AKANKSHA AGRAWAL

Veena and Induprakas Keri Faculty Fellow
Department of Computer Science and Engineering
Indian Institute of Technology Madras
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Homepage:	https://akanksha-agrawal.weebly.com/
Phone:	+91 44 2257 4391
Born:	20 February 1991, Bhilai, India
Languages:	English, Hindi, and Chhattisgarhi
Date:	18th December 2023

FIELDS OF INTEREST

Parameterized Complexity, Graph Algorithms, Exact Algorithms, Approximation Algorithms, Fine Grained Algorithms & Complexity, Computational Geometry.

EMPLOYMENT

Oct. 2020- Assistant Professor
Department of Computer Science and Engineering,
Indian Institute of Technology Madras, Chennai, India.

Mar. 2019-Sept. 2020 Postdoctoral Researcher
Department of Computer Science,
Ben-Gurion University of the Negev, Beersheba, Israel.

May. 2018-Feb. 2019 Postdoctoral Researcher
Institute for Computer Science and Control,
Hungarian Academy of Sciences, Budapest, Hungary.

EDUCATION

2015-2017 *Ph.D.*
Department of Informatics,
University of Bergen,
Bergen, Norway.
Thesis: Graph Modification Problems: Beyond the Known Boundaries.
Advisors: Prof. Saket Saurabh and Prof. Daniel Lokshtanov.

2012-2014 *Masters*
Department of Computer Science and Automation,
Indian Institute of Science,
Bengaluru, India.
Thesis: Delaunay Graphs for Various Geometric Objects.
Advisor: Prof. Sathish Govindarajan.

2008-2012 *Bachelors*
Department of Computer Science and Engineering,
Shri Shankaracharya College of Engineering and Technology,
Chhattisgarh Swami Vivekanand Technical University,
Bhilai, India.

ACADEMIC SERVICES

JOURNAL EDITORIAL BOARD

2023
Acta Informatica.

CONFERENCE PROGRAM COMMITTEE

2023

48th International Symposium on Mathematical Foundations of Computer Science (MFCS 2023).

18th International Symposium on Parameterized and Exact Computation (IPEC 2023).

Fundamentals of Computation Theory (FCT 2023).

2022

International Symposium on Theoretical Aspects of Computer Science (STACS 2022).

2021

European Symposium on Algorithms (ESA 2021).

16th International Symposium on Parameterized and Exact Computation (IPEC 2021).

47th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2021).

ADMINISTRATION

Faculty advisor for B.Tech. batch 2021, IIT Madras.

Member of Local Purchase Committee, CSE, IIT Madras.

ORGANIZER

Dagstuhl Seminar, Jan. 19 -24, 2025, along with Maria Chudnovsky, Daniel Paulusma, and Oliver Schaudt.

ACM India Winter School on Algorithms and Lower Bounds, 3-12 Jan 2022, along with G. Philip.

(Initiator and organizer) Reading group on Fine-Grained Complexity at Ben-Gurion University, Apr-Jul 2019.

Algorithms Seminar Series at University of Bergen, Aug-Dec 2016.

OTHER SERVICES

Thesis reviewer/examiner for M.S., M.Tech. project, B.Tech. project, and Integrated B.Tech. project, IIT Madras.

Reviewer for journals like Journal of Computer and System Sciences, SIAM Journal on Discrete Mathematics, Theory of Computing Systems, Theoretical Computer Science, Information Processing Letters, Algorithmica, and Discrete Applied Mathematics.

Reviewer for conferences like STOC, SODA, ICALP, STACS, ESA, IPEC, WG, ISAAC, SWAT, and FSTTCS.

GRANTS & AWARDS

2023

Class of 1991 CSE Award, IITM.

2023

Distinguished paper award at AAAI 2023.

2023-2025

Veena and Induprakas Keri Faculty Fellowship.

2022-2024

SERB Startup Research Grant (SRG/2022/000962).

2020-2022

New Faculty Initiation Grant, IIT Madras.

2018-2020

The PBC Fellowship for Postdoctoral Researchers, Israel.

2017

Meltzer Project Grant for Ph.D. students, Norway.

2017

Travel award at Symposium on Discrete Algorithms (SODA), 2017.

STUDENTS

POSTDOC.

2022 Abhishek Sahu

Current Affiliation: Visiting Faculty, National Institute of Science Education and Research Bhubaneshwar

M.S.

2023- Vinod Shambhu Gupta

M.TECH.

