Trustworthy Machine Learning Through the Lens of Combinatorial Optimisation and Operations Research: List of Publications

2025

Transactions on Machine Learning Research

Fabian Akkerman, Julien Ferry, Christian Artigues, Emmanuel Hebrard, and Thibaut Vidal. Boosting revisited: Benchmarking and advancing lp-based ensemble methods. *Transactions on Machine Learning Research*, 2025

ECML PKDD 2025

Mohamed Siala, Jordi Planes, and João Marques-Silva. On trustworthy rule-based models and explanations. In *Machine Learning and Knowledge Discovery in Databases. Research Track - European Conference, ECML PKDD 2025, Porto, Portugal, September 15-19, 2025, Proceedings, Part IV*. Springer, 2025

Computational Intelligence

Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Taming the triangle: On the interplays between fairness, interpretability, and privacy in machine learning. *Computational Intelligence*, 2025

2024

SATML 2024

Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Probabilistic dataset reconstruction from interpretable models. In *IEEE Conference on Secure and Trustworthy Machine Learning, SaTML 2024, Toronto, ON, Canada, April 9-11, 2024*, pages 1–17. IEEE, 2024

2023

Machine Learning

Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Improving fairness generalization through a sample-robust optimization method. *Mach. Learn.*, 112(6):2131–2192, 2023

ICML 2023

Emir Demirovic, Emmanuel Hebrard, and Louis Jean. Blossom: an anytime algorithm for computing optimal decision trees. In *International Conference on Machine Learning, ICML 2023, 23-29 July 2023, Honolulu, Hawaii, USA*, volume 202 of *Proceedings of Machine Learning Research*, pages 7533–7562. PMLR, 2023

SATML 2023

Julien Ferry, Ulrich Aïvodji, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Exploiting fairness to enhance sensitive attributes reconstruction. In *2023 IEEE Conference on Secure and Trustworthy Machine Learning, SaTML 2023, Raleigh, NC, USA, February 8-10, 2023*, pages 18–41. IEEE, 2023

2022

Journal of Machine Learning Research

Emir Demirovic, Anna Lukina, Emmanuel Hebrard, Jeffrey Chan, James Bailey, Christopher Leckie, Kotagiri Ramamohanarao, and Peter J. Stuckey. Murtree: Optimal decision trees via dynamic programming and search. *J. Mach. Learn. Res.*, 23:26:1–26:47, 2022

AAAI 2022 Hao Hu, Marie-José Huguet, and Mohamed Siala. Optimizing binary decision diagrams with maxsat for classification. In *Thirty-Sixth AAAI Conference on Artificial Intelligence, AAAI 2022, Thirty-Fourth Conference on Innovative Applications of Artificial Intelligence, IAAI 2022, The Twelveth Symposium on Educational Advances in Artificial Intelligence, EAAI 2022 Virtual Event, February 22 - March 1, 2022*, pages 3767–3775. AAAI Press, 2022

CPAIOR 2022 Ulrich Aïvodji, Julien Ferry, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Leveraging integer linear programming to learn optimal fair rule lists. In *Integration of Constraint Programming, Artificial Intelligence, and Operations Research - 19th International Conference, CPAIOR 2022, Los Angeles, CA, USA, June 20-23, 2022, Proceedings*, volume 13292 of *Lecture Notes in Computer Science*, pages 103–119. Springer, 2022

ICTAI 2022 Julien Rouzot, Julien Ferry, and Marie-José Huguet. Learning optimal fair scoring systems for multi-class classification. In *34th IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2022, Macao, China, October 31 - November 2, 2022*, pages 197–204. IEEE, 2022

2021

CIKM 2021 Ulrich Aïvodji, Julien Ferry, Sébastien Gambs, Marie-José Huguet, and Mohamed Siala. Faircorels, an open-source library for learning fair rule lists. In *CIKM '21: The 30th ACM International Conference on Information and Knowledge Management, Virtual Event, Queensland, Australia, November 1 - 5, 2021*, pages 4665–4669. ACM, 2021

2020

IJCAI 2020 Hao Hu, Mohamed Siala, Emmanuel Hebrard, and Marie-José Huguet. Learning optimal decision trees with maxsat and its integration in adaboost. In *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence, IJCAI 2020*, pages 1170–1176. ijcai.org, 2020

CP 2020 Alexey Ignatiev, Martin C. Cooper, Mohamed Siala, Emmanuel Hebrard, and João Marques-Silva. Towards formal fairness in machine learning. In *Principles and Practice of Constraint Programming - 26th International Conference, CP 2020, Louvain-la-Neuve, Belgium, September 7-11, 2020, Proceedings*, volume 12333 of *Lecture Notes in Computer Science*, pages 846–867. Springer, 2020