

Curriculum Vitæ

Marek Eliáš

webpage: <https://elias.id>

Research Interests

Theory of algorithms and Discrete optimization. Topics related to solving optimization problems with limited information as studied in Online optimization and Differential privacy.

Academic appointments

- 2021 – Bocconi University, Milan
Assistant professor
- 2020 – 2021 Centrum Wiskunde & Informatica, Amsterdam
Postdoctoral researcher
Host: Nikhil Bansal
- 2018 – 2020 École polytechnique fédérale de Lausanne
Postdoctoral researcher
Host: Michael Kapralov

Education

- 2014 – 2018 Technische Universiteit Eindhoven
PhD in mathematics
Thesis: Algorithms for some metrical service systems
Supervisor: Nikhil Bansal
- 2012 – 2014 Charles University in Prague
Doctoral study in computer science (moved to TU Eindhoven)
Topic: Discrete Geometry – algebraic, combinatorial and topological methods
Supervisor: Jiří Matoušek
- 2010 – 2012 Charles University in Prague
Master in computer science
Thesis: Erdős–Szekeres type theorems
Supervisor: Jiří Matoušek
- 2006 – 2010 Charles University in Prague
Bachelor in Computer Science
Thesis: Integer programming and its applications
Supervisor: Martin Pergel

List of publications

Refereed conference publications

- [1] Differentially private correlation clustering. Mark Bun, Marek Eliáš, and Janardhan Kulkarni. In *Proceedings of International Conference on Machine Learning (ICML) '21*, volume 139, pages 1136–1146. PMLR, 18–24 Jul 2021. arXiv:2102.08885.
- [2] Online metric algorithms with untrusted predictions. Antonios Antoniadis, Christian Coester, Marek Eliáš, Adam Polak, and Bertrand Simon. In *Proceedings of International Conference on Machine Learning (ICML) '20*, volume 119, pages 345–355. PMLR, 2020. arXiv:2003.02144.
- [3] Differentially private release of synthetic graphs. Marek Eliáš, Michael Kapralov, Janardhan Kulkarni, and Yin Tat Lee. In *Proceedings of Symposium on Discrete Algorithms (SODA) '20*, pages 560–578. SIAM, 2020.
- [4] Nested convex bodies are chaseable. Nikhil Bansal, Martin Böhm, Marek Eliáš, Grigorios Koumoutsos, and Seeun William Umboh. In *Proceedings of Symposium on Discrete Algorithms (SODA) '18*, pages 1253–1260. SIAM, 2018. arXiv:1707.05527.
- [5] Competitive algorithms for generalized k -server in uniform metrics. Nikhil Bansal, Marek Eliáš, Grigorios Koumoutsos, and Jesper Nederlof. In *Proceedings of Symposium on Discrete Algorithms (SODA) '18*, pages 992–1001. SIAM, 2018. arXiv:1707.04519.
- [6] The (h, k) -server problem on bounded-depth trees. Nikhil Bansal, Marek Eliáš, Łukasz Jeż, and Grigorios Koumoutsos. In *Proceedings of Symposium on Discrete Algorithms (SODA) '17*, pages 1022–1037. SIAM, 2017. arXiv:1608.08527.
- [7] Weighted k -server bounds via combinatorial dichotomies. Nikhil Bansal, Marek Eliáš, and Grigorios Koumoutsos. In *Proceedings of Symposium on Foundations of Computer Science (FOCS) '17*, pages 493–504. IEEE, 2017. arXiv:1704.03318.
- [8] Improved approximation for vector bin packing. Nikhil Bansal, Marek Eliáš, and Arindam Khan. In *Proceedings of Symposium on Discrete Algorithms (SODA) '16*, pages 1561–1579. SIAM, 2016.
- [9] Tight bounds for double coverage against weak adversaries. Nikhil Bansal, Marek Eliáš, Łukasz Jeż, Grigorios Koumoutsos, and Kirk Pruhs. In *Approximation and Online Algorithms — 13th International Workshop (WAOA) '15*, pages 47–58. Springer, 2015.
- [10] Lower bounds on geometric Ramsey functions. Marek Eliáš, Jiří Matoušek, Edgardo Roldán-Pensado, and Zuzana Safernová. In *Proceedings of Symposium on Computational Geometry (SoCG) '14*, page 558–564. ACM, 2014. arXiv:1307.5157.
- [11] Higher-order Erdős–Szekeres theorems. Marek Eliáš and Jiří Matoušek. In *Proceedings of Symposium on Computational Geometry (SoCG) '12*, pages 81–90. ACM, 2012. arXiv:1111.3824.

Journal publications

- [1] Nested convex bodies are chaseable. Nikhil Bansal, Martin Böhm, Marek Eliáš, Grigorios Koumoutsos, and Seeun William Umboh. *Algorithmica*, 82(6):1640–1653, 2020, arXiv:1707.05527.
- [2] The (h, k) -server problem on bounded depth trees. Nikhil Bansal, Marek Eliáš, Łukasz Jeż, and Grigorios Koumoutsos. *ACM Trans. Algorithms*, 15(2), February 2019, arXiv:1608.08527.
- [3] Tight bounds for Double Coverage against weak adversaries. Nikhil Bansal, Marek Eliáš, Łukasz Jeż, Grigorios Koumoutsos, and Kirk Pruhs. *Theory of Computing Systems*, Sep 2016.
- [4] Lower bounds on geometric Ramsey functions. Marek Eliáš, Jiří Matoušek, Edgardo Roldán-Pensado, and Zuzana Safernová. *SIAM J. Discrete Math.*, 28(4):1960–1970, 2014, arXiv:1307.5157.
- [5] Higher-order Erdős–Szekeres theorems. Marek Eliáš and Jiří Matoušek. *Advances in Mathematics*, 244(0):1–15, 2013, arXiv:1111.3824.

Preprints

- [1] Antonios Antoniadis, Christian Coester, Marek Eliáš, Adam Polak, and Bertrand Simon. Learning-augmented dynamic power management with multiple states via new ski rental bounds. Accepted to NeurIPS’21, 2021.

Research visits

- January 2020 Microsoft Research Redmond, duration: 2 weeks
- July 2019 Microsoft Research Redmond, duration: 2 weeks
- Fall 2016 Simons Institute for the Theory of Computing, duration: 2 months
- Jun 2013 ETH Zürich, group Theory of Combinatorial Algorithms, duration: 3 weeks

Professional service

- (Sub)reviewer ESA ’20, SODA ’20, ESA ’19, SoCG ’19, STACS ’19, COCOON ’18, SoCG ’18, ICALP ’17, APPROX ’17, GD ’16, MFCS ’13
J. ACM, ACM Trans. Algorithms (3×), Theoret. Comput. Sci.,
Oper. Res. Lett., Discrete Comput. Geom. (2×), European J. Combin.