2021-2022 Hindanjali Harwanshi

UNDERGRADUATE RESEARCH/B.TECH./B.S. PROJECT

Current/ Upcoming

Krishna Somasundaram, Electrical Engineering

T Sai Krishna *(starting Jan. 2024)*

Somasi Venkata Viswajit *(starting Jan. 2024)*

G. Sai Pradhyumna *(starting Jan. 2024)*

Mukkoti Pramod Kumar *(starting Jan. 2024)*

Former

Pitchika Vaastav

Siddharth Singh

Allumalla Ravi Kiran

Dhanekula Varun Teja

Shreyas Bhat, Indian Institute of Science Bangalore

Soumita Hait, Indian Institute of Technology Kharagpur

INTERNSHIP

Former

Harshika Goyal, Indian Institute of Technology Kharagpur

Aravind Bharathi Valluvan (Bachelor's student), Indian Institute of Technology Bombay

TEACHING

Aug-Nov 2023 (CS6101) Parameterized Algorithms

Jan-May 2023 (CS6841) Approximation Algorithms

Aug-Nov 2022 (CS5800) Advanced Data Structures & Algorithms

Jan-May 2022 (CS6100) Fine Grained Algorithms & Complexity

Aug-Nov 2021 (CS6100) Kernelization

Feb-Jun 2021 (CS6190) Parameterized Algorithms

TEACHING ASSISTANT

Jan-May 2016 Co-taught a course on Parameterized Complexity with Saket Saurabh at Institute of Mathematical Sciences, Chennai.

Aug-Dec 2013 Teaching assistant for Design and Analysis of Algorithms (E0 225), and Discrete Mathematics (E0 221) at Indian Institute of Science, Bangalore.

PUBLICATIONS

INVITED SURVEYS

2022

[S.2] Akanksha Agrawal and M. S. Ramanujan. **Distance from triviality 2.0: Hybrid parameterizations**. In *Combinatorial Algorithms - 33rd International Workshop (IWOCA)*, volume 13270, pages 3–20. Springer, 2022. doi: 10.1007/978-3-031-06678-8_1.

2020

[S.1] Akanksha Agrawal and Meirav Zehavi. **Parameterized analysis of art gallery and terrain guarding**. In *Computer Science - Theory and Applications - 15th International Computer Science Symposium in Russia (CSR)*, volume 12159, pages 16–29, 2020. doi: 10.1007/978-3-030-50026-9_2.

JOURNALS

2024

[J.23] Akanksha Agrawal, Henning Fernau, Philipp Kindermann, Kevin Mann, and Uéverton S. Souza. **Recognizing well-dominated graphs is conp-complete**. *Inf. Process. Lett.*, 183:106419, 2024. doi: 10.1016/J.IPL.2023.106419.

2023

[J.22] Akanksha Agrawal, Sutanay Bhattacharjee, Satyabrata Jana, and Abhishek Sahu. **Parameterized complexity of perfectly matched sets**. *Theor. Comput. Sci.*, 958: 113861, 2023. doi: 10.1016/j.tcs.2023.113861.
—A preliminary version of this article appeared in IPEC 2022.

[J.21] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Polynomial kernel for interval vertex deletion**. *ACM Trans. Algorithms*, 19(2):11:1–11:68, 2023. doi: 10.1145/3571075.
—A preliminary version of this article appeared in SODA 2019.

[J.20] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Erdős-pósa property of obstructions to interval graphs**. *Journal of Graph Theory*, 102(4):702–727, 2023. doi: 10.1002/jgt.22895.
—A preliminary version of this article appeared in STACS 2018.

2022

[J.19] Akanksha Agrawal. **Fine-grained complexity of rainbow coloring and its variants**. *Journal of Computer and System Sciences*, 124:140–158, 2022. doi: 10.1016/j.jcss.2021.10.001.
—A preliminary version of this article appeared in MFCS 2017.

[J.18] Akanksha Agrawal, Sudeshna Kolay, and Meirav Zehavi. **Parameter analysis for guarding terrains**. *Algorithmica*, 84(4):961–981, 2022. doi: 10.1007/s00453-021-00913-9.
—A preliminary version of this article appeared in SWAT 2020.

[J.17] Akanksha Agrawal, Lawqueen Kanesh, Fahad Panolan, M. S. Ramanujan, and Saket Saurabh. **A fixed-parameter tractable algorithm for elimination distance to bounded degree graphs**. *SIAM Journal of Discrete Mathematics*, 36(2):911–921, 2022. doi: 10.1137/21m1396824.
—A preliminary version of this article appeared in STACS 2021.

[J.16] Akanksha Agrawal, Pranabendu Misra, Fahad Panolan, and Saket Saurabh. **Fast exact algorithms for survivable network design with uniform requirements**. *Algorithmica*, 84(9):2622–2641, 2022. doi: 10.1007/s00453-022-00959-3.
—A preliminary version of this article appeared in WADS 2017.

