

# Christopher Morris

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**Nationality:** German/British

## Areas of Specialization

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

## Current Position

- 2015–present** *PhD Student/Research Associate*, TU Dortmund University, within the Collaborative Research Center SFB 876 (Expected graduation: End of 2019)
- 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

- 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**

**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*,  
*In submission* (<https://arxiv.org/abs/1904.01543>)

Nils M. Kriege, Fredrik D. Johansson, Christopher Morris  
*A Survey on Graph Kernels*,  
*In submission* (<https://arxiv.org/abs/1903.11835>)

**2017**

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*,  
*In submission* (<https://arxiv.org/abs/1703.00676>)

### **Teaching**

Supervised eight bachelor and master thesis, one intern

<b>SS 2019</b>	Proseminar <i>Graph Algorithms</i>
<b>WS 2017/18</b>	Seminar <i>Algorithm Engineering</i>
<b>SS 2017</b>	Seminar <i>Algorithm Engineering</i>
<b>WS 2016/17</b>	Student project group <i>Algorithm Engineering for Graph Data Mining</i> Seminar <i>Algorithms Unplugged</i>
<b>SS 2016</b>	Seminar <i>Algorithm Engineering</i> Seminar <i>Graph Mining</i>
<b>WS 2015/16</b>	Seminar <i>Algorithm Engineering</i>
<b>As a student</b>	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, ACM TKDD

Program committee member for "Representation Learning on Graphs and Manifolds" (ICLR 2019 Workshop)

Program committee member for "Learning and Reasoning with Graph-Structured Data" (ICML 2019 Workshop)

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

## Computational Skills

Python, C++,  $\text{\LaTeX}$ , Scikit-learn, NumPy, PyTorch, PyTorch Geometric

## Referees

Prof. Petra Mutzel  
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Department of Computer Science,  
TU Dortmund University  
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Prof. Kristian Kersting  
Machine Learning Group,  
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