

# 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

- T. Kipf, Y. Li, H. Dai, V. Zambaldi, A. Sanchez-Gonzalez, E. Grefenstette, P. Kohli, and P. Battaglia, **CompILE: Compositional Imitation Learning and Execution**, ICML (2019).
- A. Kipf, T. Kipf, B. Radke, V. Leis, P. Boncz, and A. Kemper, **Learned Cardinalities: Estimating Correlated Joins with Deep Learning**, CIDR (2019).
- 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

## Miscellaneous

- **Teaching (TA):**
  - Machine Learning I, 2016 & 2018 (Master AI, University of Amsterdam)
  - Introduction to Machine Learning, 2017 (Bachelor AI, University of Amsterdam)
- **Thesis supervision:**
  - Daniel Daza (M.Sc., ongoing)
  - Davide Belli (M.Sc., ongoing)
  - Nicola De Cao (M.Sc., 2018)
  - Mart van Baalen (M.Sc., 2016)
- **Reviewer activity:**
  - **Conferences:** ECCV 2016, ICLR 2018, ICML 2018, NeurIPS 2018, ICML 2019, ISWC 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)
- **Workshop co-organization:**
  - Workshop on Deep Learning on Graphs: Methods and Applications (KDD 2019)
  - 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>.