[J.15] Akanksha Agrawal, Madhumita Kundu, Abhishek Sahu, Saket Saurabh, and Prafullkumar Tale. **Parameterized complexity of maximum edge colorable subgraph**. *Algorithmica*, 84(10):3075–3100, 2022. doi: 10.1007/s00453-022-01003-0.
—A preliminary version of this article appeared in COCOON 2020.

2021

[J.14] Akanksha Agrawal, Fahad Panolan, Saket Saurabh, and Meirav Zehavi. **Simultaneous feedback edge set: A parameterized perspective**. *Algorithmica*, 83(2): 753–774, 2021. doi: 10.1007/s00453-020-00773-9.
—A preliminary version of this article appeared in ISAAC 2016.

[J.13] Akanksha Agrawal, Lawqueen Kanesh, Saket Saurabh, and Prafullkumar Tale. **Paths to trees and cacti**. *Theoretical Computer Science*, 860:98–116, 2021. doi: 10.1016/j.tcs.2021.01.033.
—A preliminary version of this article appeared in CIAC 2017.

2020

[J.12] Akanksha Agrawal, Pallavi Jain, Lawqueen Kanesh, and Saket Saurabh. **Parameterized complexity of conflict-free matchings and paths**. *Algorithmica*, 82(7): 1939–1965, 2020. doi: 10.1007/s00453-020-00681-y.
—A preliminary version of this article appeared in MFCS 2019.

[J.11] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Polylogarithmic approximation algorithms for weighted-$\mathcal{F}$-deletion problems**. *ACM Transactions on Algorithms*, 16(4):51:1–51:38, 2020. doi: 10.1145/3389338.
—A preliminary version of this article appeared in APPROX 2018.

[J.10] Akanksha Agrawal, Sushmita Gupta, Pallavi Jain, and R. Krithika. **Quadratic vertex kernel for split vertex deletion**. *Theoretical Computer Science*, 833:164–172, 2020. doi: 10.1016/j.tcs.2020.06.001.
—A preliminary version of this article appeared in CIAC 2019.

[J.9] Akanksha Agrawal, Fedor V. Fomin, Daniel Lokshtanov, Saket Saurabh, and Prafullkumar Tale. **Path contraction faster than 2^n**. *SIAM J. Discret. Math.*, 34(2): 1302–1325, 2020. doi: 10.1137/19M1259638.
—A preliminary version of this article appeared in ICALP 2019.

[J.8] Akanksha Agrawal, N. R. Aravind, Subrahmanyam Kalyanasundaram, Anjeneya Swami Kare, Juho Lauri, Neeldhara Misra, and I. Vinod Reddy. **Parameterized complexity of happy coloring problems**. *Theoretical Computer Science*, 835:58–81, 2020. doi: 10.1016/j.tcs.2020.06.002.
—Partially based on the article that appeared in IWOCA 2017.

2019

[J.7] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Feedback vertex set inspired kernel for chordal vertex deletion**. *ACM Transactions on Algorithms*, 15(1):11:1–11:28, 2019. doi: 10.1145/3284356.
—A preliminary version of this article appeared in SODA 2017.

[J.6] Akanksha Agrawal, Daniel Lokshtanov, Saket Saurabh, and Meirav Zehavi. **Split contraction: The untold story**. *ACM Transactions on Computation Theory*, 11(3): 18:1–18:22, 2019. doi: 10.1145/3319909.
—A preliminary version of this article appeared in STACS 2017.

[J.5] Akanksha Agrawal, Saket Saurabh, and Prafullkumar Tale. **On the parameterized complexity of contraction to generalization of trees**. *Theory of Computing Systems*, 63(3):587–614, 2019. doi: 10.1007/s00224-018-9892-z.
—A preliminary version of this article appeared in IPEC 2017.

2018

[J.4] Akanksha Agrawal, Saket Saurabh, Roohani Sharma, and Meirav Zehavi. **Kernels for deletion to classes of acyclic digraphs**. *Journal of Computer and System Sciences*, 92:9–21, 2018. doi: 10.1016/j.jcss.2017.07.008.
—A preliminary version of this article appeared in ISAAC 2017.

[J.3] Akanksha Agrawal, Daniel Lokshtanov, Diptapriyo Majumdar, Amer E. Mouawad, and Saket Saurabh. **Kernelization of cycle packing with relaxed disjointness constraints**. *SIAM Journal on Discrete Mathematics*, 32(3):1619–1643, 2018. doi: 10.1137/17M1136614.
—A preliminary version of this article appeared in ICALP 2016.

