Neeldhara Misra

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Born: November 25, 1987 - Bhubaneswar, Orissa
Nationality: Indian

Current position

2013 *Inspire Faculty Fellow*
Indian Institute of Science, Bangalore

Areas of interest

Design and Analysis of Algorithms, Parameterized Complexity, Combinatorics, Graph Theory, Logic

Education Experience

2012 *Research Associate*
Indian Institute of Science, Bangalore

2012 PhD in Theoretical Computer Science
The Institute of Mathematical Sciences, Chennai

2009 MSc in Theoretical Computer Science
The Institute of Mathematical Sciences, Chennai

2007 BSc in Mathematics, Statistics and Computer Science
Mount Carmel College, Bangalore

Visits, Talks & Conferences

Visits

2012 Technical University of Vienna, Austria

2011 Indian Institute of Science, Bangalore, India
2010 The University of Bergen, Bergen, Norway
2010 Chalmers University, Gothenburg, Sweden

Talks

2012 *Kernels for Planar F-Deletion*, Data Reduction and Problem Kernels, Dagstuhl, Germany

2012 *Separators with Non-Hereditary Properties*, Mini-Workshop on Logic, Proofs and Algorithms, VCLA, Austria

2012 *From FVS to F-deletion: the Story of a Simple Algorithm*, VCLA, Technical University of Vienna, Austria

2012 *Kernelization*, Chennai Update Meeting on Parameterized Complexity, Institute of Mathematical Sciences, Chennai, India

2012 *Connected Dominating Set and Short Cycles*, Indian Statistical Institute, Bangalore, India

2011 *Efficient Simplification: Polynomial Time Revisited*, Indian Institute of Science, Bangalore, India

2010 *Efficient Simplification: The (im)possibilities*, IMPECS School on Parameterized Complexity, Chennai, India

2010 *Expansions for Reductions*, Workshop on Kernelization, Lorentz Center, Leiden, Netherlands

2010 *Connected Dominating Set and Short Cycles*, Algorithms Seminar Series, University of Bergen, Bergen, Norway

2010 *Lower Bounds on Kernelization*, Chalmers University, Gothenburg, Sweden

2010 *Iterative Compression: Try, try, till you succeed — or fail.* Kalasalingam University, Madurai, and Institute Seminar Week, The Institute of Mathematical Sciences, Chennai, India

Conferences Attended

2012 Data Reduction and Problem Kernels, Dagstuhl, Germany
2010 Workshop on Kernelization (WORKER), Leiden, Netherlands
2010 Parameterized and Exact Computation - 5th International Symposium (IPEC) and Foundations of Software Technology and Theoretical Computer Science (FSTTCS), Chennai, India
2008 Foundations of Software Technology and Theoretical Computer Science (FSTTCS), Bangalore, India

2007 Applied Algebra, Algebraic Algorithms, and Error Correcting Codes (AAECC- 17), Bangalore, India

Publications

Refreed Journal Articles

2013 Neeldhara Misra, Hannes Moser, Venkatesh Raman, Saket Saurabh, and Somnath Sikdar. "The Parameterized Complexity of Unique Coverage and Its Variants". In: *Algorithmica* 65.3 (2013), pp. 517–544 (Also appeared in Computer Science Symposium in Russia, CSR, 2009.)

2012 Fedor V. Fomin, Daniel Lokshtanov, Neeldhara Misra, Geevarghese Philip, and Saket Saurabh. "Quadratic Upper Bounds on the Erdos-Posa property for a generalization of Packing and Covering cycles". In: *Journal of Graph Theory*. 2012 (Accepted subject to minor revisions.)

2012 Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, and Saket Saurabh. "On Parameterized Independent Feedback Vertex Set". In: *Theoretical Computer Science* (2012) (Also appeared at Computing and Combinatorics, COCOON, 2011.)

2012 Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, Saket Saurabh, and Somnath Sikdar. "FPT algorithms for Connected Feedback Vertex Set". In: *J. Comb. Optim.* 24.2 (2012), pp. 131–146 (Also appeared at WALCOM: Algorithms and Computation, 2010.)

2009 Michael R. Fellows, Daniel Lokshtanov, Neeldhara Misra, Matthias Mnich, Frances A. Rosamond, and Saket Saurabh. "The Complexity Ecology of Parameters: An Illustration Using Bounded Max Leaf Number". In: *Theory of Computing Systems* 45.4 (2009), pp. 822–848

Peer Reviewed Conference Publications

2013 Prachi Goyal, Vikram Kamat, and Neeldhara Misra. "On the Parameterized Complexity of the Maximum Edge Coloring Problem". In: *International Symposium on Mathematical Foundations of Computer Science (MFCS)*. (To Appear). 2013

2013 Neeldhara Misra, Fahad Panolan, Ashutosh Rai, Venkatesh Raman, and Saket Saurabh. "Parameterized Algorithms for Max q-Colorable Induced Subgraph Problem on Perfect Graphs". In: *Workshop on Graphs (WG)*. (To Appear). 2013

2013 Neeldhara Misra, Fahad Panolan, and Saket Saurabh. "Subexponential Algorithm for d-Cluster Edge Deletion: Exception or Rule?" In: *International Symposium on Mathematical Foundations of Computer Science (MFCS)*. (To Appear). 2013

2013 Vikram Kamat and Neeldhara Misra. "An Erdos-Ko-Rado theorem for matchings in the complete graph". In: *European Conference on Combinatorics, Graph Theory and Applications (Eurocomb)*. (To Appear). 2013

