Equality. with Bruno Loff. *Symposium on Theoretical Aspects of Computer Science* **(STACS)**, 2019.

Simulation beats richness: new data-structure lower bounds.. with Arkadev Chattopadhyay, Michal Koucký; and Bruno Loff. *Symposium on Theory of Computing* **(STOC)**, *2018.*

Lower bounds for elimination via weak regularity. with Arkadev Chattopadhyay, Pavel Dvorák, Michal Koucký and Bruno Loff. *Symposium on Theoretical Aspects of Computer Science* **(STACS)**, *2017.*

Towards better separation between deterministic and randomized query complexity. with Swagato Sanyal. *Conference on Foundations of Software Technology & Theoretical Computer Science* **(FSTTCS)**, *2015.*

Tribes is hard in message-passing model. with Arkadev Chattopadhyay. *Symposium on Theoretical Aspects of Computer Science* **(STACS)**, *2015.*

— Journals —

Simulation theorems via pseudo-random properties. with Arkadev Chattopadhyay, Michal Koucký and Bruno Loff. *Computational Complexity* **(CC)**, *2019.*

Separation between deterministic and randomized query complexity. with Swagato Sanyal and Jaikumar Radhakrishnan. *SIAM Journal on Computing* **(SICOMP)**, *2018.*

— Thesis —

Communication complexity amplification by function composition.. *Ph.D. Thesis under supervision of Prof. Arkadev Chattopadhyay,* **TIFR, Mumbai.**

A survey on uniform hardness amplification in NP. *MS. Project Report under supervision of Prof. Prahladh Harsha,* **TIFR, Mumbai.**

Reviewing, Workshops, Challenges, Research Events Organized

FSTTCS 2014, **FOCS 2015**, **STACS 2016**, **CCC 2016**, **CALDAM 2016**, **STOC 2018**, **SIAM Journal of Computing**, **Journal of Computer & System Science**.

Teaching

Courses

Communication complexity (DD3502 @ KTH) April, 2018

15 lectures, each of 90-minutes duration.

Computational complexity (DD2445 @ KTH) September, 2017

co-taught with Jakob Nordström. 23 lectures, each of 90-minutes duration, out of which 5 were delivered by me.

Communication complexity (@ TIFR) September, 2016

co-taught with Arkadev Chattopadhyay. 27 lectures, each of 90-minutes duration, out of which 2 were delivered by me.

References

Arkadev Chattopadhyay
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