[J.2] Akanksha Agrawal, Daniel Lokshtanov, Amer E. Mouawad, and Saket Saurabh. **Simultaneous feedback vertex set: A parameterized perspective**. *ACM Transactions on Computation Theory*, 10(4):18:1–18:25, 2018. doi: 10.1145/3265027.
—A preliminary version of this article appeared in STACS 2016.

[J.1] Akanksha Agrawal, Saket Saurabh, Roohani Sharma, and Meirav Zehavi. **Parameterised algorithms for deletion to classes of DAGs**. *Theory of Computing Systems*, 62(8):1880–1909, 2018. doi: 10.1007/s00224-018-9852-7.

CONFERENCES

2024

[C.47] Akanksha Agrawal, Paloma T. Lima, Daniel Lokshtanov, Saket Saurabh, and Roohani Sharma. **Odd Cycle Transversal on P_5-free graphs in quasi-polynomial time**. In *Proceedings of the 2023 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2024 (to appear).

[C.46] Akanksha Agrawal, Satyabrata Jana, and Abhishek Sahu. **A polynomial kernel for proper helly circular-arc vertex deletion**. In *Proceedings of the 2024 Latin American Theoretical Informatics (LATIN)*, 2024 (to appear).

2023

[C.45] Akanksha Agrawal, Dániel Marx, Daniel Neuen, and Jasper Slusallek. **Computing square colorings on bounded-treewidth and planar graphs**. In *Proceedings of the 2023 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 2087–2110. SIAM, 2023. doi: 10.1137/1.9781611977554.ch80.

[C.44] Akanksha Agrawal, Tanmay Inamdar, Saket Saurabh, and Jie Xue. **(Distinguished Paper) Clustering what matters: Optimal approximation for clustering with outliers**. *The 37th AAAI Conference on Artificial Intelligence*, 2023.

[C.43] Akanksha Agrawal, John Augustine, David Peleg, and Srikkanth Ramachandran. **Brief announcement: Local problems in the SUPPORTED model**. In *Proceedings of the 2023 ACM Symposium on Principles of Distributed Computing, PODC 2023*, pages 172–175. ACM, 2023. doi: 10.1145/3583668.3594583.

[C.42] Akanksha Agrawal and M. S. Ramanujan. **Approximately interpolating between uniformly and non-uniformly polynomial kernels**. In Patricia Bouyer and Srikanth Srinivasan, editors, *43rd IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2023, December 18-20, 2023, IIIT Hyderabad, Telangana, India*, volume 284 of *LIPIcs*, pages 36:1–36:17, 2023. doi: 10.4230/LIPICS.FSTTCS.2023.36.

2022

[C.41] Akanksha Agrawal, Lawqueen Kanesh, Daniel Lokshtanov, Fahad Panolan, M. S. Ramanujan, Saket Saurabh, and Meirav Zehavi. **Deleting, eliminating and decomposing to hereditary classes are all fpt-equivalent**. In *Proceedings of the 2022 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1976–2004, 2022. doi: 10.1137/1.9781611977073.79.

[C.40] Akanksha Agrawal, Soumita Hait, and Amer E. Mouawad. **On finding short reconfiguration sequences between independent sets**. To appear in *33rd International Symposium on Algorithms and Computation (ISAAC)*, 2022.

[C.39] Akanksha Agrawal, Sutanay Bhattacharjee, Satyabrata Jana, and Abhishek Sahu. **Parameterized complexity of perfectly matched sets**. To appear in the *17th International Symposium on Parameterized and Exact Computation (IPEC)*, 2022.

[C.38] Akanksha Agrawal, Saket Saurabh, and Meirav Zehavi. **A finite algorithm for the realizability of a delaunay triangulation**. To appear in *17th International Symposium on Parameterized and Exact Computation (IPEC)*, 2022.

[C.37] Akanksha Agrawal, Pratibha Choudhary, N. S. Narayanaswamy, K. K. Nisha, and Vijayaragunathan Ramamoorthi. **Parameterized complexity of minimum membership dominating set**. In *Algorithms and Computation - 16th International Conference and Workshops (WALCOM)*, volume 13174, pages 288–299, 2022. doi: 10.1007/978-3-030-96731-4_24.

2021

[C.36] Akanksha Agrawal, Lawqueen Kanesh, Fahad Panolan, M. S. Ramanujan, and Saket Saurabh. **An FPT algorithm for elimination distance to bounded degree graphs**. In *38th International Symposium on Theoretical Aspects of Computer Science (STACS)*, volume 187, pages 5:1–5:11, 2021. doi: 10.4230/LIPIcs.STACS.2021.5.

