

Thomas Kipf

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 3.97/4.0¹ (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 Institute for Brain Research, Frankfurt)
- **University of Erlangen-Nuremberg** Erlangen, Germany
B.Sc. Physics Apr 2011 - Mar 2014
 - Graduated with distinction, GPA 3.93/4.0¹ (German grading system: 1.07)
 - Thesis on ‘Quantum State Reconstruction’
 - Guest term at University of Regensburg in spring/summer 2013
 - Minors in Computational Physics and Complex Systems

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).

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

¹Converted 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/>

Presentations

- **Unsupervised Learning with Latent Variable Models** Amsterdam, The Netherlands
Guest lecture, Machine Learning I, University of Amsterdam Oct 10, 2016
- **Semi-Supervised Classification with Graph Convolutional Networks** Montreal, Canada
Poster presentation at Deep Learning Summer School 2016 Aug 6, 2016

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

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

Miscellaneous

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