



# Alexander van Meegen

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## Personal Details

Citizenship	German	Address	Hellenthaler Str. 22, 50937 Köln
Date of birth	23 April 1991	Phone	+49(0) 1573 8980198
Place of birth	Geldern, Germany	Email	a.van.meegen@fz-juelich.de

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## Education

Since 03/2018	<b>PhD in Computational Neuroscience</b> , <i>Forschungszentrum Jülich</i> , Germany. Thesis: “Simulation and theory of large-scale cortical networks”. Supervisors: Prof. Dr. Moritz Helias, Prof. Dr. Sacha J. van Albada. Topics: Large-scale neural network modeling and simulation, spiking neural networks, mean-field theory, predictive connectomics, timescales, learning-to-learn, path integrals.
04/2015–09/2017	<b>MSc in Physics</b> , <i>Humboldt Universität</i> , Berlin, Germany. Thesis: “Coloured Noise Problems in Neuroscience”. Supervisor: Prof. Dr. Benjamin Lindner.
09/2015–01/2016	<b>Erasmus exchange semester</b> , <i>Université Paul Sabatier</i> , Toulouse, France.
09/2011–03/2015	<b>BSc in Physics</b> , <i>Ruprecht–Karls–Universität</i> , Heidelberg, Germany. Thesis: “Structure Formation of Swimming Bacteria”. Supervisor: Prof. Dr. Ulrich Schwarz.
08/2001–07/2010	<b>Abitur</b> , <i>Lise–Meitner–Gymnasium</i> , Geldern, Germany.
09/2008–02/2009	<b>Schülerstudium Physik</b> , <i>Universität Duisburg–Essen</i> , Germany.

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## Awards

2010	Weltwärts scholarship by the German Federal Ministry for Economic Cooperation and Development
2010	Book price of the German Physical Society.

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## Work Experience

Since 09/2017	<b>Research assistant</b> , <i>Forschungszentrum Jülich</i> , Germany.
04/2016–08/2017	<b>Working student</b> , <i>VDI/VDE Innovation + Technik GmbH</i> , Berlin, Germany. Implementing a text mining framework (based on cosine similarity and tf-idf) to monitor and analyse research and development databases as well as relevant newsfeeds.
10/2014–05/2015	<b>Working student</b> , <i>EWC Weather Consult GmbH</i> , Karlsruhe, Germany. Developing, implementing and evaluating a statistical method to improve energy-forecasts in solar parks.

- 09/2012–02/2015 **Tutor**, *Lernzentrum CAPiTO*, Heidelberg, Germany.  
Tutoring high school students including preparations for the Abitur.
- 08/2013–10/2013 **Intern**, *EWC Weather Consult GmbH*, Karlsruhe, Germany.  
Developing, implementing and evaluating a wake model to improve energy-forecasts in large wind farms.
- 03/2008–04/2008 **Intern**, *Data Village GmbH*, Geldern, Germany.  
Implementing and evaluating a duplicate searching algorithm based on Levenshtein distance.
- 06/2007–07/2007 **Intern**, *Ag-Chem Europe BV*, Grubbenvorst, Netherlands.  
Creating CAD drawings of sign plates.

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## Current Preprints

- 2019 **A. van Meegen** and S. J. van Albada: *A Microscopic Theory of Intrinsic Timescales in Spiking Neural Networks*, arXiv:1909.01908.

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## Peer-reviewed Publications

- 2018 **A. van Meegen** and B. Lindner: *Self-Consistent Correlations of Randomly Coupled Rotators in the Asynchronous State*, Phys. Rev. Lett. 121, 258302.

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## Talks at Conferences

- 07/2019 **A. van Meegen** and B. Lindner: *Self-Consistent Correlations of Randomly Coupled Rotators in the Asynchronous State*, plenary talk, CNS 2019, Barcelona, Spain.
- 04/2019 **A. van Meegen**, T. Kühn, and M. Helias: *A bridge from large deviation theory to statistical field theory*, invited talk, EITN Mean-Field Workshop, Paris, France.
- 07/2018 **A. van Meegen** and S. J. van Albada: *Intrinsic Timescales in Spiking Neural Networks – A Theoretical Approach*, plenary talk, INM/ICS Retreat 2018, Jülich, Germany.
- 03/2018 **A. van Meegen** and B. Lindner: *Self-consistent correlations of randomly coupled rotators in the asynchronous state*, DPG Spring Meeting, Berlin, Germany.

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## Poster Presentations at Conferences

- 02/2020 **A. van Meegen**, T. Kühn, and M. Helias: *Inferring random network parameters from continuous-time trajectories*, COSYNE 2020, Denver, United States.
- 02/2020 **A. van Meegen**, S. J. van Albada, and M. Helias: *On the path integral approach to random neural networks*, Heraeus Seminar: Quantum Thermodynamics for Young Scientists, Bad Honnef, Germany.
- 09/2019 **A. van Meegen**, T. Kühn, and M. Helias: *A bridge from large deviation theory to statistical field theory*, Bernstein Conference 2019, Berlin, Germany.
- 07/2019 **A. van Meegen** and S. J. van Albada: *A Theoretical Approach to Intrinsic Timescales in Spiking Neural Networks*, CNS 2019, Barcelona, Spain.
- 07/2019 **A. van Meegen** and S. J. van Albada: *Theory of neuronal timescales in balanced random networks*, 4th workshop on Advanced Methods in Theoretical Neuroscience, Göttingen, Germany.
- 06/2019 **A. van Meegen** and S. J. van Albada: *Analysis of Intrinsic Timescales in Spiking Neural Networks*, INM/ICS Retreat 2019, Jülich, Germany.