[C.35] Akanksha Agrawal, Ravi Kiran Allumalla, and Varun Teja Dhanekula. **Refuting FPT algorithms for some parameterized problems under gap-eth**. In Petr A. Golovach and Meirav Zehavi, editors, *16th International Symposium on Parameterized and Exact Computation (IPEC)*, volume 214 of *LIPIcs*, pages 2:1–2:12, 2021. doi: 10.4230/LIPIcs.IPEC.2021.2.

[C.34] Akanksha Agrawal, Aditya Anand, and Saket Saurabh. **A polynomial kernel for deletion to ptolemaic graphs**. In Petr A. Golovach and Meirav Zehavi, editors, *16th International Symposium on Parameterized and Exact Computation (IPEC)*, volume 214, pages 1:1–1:15, 2021. doi: 10.4230/LIPIcs.IPEC.2021.1.

2020

[C.33] Akanksha Agrawal, Kristine V. K. Knudsen, Daniel Lokshtanov, Saket Saurabh, and Meirav Zehavi. **The parameterized complexity of guarding almost convex polygons**. In *36th International Symposium on Computational Geometry (SoCG)*, volume 164, pages 3:1–3:16, 2020. doi: 10.4230/LIPIcs.SoCG.2020.3.

[C.32] Akanksha Agrawal and M. S. Ramanujan. **On the parameterized complexity of clique elimination distance**. In *15th International Symposium on Parameterized and Exact Computation (IPEC)*, volume 180, pages 1:1–1:13, 2020. doi: 10.4230/LIPIcs.IPEC.2020.1.

[C.31] Akanksha Agrawal, Sudeshna Kolay, and Meirav Zehavi. **Parameter analysis for guarding terrains**. In *17th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT)*, volume 162, pages 4:1–4:18, 2020. doi: 10.4230/LIPIcs.SWAT.2020.4.

[C.30] Akanksha Agrawal, Madhumita Kundu, Abhishek Sahu, Saket Saurabh, and Prafullkumar Tale. **Parameterized complexity of maximum edge colorable subgraph**. In *Computing and Combinatorics - 26th International Conference (COCOON)*, pages 615–626, 2020. doi: 10.1007/978-3-030-58150-3_50.

2019

[C.29] Akanksha Agrawal, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Interval vertex deletion admits a polynomial kernel**. In *Proceedings of the 30th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1711–1730, 2019. doi: 10.1137/1.9781611975482.103.

[C.28] Akanksha Agrawal, Grzegorz Guspiel, Jayakrishnan Madathil, Saket Saurabh, and Meirav Zehavi. **Connecting the dots (with minimum crossings)**. In *35th International Symposium on Computational Geometry (SoCG)*, pages 7:1–7:17, 2019. doi: 10.4230/LIPIcs.SoCG.2019.7.

[C.27] Akanksha Agrawal, Fedor V. Fomin, Daniel Lokshtanov, Saket Saurabh, and Prafullkumar Tale. **Path contraction faster than 2^n**. In *46th International Colloquium on Automata, Languages, and Programming (ICALP)*, pages 11:1–11:13, 2019. doi: 10.4230/LIPIcs.ICALP.2019.11.

[C.26] Akanksha Agrawal, Sudeshna Kolay, Jayakrishnan Madathil, and Saket Saurabh. **Parameterized complexity classification of deletion to list matrix-partition for low-order matrices**. In *30th International Symposium on Algorithms and Computation (ISAAC)*, volume 149, pages 41:1–41:14, 2019. doi: 10.4230/LIPIcs.ISAAC.2019.41.

[C.25] Akanksha Agrawal, Arindam Biswas, Édouard Bonnet, Nick Brettell, Radu Curticapean, Dániel Marx, Tillmann Miltzow, Venkatesh Raman, and Saket Saurabh. **Parameterized streaming algorithms for min-ones d-sat**. In *39th IARCS Annual Conference on Foundations of Software Technology (FSTTCS)*, volume 150, pages 8:1–8:20, 2019. doi: 10.4230/LIPIcs.FSTTCS.2019.8.

[C.24] Akanksha Agrawal, Pallavi Jain, Lawqueen Kanesh, and Saket Saurabh. **Parameterized complexity of conflict-free matchings and paths**. In *44th International Symposium on Mathematical Foundations of Computer Science (MFCS)*, pages 35:1–35:15, 2019. doi: 10.4230/LIPIcs.MFCS.2019.35.

