

Saswata Shannigrahi

Employment

- ◆ Associate Professor
Faculty of Mathematics and CS, Saint Petersburg State University, Saint Petersburg, Russia Sep '19-Present
- ◆ Assistant Professor
Department of CSE, Indian Institute of Technology, Guwahati, India Nov '11-Jun '16

Education

- ◆ M.Sc. and Ph.D. in Computer Science
Tata Institute of Fundamental Research, Mumbai, India
Dissertation: Coloring, Embedding, Compression and Data Structure Problems on Uniform Hypergraphs
Advisor: Prof. Jaikumar Radhakrishnan Aug '05-Jun '11
- ◆ B.E. in Computer Science and Engineering
Jadavpur University, Kolkata, India Jul '01-May '05

Research Interests

Discrete Geometry, Graph Theory, Algorithms

Awards and Honors

- ◆ Microsoft Research India Rising Star Award, 2011
- ◆ IBM Ph.D. Fellowship, 2009-'10
- ◆ National Talent Search Scholarship, Govt. of India, 1999-'05

Publications

- ◆ R. Gangopadhyay and S. Shannigrahi. Rectilinear Crossings in Complete Balanced d -Partite d -Uniform Hypergraphs. *Graphs and Combinatorics* 36, 905-911, 2020.
- ◆ R. Gangopadhyay and S. Shannigrahi. k -Sets and Rectilinear Crossings in Complete Uniform Hypergraphs. *Computational Geometry: Theory and Applications* 86, 101578, 2020.
- ◆ S. Aglave, V. A. Amarnath, S. Shannigrahi and S. Singh. Improved Bounds for Uniform Hypergraphs without Property B. *Australasian Journal of Combinatorics* 76 (1), 73-86, 2020.
- ◆ A. Pitchanathan and S. Shannigrahi. On the Simple Quasi Crossing Number of K_{11} . *Proc. 27th International Symposium on Graph Drawing and Network Visualization (GD)*, 612-614, 2019.
- ◆ A. Anshu, R. Gangopadhyay, S. Shannigrahi and S. Vusirikala. On the Rectilinear Crossing Number of Complete Uniform Hypergraphs. *Computational Geometry: Theory and Applications* 61, 38-47, 2017.
- ◆ A. Anshu and S. Shannigrahi. A Lower Bound on the Crossing Number of Uniform Hypergraphs. *Discrete Applied Mathematics* 209, 11-15, 2016.
- ◆ G. Kumar and S. Shannigrahi. On the NP-Hardness of Speed Scaling with Sleep State. *Theoretical Computer Science* 600, 1-10, 2015.
- ◆ G. Kumar and S. Shannigrahi. New Online Algorithm for Dynamic Speed Scaling with Sleep State. *Theoretical Computer Science* 593, 79-87, 2015.
- ◆ J. Mathews, M. K. Panda and S. Shannigrahi. On the Construction of non-2-colorable Uniform Hypergraphs. *Discrete Applied Mathematics* 180, 181-187, 2015.
- ◆ J. Radhakrishnan and S. Shannigrahi. Streaming Algorithms for 2-coloring Uniform Hypergraphs. *Proc. 12th Algorithms and Data Structures Symposium (WADS)*, 668-679, 2011.
- ◆ J. Radhakrishnan, S. Shah and S. Shannigrahi. Data Structures for Storing Small Sets in the Bitprobe Model. *Proc. 18th Annual European Symposium on Algorithms (ESA)*, 159-170, 2010.
- ◆ N. Alon, R. Berke, M. Buchin, K. Buchin, P. Csorba, S. Shannigrahi, B. Speckmann and P. Zumstein. Polychromatic Colorings of Plane Graphs. *Discrete and Computational Geometry* 42 (3), 421-442, 2009. Also in: *Proc. 24th Annual Symposium on Computational Geometry (SoCG)*, 338-345, 2008.
- ◆ S. Shannigrahi and S. P. Pal. Efficient Prüfer-like Coding and Counting Labelled Hypertrees. *Algorithmica* 54 (2), 208-225, 2009. Also in: *Proc. 17th International Symposium on Algorithms and Computation (ISAAC)*, 588-597, 2006.

Graduated Ph.D. Student

- ◆ Rahul Gangopadhyay (IIIT Delhi, September 2020; local co-advisor: Dr. Anuradha Sharma)
Dissertation: Rectilinear Crossing Number of Uniform Hypergraphs

Research Grant

- ◆ Ramanujan Fellowship, INR 31,00,000, DST, Govt. of India Dec '11-Dec '16

Teaching

Introduction to Computing, Discrete Mathematics, Data Structures, Automata Theory, Algorithms, Graph Theory, Discrete Geometry, Advanced Algorithms, Advanced Graph Theory

Professional Services

- ◆ Supervised 9 final year master's and 11 final year undergraduate projects
- ◆ Invited Speaker for Summer School on Selected Topics in Massive Data Management 2013, Turkey
- ◆ Program Committee Member for XRCI Open 2015, India
- ◆ Reviewer for Discrete and Computational Geometry, Ars Combinatoria, Journal of Discrete Algorithms, Algorithmica, Discrete Applied Mathematics, Discrete Mathematics, Theoretical Computer Science, COCOA, ESA, SWAT, COCOON
- ◆ Mentor, Science Academies' Summer Research Fellowship Programme, India, 2013-'18
- ◆ Coach, ACM ICPC World Finalist Team, IIIT Hyderabad, India, 2018
- ◆ Local organizer for QIP STC on Teaching Data Structures and Algorithms 2014, Microsoft code.fun.do 2013

Administrative Responsibility

- ◆ Secretary, Campus Wellbeing Group, IIT Guwahati Oct '14-May '16

Short-Term Positions

- ◆ Visiting Faculty Mar '18-Jul '19
Department of CSE, Indian Institute of Technology, Ropar, India
- ◆ Assistant Professor Dec '16-Feb '18
International Institute of Information Technology, Hyderabad, India
- ◆ Assistant Professor Jun '16-Dec '16
Indraprastha Institute of Information Technology, Delhi, India
- ◆ Visiting Researcher (on leave from IIT Guwahati) May '15-Jul '15
DIMACS, Rutgers University, New Brunswick, USA
- ◆ Visiting Researcher (on leave from IIT Guwahati) Jun '14-Jun '14
Combinatorial Optimization Group, TU Eindhoven, Eindhoven, Netherlands
- ◆ Postdoctoral Researcher Jul '11-Oct '11
Information and Telecommunication Technology Center, University of Kansas, Lawrence, USA
- ◆ Visiting Collaborator (on leave from TIFR Mumbai) Feb '11-Apr '11
Institute of Science and Technology, Klosterneuburg, Austria
- ◆ Summer Intern (on leave from TIFR Mumbai) May '10-Aug '10
Mobile Enabled Emerging Solutions Group, IBM Research Lab, Delhi, India
- ◆ Visiting Scholar (on leave from TIFR Mumbai) Oct '07-Nov '07
School of Computing Science, Simon Fraser University, Vancouver, Canada
- ◆ Indo-Swiss Bilateral Research Initiative Fellow (on leave from TIFR Mumbai) May '07-Jul '07
CADMO, ETH Zürich, Zürich, Switzerland