06/2018 **A. van Meegen**, M. Schmidt, J. Schücker, M. Diesmann, and S. J. van Albada:  
*Publishing a complex model code*, NEST Conference 2018, Ås, Norway.

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## Organization of Conferences & Workshops

01/2020 **Scientific committee**, *4th HBP Student Conference*, Pisa, Italy.  
Organizing scientific program and hands-on workshop day.

05/2019 **Organizing committee**, *INM-6 Retreat 2019*, Heijen, Netherlands.  
Organizing scientific and social program for the annual retreat of the institute.

02/2019 **Scientific committee**, *3rd HBP Student Conference*, Ghent, Belgium.  
Organizing scientific program and hands-on workshop day.

Since 01/2019 **Organizer**, *Python Module of the Week*, Jülich, Germany.  
Organizing a bi-weekly workshop on Python related topics.

05/2018 **Organizing committee**, *INM-6 Retreat 2018*, Heijen, Netherlands.  
Organizing scientific and social program for the annual retreat of the institute.

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## Teaching

01/2020 **Lectures on Network Models**, part of the ‘Introduction to Computational Neuroscience’ lecture series, *RWTH Aachen*, Germany.

07/2019 **Introduction to the simulation of structurally detailed large-scale neuronal networks (using NEST)**, *CNS 2019*, Barcelona, Spain.

04/2019 **NEST simulator tutorial**, *EITN Spring School*, Paris, France.

02/2019 **NEST simulator tutorial**, *3rd HBP Student Conference*, Ghent, Belgium.

03/2018 **NEST simulator tutorial, NEST & TVB group project** ‘From local circuits to whole-brain models’, *EITN Spring School*, Paris, France.

Winter term 2016 **Teaching assistant: Statistical Physics**, *Humboldt Universität*, Berlin, Germany.

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## (Co-)Supervision of Students

Current Hannah Vollenbröcker (MSc).  
Past Georg Chechelnizki (MSc).

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## Reviewing Activity

Ad hoc reviewer for Physical Review E and Physical Review Letters.

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## Relevant Courses

09/2018 **Advanced Scientific Programming in Python**, *G-Node & University of Camerino*, Camerino, Italy.

08/2018 **Cajal Course in Computational Neuroscience**, *Champalimaud Centre*, Lisbon, Portugal.

06/2018 **SPP2041 Analytical Workshop**, *FIAS*, Frankfurt am Main, Germany.

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## Memberships

Current Organization for Computational Neurosciences, Bernstein Network Computational Neuroscience, German Physical Society, NEST Initiative

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## Computer Skills

Python (data-processing & -analysis, scientific computing), C++ (scientific computing), NEST (neural network simulator), TensorFlow (machine learning library), RapidMiner (machine learning & data mining platform), Tableau (data visualisation), MySQL (databases).

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## Languages

German	Native speaker	
English	Business proficient	<i>Daily use, both written and spoken.</i>
French	Fluent	<i>Stay in France for 1 semester.</i>
Kiswahili	Intermediate	<i>Stay in Kenya for 1 year.</i>
Dutch	Basic	<i>Dutch family (stepfather).</i>

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## Voluntary Engagement

Since 02/2019	<b>PhD representative INM-6</b> , <i>Forschungszentrum Jülich</i> , Germany. Representing PhD student interests at institute meetings, keeping in touch with research centre committees, mediating in case of conflicts.
09/2014–03/2015	<b>Chair of regional group Baden-Württemberg</b> , <i>ICJA Freiwilligenaustausch weltweit e.V.</i> , Berlin, Germany. Helping with the first steps in Germany, organising monthly follow-up meetings, and mediating in case of conflicts.
08/2012–03/2015	<b>Mentor</b> , <i>ICJA Freiwilligenaustausch weltweit e.V.</i> , Berlin, Germany. Mentoring international volunteers in Germany.
12/2014	<b>Instructor</b> , <i>ICJA Freiwilligenaustausch weltweit e.V.</i> , Berlin, Germany. Co-organising and co-conducting a final seminar for international volunteers in Germany.
05/2013–12/2013	<b>Voluntary staff</b> , <i>Heidelberg Institute for International Conflict Research e.V.</i> , Heidelberg, Germany. Researching the state of violent conflicts in Eritrea for the annual ‘Konfliktbarometer’.
08/2010–08/2011	<b>Voluntary service</b> , <i>CoWaRT and Kiptere.CH</i> , Kiptere, Kenya. CoWaRT: HIV education in the Kiptere area. Kiptere.CH: improvement of the socio-economic situation of young adults and farmers in the Kiptere area.
2008–2010	<b>Football coach and basketball referee</b> , <i>SV GW Venum e.V.</i> , Germany.