[C.23] Akanksha Agrawal, Sushmita Gupta, Pallavi Jain, and R. Krithika. **Quadratic vertex kernel for split vertex deletion**. In *Algorithms and Complexity - 11th International Conference (CIAC)*, pages 1–12, 2019. doi: 10.1007/978-3-030-17402-6_1.

2018

[C.22] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Polylogarithmic approximation algorithms for weighted-$\mathcal{F}$-deletion problems**. In *Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (APPROX/RANDOM)*, pages 1:1–1:15, 2018. doi: 10.4230/LIPIcs.APPROX-RANDOM.2018.1.

[C.21] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Erdös-pósa property of obstructions to interval graphs**. In *35th Symposium on Theoretical Aspects of Computer Science (STACS)*, pages 7:1–7:15, 2018. doi: 10.4230/LIPIcs.STACS.2018.7.

[C.20] Akanksha Agrawal, Pallavi Jain, Lawqueen Kanesh, Daniel Lokshtanov, and Saket Saurabh. **Conflict free feedback vertex set: A parameterized dichotomy**. In *43rd International Symposium on Mathematical Foundations of Computer Science (MFCS)*, pages 53:1–53:15, 2018. doi: 10.4230/LIPIcs.MFCS.2018.53.

[C.19] Akanksha Agrawal, Pallavi Jain, Lawqueen Kanesh, Pranabendu Misra, and Saket Saurabh. **Exploring the kernelization borders for hitting cycles**. In *13th International Symposium on Parameterized and Exact Computation (IPEC)*, pages 14:1–14:14, 2018. doi: 10.4230/LIPIcs.IPEC.2018.14.

[C.18] Akanksha Agrawal, Pratibha Choudhary, Pallavi Jain, Lawqueen Kanesh, Vibha Sahlot, and Saket Saurabh. **Hitting and covering partially**. In *Computing and Combinatorics - 24th International Conference (COCOON)*, pages 751–763, 2018. doi: 10.1007/978-3-319-94776-1_62.

2017

[C.17] Akanksha Agrawal, Daniel Lokshtanov, Pranabendu Misra, Saket Saurabh, and Meirav Zehavi. **Feedback vertex set inspired kernel for chordal vertex deletion**. In *Proceedings of the 28th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1383–1398, 2017. doi: 10.1137/1.9781611974782.90.

[C.16] Akanksha Agrawal. **Fine-grained complexity of rainbow coloring and its variants**. In *42nd International Symposium on Mathematical Foundations of Computer Science (MFCS)*, pages 60:1–60:14, 2017. doi: 10.4230/LIPIcs.MFCS.2017.60.

[C.15] Akanksha Agrawal. **On the parameterized complexity of happy vertex coloring**. In *Combinatorial Algorithms - 28th International Workshop (IWOCA)*, pages 103–115, 2017. doi: 10.1007/978-3-319-78825-8_9.

[C.14] Akanksha Agrawal, R. Krithika, Daniel Lokshtanov, Amer E. Mouawad, and M. S. Ramanujan. **On the parameterized complexity of simultaneous deletion problems**. In *37th IARCS Annual Conference on Foundations of Software Technology (FSTTCS)*, pages 9:1–9:14, 2017. doi: 10.4230/LIPIcs.FSTTCS.2017.9.

[C.13] Akanksha Agrawal, Saket Saurabh, and Prafullkumar Tale. **On the parameterized complexity of contraction to generalization of trees**. In *12th International Symposium on Parameterized and Exact Computation (IPEC)*, pages 1:1–1:12, 2017. doi: 10.4230/LIPIcs.IPEC.2017.1.

[C.12] Akanksha Agrawal, Daniel Lokshtanov, and Amer E. Mouawad. **Critical node cut parameterized by treewidth and solution size is w[1]-hard**. In *Graph-Theoretic Concepts in Computer Science - 43rd International Workshop (WG)*, pages 32–44, 2017. doi: 10.1007/978-3-319-68705-6_3.

[C.11] Akanksha Agrawal, Pranabendu Misra, Fahad Panolan, and Saket Saurabh. **Fast exact algorithms for survivable network design with uniform requirements**. In *Algorithms and Data Structures - 15th International Symposium (WADS)*, pages 25–36, 2017. doi: 10.1007/978-3-319-62127-2_3.

[C.10] Akanksha Agrawal, Lawqueen Kanesh, Saket Saurabh, and Prafullkumar Tale. **Paths to trees and cacti**. In *Algorithms and Complexity - 10th International Conference (CIAC)*, pages 31–42, 2017. doi: 10.1007/978-3-319-57586-5_4.

