Thomas Kipf **September 20, 2016**
PhD candidate, University of Amsterdam
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Education

- **University of Amsterdam** Amsterdam, The Netherlands
  PhD candidate (current) *since Apr 2016*
  - PhD candidate in Deep Learning for Network Analysis at the Amsterdam Machine Learning Lab (AMLab), supervised by Prof. Max Welling

- **University of Erlangen-Nuremberg** Erlangen, Germany
  M.Sc. (hon.) Physics *Apr 2014 - Mar 2016*
  - Graduated with distinction, GPA 3.97/4.0[1] (German grading system: 1.03)
  - Elite graduate program 'Physics Advanced', supported by the Elite Network of Bavaria
  - Thesis on 'Recurrent Neural Networks for Graph-Based 3D Agglomeration' at the Department of Connectomics (Max Planck Insitute for Brain Research, Frankfurt)

- **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)
  - Thesis on 'Quantum State Reconstruction'
  - Guest semester at University of Regensburg in spring/summer 2013
  - Minors in Computational Physics and Complex Systems

Research Experience

- **Max Planck Institute for Brain Research** Frankfurt, Germany
  M.Sc. thesis in Connectomics Department (Dr. Moritz Helmstaedter) *Feb 2015 - Mar 2016*
  - RNNs for Graph-Based 3D Agglomeration (of oversegmented 3D-EM image data)

- **Visiting Researcher (Oklahoma State University)** Stillwater, OK
  Researcher in Theoretical Quantum Optics Group (Prof. Girish S. Agarwal) *Spring 2014*
  - Developed an analytical model for collective effects in optically driven nano-oscillators

- **Zentrum für Medizinische Physik und Technik (ZMPT)** Erlangen, Germany
  Research project in Biophysics Group (Dr. Claus Metzner) *Spring 2013*
  - Developed a physical model and wrote a numerical simulation in C++ to study the shear-response of collagen fibers

- **Erlangen Centre for Astroparticle Physics (ECAP)** Erlangen, Germany
  Research project in Medical Physics group (Prof. Gisela Anton) *Summer 2012*
  - Experimental study of energy dependence in X-ray phase-contrast imaging

[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/

Publications

- T. N. Kipf and M. Welling, *Semi-Supervised Classification with Graph Convolutional Networks*, arXiv:1609.02907 (Sep 2016).
- T. Kipf and G. S. Agarwal, *Superradiance and collective gain in multimode optomechanics*, Physical Review A 90, 053808 (Nov 2014).

Presentations

- **Semi-Supervised Classification with Graph Convolutional Networks** — Montreal, Canada
  Poster presentation at Deep Learning Summer School 2016 — *Aug, 2016*

Participation in Workshops and Conferences

- **Deep Learning Summer School 2016** — Montreal, Canada
  Summer school participation; selected for poster presentation — *Aug 1-7, 2016*
- **Neuroscience 2015** — Chicago, IL
  Yearly neuroscience conference — *Oct 17-21, 2015*
- **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*

Awards, Grants & Honours

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
Member of the Elitenetzwerk Bayern (Elite Network of Bavaria) . . . . . 2012 - 2016
Deutschlandstipendium (Germany Scholarship) (7 200€) . . . . . 2011 - 2013

Miscellaneous

- **Teaching:** Machine Learning I, 2016 (University of Amsterdam)
- **Frameworks:** Theano, TensorFlow, keras (with contributions), Torch (some experience)
- **Research interests:** Bayesian approaches for deep learning, neural networks, network analysis, (large-scale) inference, self-organization, and learning in biological systems