

Thomas Kipf

Research Scientist, Google Research, Amsterdam

web: tkipf.github.io

Professional Experience

- **Google Research** Amsterdam, The Netherlands
Research Scientist (Brain Team) since Jan 2020
- **DeepMind Technologies Ltd.** London, UK
Research Intern Jun 2018 - Oct 2018
- **Apple Inc.** Seattle, WA
Research Intern Jul 2017 - Sep 2017
- **Max Planck Institute for Brain Research** Frankfurt, Germany
Research Intern Feb 2015 - Mar 2016

Education

- **University of Amsterdam** Amsterdam, The Netherlands
PhD (with distinction “cum laude”) Computer Science Apr 2016 - Apr 2020
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)

Selected Publications

- F. Locatello*, D. Weissenborn, T. Unterthiner, A. Mahendran, G. Heigold, J. Uszkoreit, A. Dosovitskiy, T. Kipf*, **Object-centric Learning with Slot Attention**, NeurIPS (2020), *Spotlight*.
*equal contribution.
- T. N. Kipf, **Deep Learning with Graph-Structured Representations**, PhD Thesis (2020).
- E. van der Pol, T. Kipf, F. A. Oliehoek, and M. Welling, **Plannable Approximations to MDP Homomorphisms: Equivariance under Actions**, AAMAS (2020).
- T. Kipf, E. van der Pol, and M. Welling, **Contrastive Learning of Structured World Models**, ICLR (2020), *Oral*.
- 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), *Long Oral*.
- 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>

Awards and Scholarships

- Highest PhD thesis distinction “cum laude” at University of Amsterdam 2020
- Best student research paper award (ESWC 2018) 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 (Studienstiftung) . . . 2013 - 2016

Invited Talks

- Stanford University (SNAP) Aug 4, 2020
- ICML 2020 Graph Representation Learning (GRL+) Workshop Jul 17, 2020
- ICML 2020 Object-oriented Learning (OOL) Workshop Jul 17, 2020
- Stanford University (SNAP) Aug 4, 2020
- Small Organic Molecules Workshop, University of Oxford Mar 24, 2020
- UCLA IPAM Deep Geometric Learning of Big Data Workshop May 22, 2019
- New York University (NYU), Center for Data Science May 3, 2019
- Facebook AI Research (FAIR), New York May 2, 2019

- Gotham City Physics X Machine Learning Workshop, New York Apr 30, 2019
- Delft University of Technology (TU Delft) Apr 24, 2019
- Huawei Robust Reinforcement Learning Workshop, London Apr 2, 2019
- Google AI, Zurich Mar 28, 2019
- Qualcomm AI Research, Amsterdam Mar 19, 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
- 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
- University of Oxford (Statistics Dept.) Oct 31, 2017
- London Machine Learning Meetup Oct 30, 2017
- Stanford University (Computer Science Dept.) Oct 3, 2017
- INRIA Nancy, France Mar 22, 2017
- INRIA Lille, France Dec 15, 2016

Miscellaneous

- **Teaching (TA):**
 - Machine Learning I, 2016 & 2018 (Master AI, University of Amsterdam)
 - Introduction to Machine Learning, 2017 (Bachelor AI, University of Amsterdam)
- **Student supervision:**
 - **M.Sc. thesis supervision:** Daniel Daza (2019, UvA), Davide Belli (2019, UvA), Nicola De Cao (2018, UvA), Mart van Baalen (2016, UvA)
 - **PhD interns:** Francesco Locatello (2020, Google), Sindy Löwe (2020, Google)
- **Community service:**
 - **Reviewer:** ECCV 2016, ICLR 2018, ICML 2018, NeurIPS 2018, ICML 2019, ISWC 2019, NeurIPS 2019, ICLR 2020, ICML 2020, NeurIPS 2020, JMLR
 - **Area Chair:** ICLR 2021
- **Workshop co-organization:**
 - ELLIS Workshop on Geometric and Relational Deep Learning (Amsterdam 2020)
 - Workshop on Graph Representation Learning (NeurIPS 2019)
 - 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>.