[C.9] Akanksha Agrawal, Daniel Lokshtanov, Saket Saurabh, and Meirav Zehavi. **Split contraction: The untold story**. In *34th Symposium on Theoretical Aspects of Computer Science (STACS)*, pages 5:1–5:14, 2017. doi: 10.4230/LIPIcs.STACS.2017.5.

2016

[C.8] Akanksha Agrawal, Daniel Lokshtanov, Diptapriyo Majumdar, Amer E. Mouawad, and Saket Saurabh. **Kernelization of cycle packing with relaxed disjointness constraints**. In *43rd International Colloquium on Automata, Languages, and Programming (ICALP)*, pages 26:1–26:14, 2016. doi: 10.4230/LIPIcs.ICALP.2016.26.

[C.7] Akanksha Agrawal, Daniel Lokshtanov, Amer E. Mouawad, and Saket Saurabh. **Simultaneous feedback vertex set: A parameterized perspective**. In *33rd Symposium on Theoretical Aspects of Computer Science (STACS) 2016, February 17-20, 2016, Orléans, France*, pages 7:1–7:15, 2016. doi: 10.4230/LIPIcs.STACS.2016.7.

[C.6] Akanksha Agrawal, Saket Saurabh, Roohani Sharma, and Meirav Zehavi. **Kernels for deletion to classes of acyclic digraphs**. In *27th International Symposium on Algorithms and Computation (ISAAC)*, pages 6:1–6:12, 2016. doi: 10.4230/LIPIcs.ISAAC.2016.6.

[C.5] Akanksha Agrawal, Fahad Panolan, Saket Saurabh, and Meirav Zehavi. **Simultaneous feedback edge set: A parameterized perspective**. In *27th International Symposium on Algorithms and Computation (ISAAC)*, pages 5:1–5:13, 2016. doi: 10.4230/LIPIcs.ISAAC.2016.5.

[C.4] Akanksha Agrawal, Sudeshna Kolay, Daniel Lokshtanov, and Saket Saurabh. **A faster FPT algorithm and a smaller kernel for block graph vertex deletion**. In *Theoretical Informatics - 12th Latin American Symposium (LATIN)*, pages 1–13, 2016. doi: 10.1007/978-3-662-49529-2_1.

[C.3] Akanksha Agrawal, Sushmita Gupta, Saket Saurabh, and Roohani Sharma. **Improved algorithms and combinatorial bounds for independent feedback vertex set**. In *11th International Symposium on Parameterized and Exact Computation (IPEC)*, pages 2:1–2:14, 2016. doi: 10.4230/LIPIcs.IPEC.2016.2.

[C.2] Akanksha Agrawal, Sudeshna Kolay, Saket Saurabh, and Roohani Sharma. **Kernelizing buttons and scissors**. In *Proceedings of the 28th Canadian Conference on Computational Geometry (CCCG)*, pages 279–286, 2016.

2014

[C.1] Akanksha Agrawal, Sathish Govindarajan, and Neeldhara Misra. **Vertex cover gets faster and harder on low degree graphs**. In *Computing and Combinatorics - 20th International Conference (COCOON)*, pages 179–190, 2014. doi: 10.1007/978-3-319-08783-2_16.

TALKS

INVITED TALKS

2022

Distance from triviality 2.0: Hybrid parameterizations at The 33rd International Workshop on Combinatorial Algorithms (IWOCA), 2022.

2020

Lectures at the (online) workshop Parameterized Complexity 301.

Parameterized Guarding of Art Gallery via CSP at Rising Star Talks, TCS Women Spotlight Workshop 2020.

Polynomial Kernel for Interval Vertex Deletion at Discrete Math Seminar 2020, IBS, South Korea.

Guarding Terrains through the Lens of Parameterized Complexity at Parameterized Complexity Seminar 2020, India.

Publishing: quantity v/s quality? (Theory) at ACM-W Grad Cohort 2020, IIT Gandhinagar (non-technical talk).

OTHER TALKS

2022

Lectures at the online ACM India Winter School on Algorithms and Lower Bounds.

Deleting, eliminating and decomposing to hereditary classes are all FPT-equivalent at SODA 2022 (online).

2020

Guarding Polygons via CSP at Algorithms Seminar, Tel-Aviv University, Tel-Aviv, Israel.

Guarding Polygons and Terrains at CS Theory Seminar, Ben-Gurion University of the Negev, Beersheba, Israel.

2019

Guarding Polygons via CSP at

- Indian Institute of Science, Bangalore, India,
- Indian Institute of Technology Madras, Chennai, India
- Indian Institute of Technology Hyderabad, Hyderabad, India, and
- Indian Institute of Technology Gandhinagar, Gandhinagar, India.

