Thomas Kipf

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Education

- **University of Amsterdam** — Amsterdam, The Netherlands
  PhD candidate (current) — *since Apr 2016*

  - PhD candidate at the Amsterdam Machine Learning Lab (AMLab)
  - Advisors: Max Welling (University of Amsterdam), Ivan Titov (University of Edinburgh)
  - Research on end-to-end learning for graph-structured data

- **University of Erlangen-Nuremberg** — Erlangen, Germany
  M.Sc. (honors) Physics — *Apr 2014 - Mar 2016*

  - Graduated with distinction, GPA 3.97/4.0[1] (German grading system: 1.03)
  - Honors graduate program 'Physics Advanced', supported by the Elite Network of Bavaria

- **University of Erlangen-Nuremberg** — Erlangen, Germany
  B.Sc. Physics — *Apr 2011 - Mar 2014*

  - Graduated with distinction, GPA 3.93/4.0[1] (German grading system: 1.07)

Professional experience

- **Research Intern (Apple, Inc.)** — Seattle, WA
  Summer internship in Machine Learning team under Carlos Guestrin — *Jul 2017 - Sep 2017*
  - Research on self-attention networks for sequence tagging and classification
  - Observed speed-ups of up to 5x compared to state-of-the-art LSTM-based models

- **Research Intern (Max Planck Institute for Brain Research)** — Frankfurt, Germany
  M.Sc. thesis in Connectomics Department (Dr. Moritz Helmstaedter) — *Feb 2015 - Mar 2016*
  - Research on recurrent neural networks for edge classification in large graphs

Publications and preprints

- R. van den Berg, T. N. Kipf, and M. Welling, Graph Convolutional Matrix Completion, *under review.*

- M. Schlichtkrull*, T. N. Kipf*, P. Bloem, R. van den Berg, I. Titov, and M. Welling, Modeling Relational Data with Graph Convolutional Networks, *under review.* *equal contribution.

- T. N. Kipf and M. Welling, Semi-Supervised Classification with Graph Convolutional Networks, ICLR (2017).

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[1]Converted from German GPA using the *modified Bavarian formula*:
http://www.tum.de/en/studies/application-and-acceptance/grade-conversion-formula-for-grades-earned-outside-germany/

- T. N. Kipf and M. Welling, Variational Graph Auto-Encoders, Bayesian Deep Learning Workshop at NIPS (2016).

- T. Kipf and G. S. Agarwal, Superradiance and Collective Gain in Multimode Optomechanics, Physical Review A 90, 053808 (2014).

Invited talks

- **Deep Learning on Graphs with Graph Convolutional Networks**
  - University of Oxford . . . . Oct 31, 2017
  - London Machine Learning Meetup . . . . Oct 30, 2017
  - SAP Innovation Center Potsdam . . . . Oct 19, 2017
  - Stanford University . . . . Oct 3, 2017
  - Amsterdam Deep Learning & AI Meetup by Scyfer . . . . May 10, 2017
  - Machine Learning Netherlands Meetup by IMC Amsterdam . . . . Apr 6, 2017
  - INRIA Nancy . . . . Mar 22 & 23, 2017
  - VU University Medical Center Amsterdam . . . . Mar 6, 2017
  - INRIA Lille . . . . Dec 15, 2016

- **Unsupervised Learning with Latent Variable Models**
  Guest lecture, Machine Learning I, University of Amsterdam   Oct 10, 2016

Workshops and summer schools

- **Machine Learning Summer School 2017**   Tübingen, Germany
  Summer school participation; poster presentation   *June 19-30, 2017*
- **Google Machine Learning Summit 2017**   Zürich, Switzerland
  Selected for participation (86 PhD students/post-docs); poster presentation *June 12-14, 2017*
- **Deep Learning Summer School 2016**   Montreal, Canada
  Summer school participation; selected for poster presentation   *Aug 1-7, 2016*
- **65th Lindau Nobel Laureate Meeting (Interdisciplinary)**   Lindau, Germany
  Participation as a Young Scientist   *Jun 28-Jul 3, 2015*
- **Modern Issues in Foundations of Physics**   London, UK
  Workshop at Imperial College London   *Sep 26-28, 2014*

Student supervision

- **Nicola De Cao (Master thesis, jointly with Max Welling)**   University of Amsterdam
  Deep Generative Models for Graph-Structured Data (working title)   *ongoing*
- **Mart van Baalen (Master thesis, jointly with Max Welling)**   University of Amsterdam
  Deep Matrix Factorization for Recommendation   *Graduation: Oct 14, 2016*

Awards, grants and honours

ICLR 2017 travel award 2017
CIFAR travel scholarship for Deep Learning Summer School 2016
Elite Network of Bavaria sponsorship for 65th Lindau Nobel Laureate Meeting (€5 000) . . . 2015
Full scholarship by the German National Academic Foundation (€25 500) . . . . 2013 - 2016
Deutschlandstipendium (Germany Scholarship) (€7 200) . . . . 2011 - 2013
Deutscher Gründerpreis (German Business Founder Award for Students) 2008

Selected course work (2011 - 2014)

- **Mathematics:**
    - Analysis and Linear Algebra
    - Calculus for Physicists I - III

- **Physics:**
    - Experimental Physics I - VI
    - Theoretical Physics I - V

- **Computer Science and others:**
    - Complex Systems I - III
    - Computational Physics I - II
    - Bioinformatics
    - Machine Learning (Coursera, with certificate)

Miscellaneous

- **Teaching assistantships:** Introduction to Machine Learning, 2017 (University of Amsterdam);
  Machine Learning I, 2016 (University of Amsterdam)

- **Programming skills:** Python, MATLAB, C++ (some experience)

- **Frameworks:** TensorFlow, PyTorch, Theano, keras (with contributions)

- **Reviewer activity:** IEEE Transactions on Neural Networks and Learning Systems, 2017;
  14th European Conference on Computer Vision (ECCV), 2016

- **Research interests:** (Bayesian) deep learning, semi-supervised learning,
  large-scale inference, end-to-end reasoning, and multi-agent communication