Christopher Morris

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Areas of Specialization

Machine Learning with Graphs (Graph Embeddings, Graph Kernels, Graph Neural Networks), Machine Learning for Combinatorial Optimization, Discrete Algorithms

Positions

03.2020– Postdoc at Polytechnique Montréal in the group of Andrea Lodi

2015–2019 *PhD Student/Research Associate*, TU Dortmund University, within the Collaborative Research Center SFB 876, graduated with highest distinctions (excellent)

1–3/2018 *Research stay at Stanford University*, staying with Jure Leskovec

Education

1997–2007 University Entrance Qualification, Erzbischöfliches St.-Angela-Gymnasium, Wipperfürth

2008–2012 B. Sc. in Computer Science, TU Dortmund University

2012–2015 M. Sc. in Computer Science, TU Dortmund University, Final Grade: 1.0 (best possible grade)

Publications

Conference Papers

2020 Matthias Fey, Jan E. Lenssen, Christopher Morris, Jonathan Masci, Nils M. Kriege,
Deep Graph Matching Consensus,
International Conference on Learning Representations (ICLR) 2020

Lutz Oettershagen, Nils Kriege, Christopher Morris, Petra Mutzel,
Temporal Graph Kernels for Classifying Dissemination Processes,

SIAM International Conference on Data Mining (SDM) 2020

2019 Christopher Morris, Martin Ritzert, Matthias Fey, William L. Hamilton, Jan Eric Lenssen, Gaurav Rattan, Martin Grohe,
Weisfeiler and Leman Go Neural: Higher-order Graph Neural Networks,
AAAI Conference on Artificial Intelligence (AAAI) 2019

2018 Rex Ying, Jiaxuan You, Christopher Morris, Xiang Ren, William L. Hamilton, Jure Leskovec,
Hierarchical Graph Representation Learning with Differentiable Pooling,
Neural Information Processing Systems (NeurIPS) 2018, spotlight presentation, and KDD Deep Learning Day 2018

Nils M. Kriege, Christopher Morris, Anja Rey, Christian Sohler,
A Property Testing Framework for the Theoretical Expressivity of Graph Kernels,
International Joint Conference on Artificial Intelligence (IJCAI) 2018

2017 Christopher Morris, Kristian Kersting, Petra Mutzel,
Glocalized Weisfeiler-Lehman Graph Kernels: Global-Local Feature Maps of Graphs,
IEEE International Conference on Data Mining (ICDM) 2017, *Full paper*

Christopher Morris, Nils M. Kriege,
Recent Advances in Kernel-Based Graph Classification,
European Conference on Machine Learning & Principles and Practice of Knowledge Discovery in Databases (ECML PKDD) 2017

2016 Christopher Morris, Nils M. Kriege, Kristian Kersting, Petra Mutzel,
Faster Kernels for Graphs with Continuous Attributes via Hashing,
IEEE International Conference on Data Mining (ICDM) 2016

Journal Articles

2019 Nils M. Kriege, Fredrik D. Johansson, Christopher Morris,
A Survey on Graph Kernels,
Accepted for publication in Applied Network Science
(`https://arxiv.org/abs/1903.11835`)

Nils M. Kriege, Marion Neumann, Christopher Morris, Kristian Kersting, Petra Mutzel,
A Unifying View of Explicit and Implicit Feature Maps for Structured Data: Systematic Studies of Graph Kernels,
Accepted for publication in Data Mining and Knowledge Discovery
(`https://arxiv.org/abs/1703.00676`)

2017

Fritz Bökler, Mathias Ehrgott, Christopher Morris, Petra Mutzel,
Output-sensitive Complexity of Multiobjective Combinatorial Optimization,
Journal of Multicriteria Decision Analysis, 2017

Preprints

2019 Christopher Morris, Petra Mutzel,
Towards a practical k-dimensional Weisfeiler-Leman algorithm,
(`https://arxiv.org/abs/1904.01543`)

Invited Talks

10.2019 Talk at IBM Research, Zürich, *Graph Classification: Kernel and Neural Approaches*
5.2019 Talk at NEC Research, Heidelberg, *Graph Classification: Kernel and Neural Approaches*
3.2018 Talk at Stanford, SNAP, *Learning Higher-order Graph Embeddings: Theory and Practice*
7.2017 Talk at RWTH Aachen, Chair of Logic and the Theory of Discrete Systems, *Graph Classification: Kernels and Beyond*

Teaching

Supervised eight bachelor and master thesis, one intern

SS 2019 Proseminar *Graph Algorithms*

WS 2017/18 Seminar *Algorithm Engineering*
SS 2017 Seminar *Algorithm Engineering*

WS 2016/17 Student project group *Algorithm Engineering for Graph Data Mining*
Seminar *Algorithms Unplugged*

SS 2016 Seminar *Algorithm Engineering*
Seminar *Graph Mining*

WS 2015/16 Seminar *Algorithm Engineering*
As a student Programming tutorials for engineering students,
Teaching assistant for a course on theoretical computer science

Service to the Profession

Reviewer for ISAAC 2018, ESA 2018, WALCOM 2017, IJCAI 2019, NeurIPS 2019, ALENEX 2019, AAAI 2020, ICML 2020, ICALP2020, IJCAI2020, NeurIPS 2020

Occasional reviews for ACM Transactions on Knowledge Discovery from Data, IEEE Transactions on Cybernetics, IEEE Transactions on Mobile Computing, IEEE Transactions on Pattern Analysis and Machine Intelligence

Program committee member for *Representation Learning on Graphs and Manifolds* (ICLR 2019 Workshop), *Learning and Reasoning with Graph-Structured Data* (ICML 2019 Workshop), *Graph Representation Learning* (NeurIPS 2019 Workshop), *Graph Representation Learning and Beyond* (ICML 2019 Workshop)

Initiator of `www.graphlearning.io`, a large collection of benchmark datasets for graph classification and regression

Member of the appeal commission for the professorship *Data Mining* (2017)

Computational Skills

Python, C++, LaTeX, Scikit-learn, NumPy, PyTorch, PyTorch Geometric

Referees

Prof. Petra Mutzel
Computational Analytics,
Department of Computer Science,
University of Bonn
petra.mutzel@cs.uni-bonn.de

Prof. Kristian Kersting
Machine Learning Group,
Department of Computer Science,
TU Darmstadt
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