Path Contraction Faster than 2^n at ICALP 2019, Patras, Greece.

A Polynomial Kernel for Interval Vertex Deletion at New Horizons in Parameterized Complexity, Dagstuhl Seminar 2019, Dagstuhl, Germany.

2018

Conflict Free Feedback Vertex Set: A Parameterized Dichotomy at MFCS 2018, Liverpool, UK.

Polylogarithmic Approximation Algorithms for Weighted-F-Deletion Problems at APPROX 2018, Princeton, USA.

2017

Fine-grained Complexity of Rainbow Coloring and its Variants at MFCS, Aalborg, Netherlands.

Hardness of Problems in P at Algorithms Seminar Series, University of Bergen, Bergen, Norway.

Finite Algorithm for Delaunay Realizability at Algorithms Seminar Series, University of Bergen, Bergen, Norway.

Split Contraction: The Untold Story at STACS 2017, Hannover, Germany.

Feedback Vertex Set Inspired Kernel for Chordal Vertex Deletion at SODA 2017, Barcelona, Spain and at Algorithms Seminar Series, University of Bergen, Bergen, Norway.

2016

Simultaneous Feedback Edge Set: A Parameterized Perspective at ISAAC 2016, Sydney, Australia.

Kernels for Deletion to Classes of Acyclic Digraphs at ISAAC 2016, Sydney, Australia.

Improved Algorithms and Combinatorial Bounds for Independent Feedback Vertex Set at IPEC 2016, Aarhus, Denmark.

Kernelization of Cycle Packing with Relaxed Disjointness Constraints at ICALP 2016, Rome, Italy.

2015

A Faster FPT Algorithm and a Smaller Kernel for Block Graph Vertex Deletion at Algorithms Seminar Series, University of Bergen, Bergen, Norway.

Vertex Cover on Delaunay Graphs at Algorithms Seminar Series at University of Bergen, Bergen, Norway.

2014

Vertex Cover Gets Faster and Harder on Low Degree Graphs at COCOON 2014, Atlanta, USA.

WORKSHOPS & RESEARCH VISITS

2022

Vertex Partitioning in Graphs: From Structure to Algorithms, Nov. 27-Dec. 2, 2022, Dagstuhl, Germany.

Graph Decompositions: Small Width, Big Challenges, Oct. 24-28, 2022, Lorentz Center, Germany.

Visiting Scientist (19 Jun.-13 Jul.), Weizmann Institute of Science, Rehovot, Israel. Hosted by David Peleg as part of an on-going collaboration, funded by VHAR.

Visiting Scientist (10-18 Jun.), University of Trier, Trier, Germany (hosted by Henning Fernau).

2019

Visiting Postdoc. (Jul. 2019), Institute of Mathematical Sciences, Chennai, India (hosted by: Saket Saurabh).

Algorithmic Tractability via Sparsifiers, Leh, India.

Workshop on Kernelization (WORKER), Bergen, Norway.

Visiting Postdoc. (June 2019), University of Bergen, Bergen, Norway (hosted by: Saket Saurabh).

New Horizons in Parameterized Complexity, Dagstuhl Seminar, Dagstuhl, Germany.

2018

19th Max Planck Advanced Course on Foundations of Computer Science, Fine Grained Complexity, Saarbrücken, Germany.

Visiting Postdoc. (Sept. 2018), University of Warwick, Warwick, England (hosted by: Prof. Ramanujan Sridharan).

Visiting Researcher (Jan-May 2018), Institute of Mathematical Sciences, Chennai, India (hosted by: Prof. Saket Saurabh).

2017

Recent Advances in Parameterized Complexity, Tel-Aviv, Israel.

Recent Advances in Algorithms, St. Petersburg, Russia.

The 15th Annual Winter School in Algorithms, Myrkdalen, Norway.

2016

BeHard + Parapprox ++ = < 3, Solstrand, Norway.

2015

Workshop on Satisfiability Lower Bounds and Tight Results for Parameterized and Exponential-Time Algorithms, Simons Institute for the Theory of Computing, UC-Berkley, California.

Workshop on Kernelization (WORKER), Nordfjordeid, Norway.

The 13th Annual Winter School in Algorithms, Ustaoset, Norway.

2014

Advanced School on Parameterized Algorithms and Kernelization, Institute of Mathematical Sciences, Chennai, India.

Instructional School for Lecturers in Linear Algebra, CEMS, Department of Mathematics, Kumaun University, Almora, India.

2013

Recent Advances in Algorithms and Complexity, Indian Institute of Technology, Delhi, India.

REFERENCES

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Prof. Daniel Lokshtanov
Email: daniello@ucsb.edu
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