Martino Ciaperoni - Postdoctoral researcher Email: martino.ciaperoni@aalto.fi

Overview

I am a postdoctoral researcher at Aalto University.

Throughout my Bachelor's and Master's degree, I have acquired a deep knowledge of probability theory, statistics, maths and data science-related fields.
As a Ph.D. candidate, I have strengthened my computer science skills and conducted research at the intersection of data mining, management and machine learning.
My current research focuses on developing innovative solutions for interpretable machine learning, dimensionality reduction, matrix factorization and clustering.

Education and Research Experience

- **Alma Mater Studiorum - University of Bologna** Italy
  Bachelor of Science in Statistics and Mathematics; average grade 30/30. *2017*
- **University of Glasgow** Scotland
  Bachelor of Science in Statistics magnum cum laude; double degree. *2017*
- **Sapienza University of Rome** Italy
  Master of Science in Data Science; average grade 30/30. *2019*
- **ISI Foundation** Turin, Italy
  Research intern as part of the Algorithmic Data Analytics group. *2018*
- **ISI Foundation** Turin, Italy
  Master's thesis student under the supervision of Prof. Francesco Bonchi. *2019*
- **Aalto University** Espoo, Finland
  Ph.D. student in Computer Science under the supervision of Prof. Aristides Gionis. *2019-2024*
- **Aalto University** Espoo, Finland
  Teaching assistant for the course "Methods of Data Mining". *2020-2022*
- **Aalto University** Espoo, Finland
  Postdoctoral researcher working with Prof. Heikki Mannila. *2024-present*

Selected publications

- M. Ciaperoni, E. Galimberti, F. Bonchi, C. Cattuto, F. Gullo and A. Barrat, "Relevance of temporal cores for epidemic spread in temporal networks," Scientific Reports, vol. 10, no. 1, pp.1–15, 2020.
- E. Galimberti, M. Ciaperoni, A. Barrat, F. Bonchi, C. Cattuto and F. Gullo, "Span-core decomposition for temporal networks: algorithms and applications," ACM Transactions on Knowledge Discovery from Data (TKDD), vol. 15, no. 1, pp.1–44, 2020.
- C. Aslay, M. Ciaperoni, A. Gionis and M. Mathioudakis, "Workload-aware materialization for efficient variable elimination on Bayesian networks," in Proceedings of the IEEE 37th International Conference on Data Engineering (ICDE), Chania, Greece, 2021, pp. 1152-1163.
- M. Ciaperoni, C. Aslay, A. Gionis and M. Mathioudakis, Ẅorkload-aware materialization of junction trees," in Proceedings of the 25th International Conference on Extending Database Technology (EDBT). Advances in Database Technology, vol. 25, Edinburgh, UK, 2022, pp. 65–77.
- M. Ciaperoni, A. Gionis, A. Katsamanis and P. Karras, S̈IEVE: A space-efficient algorithm for Viterbi decoding," in Proceedings of the 2022 International Conference on Management of Data (SIGMOD), Philadelphia, USA, 2022, pp. 1136-1145.
- M. Ciaperoni, H. Xiao and A. Gionis, "Concise and interpretable multi-label rule sets," in Proceedings of the 22nd IEEE International Conference on Data Mining (ICDM), Orlando, USA, 2022, pp. 71-80.
- M. Ciaperoni, A. Gionis, H. Mannila, "The Hadamard decomposition problem," under revision (Data Mining and Knowledge Discovery)

More Publications

Google scholar: http://tinyurl.com/ciaperonischolar.

Awards

- **University of Bologna and University of Glasgow** Italy and Scotland
  "Outstanding Student" scholarships and "Shell Prize" as best overall fourth year student in Statistics. *2014-2017*
- **Nokia** Finland
  Nokia scholariship *2022*