

Thomas Kipf

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Education

- **University of Amsterdam** Amsterdam, The Netherlands
PhD candidate since Apr 2016
Advisors: Max Welling (University of Amsterdam), Ivan Titov (University of Edinburgh)
- **University of Erlangen-Nuremberg** Erlangen, Germany
M.Sc. (honors) Physics Apr 2014 - Mar 2016
Graduated with distinction, GPA 3.97/4.0 (German grading system: 1.03)
- **University of Erlangen-Nuremberg** Erlangen, Germany
B.Sc. Physics Apr 2011 - Mar 2014
Graduated with distinction, GPA 3.93/4.0 (German grading system: 1.07)

Professional experience

- **Research Intern (DeepMind)** London, UK
Summer internship with Peter Battaglia and Pushmeet Kohli Jun 2018 - Oct 2018
Research on option discovery and unsupervised sequence segmentation in the context of imitation learning and hierarchical reinforcement learning.
- **Research Intern (Apple, Inc.)** Seattle, WA
Summer internship in Machine Learning team with Carlos Guestrin Jul 2017 - Sep 2017
Research on integrating relative positional information in self-attention mechanisms. Developed models based on self-attention for NLP applications in sequence tagging and classification.
- **Research Intern (Max Planck Institute for Brain Research)** Frankfurt, Germany
M.Sc. thesis in Connectomics Department with Moritz Helmstaedter Feb 2015 - Mar 2016
Developed a recurrent neural network-based model for edge classification in large graphs (using random walks) with applications in 3D electron microscopy image segmentation.

Publications

- A. Kipf, T. Kipf, B. Radke, V. Leis, P. Boncz, and A. Kemper, **Learned Cardinalities: Estimating Correlated Joins with Deep Learning**, CIDR (2019).
- T. Kipf, Y. Li, H. Dai, V. Zambaldi, E. Grefenstette, P. Kohli, and P. Battaglia, **Compositional Imitation Learning: Explaining and executing one task at a time**, NeurIPS Learning By Instruction Workshop (2018), *Contributed Talk*.

- C. Cangea*, P. Veličković*, N. Jovanović, T. Kipf, and P. Liò, **Towards Sparse Hierarchical Graph Classifiers**, NeurIPS Relational Representation Learning Workshop (2018). *equal contribution.
- T. Kipf*, E. Fetaya*, K. C. Wang, M. Welling, and R. Zemel, **Neural Relational Inference for Interacting Systems**, ICML (2018). *equal contribution.
- N. De Cao and T. Kipf, **MolGAN: An implicit generative model for small molecular graphs**, ICML Workshop on Theoretical Foundations and Applications of Deep Generative Models (2018).
- R. Selvan, T. Kipf, M. Welling, J. H. Pedersen, J. Petersen, and M. de Bruijne, **Extraction of Airways using Graph Neural Networks**, MIDL Short Paper Track (2018).
- T. R. Davidson*, L. Falorsi*, N. De Cao*, T. Kipf, and J. M. Tomczak, **Hyperspherical Variational Auto-Encoders**, UAI (2018), *Plenary Talk*. *equal contribution.
- R. van den Berg, T. N. Kipf, and M. Welling, **Graph Convolutional Matrix Completion**, KDD Deep Learning Day (2018), *Spotlight Talk*.
- M. Schlichtkrull*, T. N. Kipf*, P. Bloem, R. van den Berg, I. Titov, and M. Welling, **Modeling Relational Data with Graph Convolutional Networks**, ESWC (2018), *Best Student Research Paper*. *equal contribution.
- T. N. Kipf and M. Welling, **Semi-Supervised Classification with Graph Convolutional Networks**, ICLR (2017).
- T. N. Kipf and M. Welling, **Variational Graph Auto-Encoders**, NeurIPS Bayesian Deep Learning Workshop (2016).

Full list: <http://scholar.google.com/citations?user=83HL5FwAAAAJ>

Invited talks

- (*upcoming*) UCLA Institute for Pure and Applied Mathematics (Workshop speaker) . . . May, 2019
- Theoretical Foundations of Machine Learning Conference (TFML 2019) Feb 14, 2019
- Relational Representation Learning Workshop, Panel Discussion (NeurIPS 2018) . . . Dec 8, 2018
- Machine Learning for Drug Discovery Workshop (NeurIPS 2018 EXPO) Dec 2, 2018
- GTN Ltd. London June 22, 2018
- University of Cambridge (Engineering Dept.) June 21, 2018
- Babylon Health London June 20, 2018
- MINES ParisTech (Centre for Computational Biology) June 14, 2018
- University of Cambridge (Computer Science Dept.) May 25, 2018
- Search Engines Amsterdam (SEA) Meetup Feb 23, 2018
- University of Oxford (Statistics Dept.) Oct 31, 2017
- London Machine Learning Meetup Oct 30, 2017
- SAP Innovation Center Potsdam Oct 19, 2017
- Stanford University (Computer Science Dept.) Oct 3, 2017
- Amsterdam Deep Learning & AI Meetup by Scyfer (now Qualcomm) May 10, 2017
- Machine Learning Netherlands Meetup by IMC Amsterdam Apr 6, 2017

- INRIA Nancy, France Mar 22, 2017
- VU University Medical Center Amsterdam Mar 6, 2017
- INRIA Lille, France Dec 15, 2016

Awards and scholarships

- ICML 2018: Outstanding reviewer (top 100) 2018
- ESWC 2018: Best student research paper award 2018
- ICLR 2017 & ICML 2018 travel award 2017 / 2018
- CIFAR travel scholarship for Deep Learning Summer School 2016
- Full scholarship by the German National Academic Foundation (€25 500) 2013 - 2016
- Deutschlandstipendium (Germany Scholarship) (€7 200) 2011 - 2013

Student supervision

- **Nicola De Cao (Master thesis, jointly with Max Welling)** University of Amsterdam
Deep Generative Models for Graphs Graduation: Sep 6, 2018
- **Mart van Baalen (Master thesis, jointly with Max Welling)** University of Amsterdam
Deep Matrix Factorization for Recommendation Graduation: Oct 14, 2016

Miscellaneous

- **Teaching (TA):**
 - Machine Learning I, 2016 & 2018 (Master AI, University of Amsterdam)
 - Introduction to Machine Learning, 2017 (Bachelor AI, University of Amsterdam)
- **Reviewer activity:**
 - **Conferences:** ECCV 2016, ICLR 2018, ICML 2018, NeurIPS 2018, ICML 2019
 - **Journals:** IEEE Transactions on Neural Networks and Learning Systems (TNNLS), IEEE Transactions on Signal Processing (TSP), IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), Journal of Machine Learning Research (JMLR)
- **Summer school participation:**
 - Machine Learning Summer School 2017, Tübingen
 - Google Machine Learning Summit 2017, Zürich.
 - Deep Learning Summer School 2016, Montreal.
- **Workshop co-organization:**
 - Workshop on Learning and Reasoning with Graph-Structured Data (ICML 2019)
 - Workshop on Representation Learning on Graphs and Manifolds (ICLR 2019)
 - ELLIS@ICML Workshop (ICML 2018)
- **Blog posts:**
 - Building Models that Learn to Discover Structure and Relations (Jul 2018)
 - Graph Convolutional Networks (Sep 2016)
- **Open source contributions:** See <https://github.com/tkipf>.