2013 Neeldhara Misra, Sebastian Ordyniak, Venkatesh Raman, and Stefan Szeider. "Upper and Lower Bounds for Weak Backdoor Set Detection". In: *International Conference on Theory and Applications of Satisfiability Testing (SAT)*. (To Appear). 2013

2013 Ninad Rajgopal, Pradeesha Ashok, Sathish Govindarajan, Abhijit Khopkar, and Neeldhara Misra. "Hitting and Piercing Rectangles Induced by a Point Set". In: *Annual International Computing and Combinatorics Conference (COCOON)*. 2013, pp. 221–232

2012 Fedor V. Fomin, Daniel Lokshtanov, Neeldhara Misra, and Saket Saurabh. "Planar F-Deletion: Approximation, Kernelization and Optimal FPT Algorithms". In: *Foundations of Computer Science, FOCS*. 2012, pp. 470–479

2012 Pinar Heggernes, Pim Van't Hof, Dániel Marx, Neeldhara Misra, and Yngve Villanger. "On the parameterized complexity of finding separators with non-hereditary properties". In: *Workshop on Graphs, WG*. 2012, pp. 332–343

2011 S. Arumugam, K. Raja Chandrasekar, Neeldhara Misra, Geevarghese Philip, and Saket Saurabh. "Algorithmic Aspects of Dominator Colorings in Graphs". In: *International Workshop on Combinatorial Algorithms, IWOCA*. Vol. 7056. Lecture Notes in Computer Science. Springer, 2011, pp. 19–30

2011 Fedor V. Fomin, Daniel Lokshtanov, Neeldhara Misra, Geevarghese Philip, and Saket Saurabh. "Hitting forbidden minors: Approximation and Kernelization". In: *STACS*. Vol. 9. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, 2011, pp. 189–200

2010 Daniel Lokshtanov, Neeldhara Misra, and Saket Saurabh. "Imbalance Is Fixed Parameter Tractable". In: *Conference on Computing and Combinatorics, COCOON*. Vol. 6196. Lecture Notes in Computer Science. Springer, 2010, pp. 199–208

2010 Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, and Saket Saurabh. "The effect of girth on the kernelization complexity of Connected Dominating Set". In: *Foundations of Software Technology and Theoretical Computer Science, FSTTCS*. Vol. 8. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, 2010, pp. 96–107

2010 Abhimanyu M. Ambalath, Radheshyam Balasundaram, Chintan Rao H., Venkata Koppula, Neeldhara Misra, Geevarghese Philip, and M. S. Ramanujan. "On the Kernelization Complexity of Colorful Motifs". In: *International Symposium in Parameterized and Exact Computation (IPEC)*. Vol. 6478. Lecture Notes in Computer Science. Springer, 2010, pp. 14–25

2010 Neeldhara Misra, N. S. Narayanaswamy, Venkatesh Raman, and Bal Sri Shankar. "Solving minones-2-sat as Fast as vertex cover". In: *Mathematical Foundations of Computer Science, MFCS*. Vol. 6281. Lecture Notes in Computer Science. Springer, 2010, pp. 549–555 (Accepted for publication at Theoretical Computing Systems (TCS) subject to minor revisions.)

2008 Michael R. Fellows, Daniel Lokshtanov, Neeldhara Misra, Frances A. Rosamond, and Saket Saurabh. "Graph Layout Problems Parameterized by Vertex Cover". In: *Algorithms and Computation, 19th International Symposium, ISAAC*. Vol. 5369. Lecture Notes in Computer Science. Springer, 2008, pp. 294–305 (Accepted for publication at Algorithmica subject to suggested revisions.)

Theses, Surveys and Popular Science

2012 Daniel Lokshtanov, Neeldhara Misra, and Saket Saurabh. "Kernelization - Preprocessing with a Guarantee". In: *The Multivariate Algorithmic Revolution and Beyond*. 2012, pp. 129–161

2012 Neeldhara Misra. "Kernels for the F-Deletion Problem". PhD thesis. India: Institute of Mathematical Sciences, 2012

2011 Neeldhara Misra, Venkatesh Raman, and Saket Saurabh. "Lower bounds on kernelization". In: *Discrete Optimization* 8.1 (2011), pp. 110–128

2009 Neeldhara Misra. "On The Infeasibility of Polynomial Kernelization". MA thesis. India: Institute of Mathematical Sciences, 2009

2008 Neeldhara Misra. "The Missing Boarding Pass". In: *Resonance* 13.7 (2008), pp. 662–679

Other

2013 Taught E0 325, Topics in Algorithms, at IISc.
2010 Teaching Assistant to courses in Parameterized Complexity and Combinatorics.

Refereed works for numerous journals and conferences, including JCSS, SICOMP, Algorithmica, TOCS, ICALP, STACS, ESA, FSTTCS, LATA, WG, WADS, CP, and IPEC.

Skills: C, Python, Mathematica, Web Technologies, LaTeX.

References

Prof. Venkatesh Raman

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- mail: Department of Theoretical Comptuer Science; The Institute of Mathematical Sciences, Chennai, 600113

Prof. Saket Saurabh

- email: saket@imsc.res.in
- mail: Department of Theoretical Comptuer Science; The Institute of Mathematical Sciences, Chennai, 600113

Prof. Fedor Fomin

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