# Robin Gutzen

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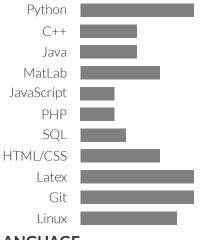


# RESEARCH INTERESTS

Neural Network Dynamics Simulation & Validation Statistical Testing Data Visualization Neuromorphic Computing Data Mangement

# SKILLS

#### PROGRAMMING/PLATFORMS



### **LANGUAGE**



# NON-RESEARCH

# INTERESTS

Climbing Cooking Woodworking

## **EDUCATION**

#### RESEARCH CENTER JÜLICH

PhD. AT INSTITUTE FOR COMPUTATIONAL AND SYSTEMS NEUROSCIENCE Jul 2018 - today

#### **RWTH AACHEN UNIVERSITY**

MASTER PHYSICS

Oct 2015 - Mar 2018

Major in Nanoelectronics, Minor in Biophysics

Thesis on validation of neural network simulations (@ Research Center Jülich) Final grade 1.2

#### UNIVERSITÉ MONTPELLIER II

**ERASMUS EXCHANGE** 

Sep 2013 - Jun 2014 | Montpellier, France

#### **RWTH AACHEN UNIVERSITY**

**BACHELOR PHYSICS** 

Oct 2011 - Sep 2015

Thesis on detection and analysis of dissolved fluorescent molecules

#### MATARÉ GYMNASIUM.EUROPASCHULE

HIGHSCHOOL

Sep 2002 - Jul 2011

# **WORK EXPERIENCE**

#### **RWTH INSTITUTE 1A** | RESEARCH ASSISTANT

Mar 2014 – Aug 2014

Literature research about novel materials for neuromorphic computing

# **EXTRACURRICULAR ACTIVITY**

#### TEDXRWTHAACHEN CONFERENCE

ORGANISATOR AND CHAIR OF TEDXRWTHAACHEN E.V. 2016, 2017

#### **BEBUDDY-PROGRAMM**

SUPPORTING NEWLY ARRIVED FOREIGN STUDENTS 2015-16

# WORK-RELATED ACTIVITY

SERVING ON THE SCIENTIFIC AND TECHNICAL COUNCIL since Jan 2020

#### **CONTENT CURATION**

Jan 2019 - Jan 2020

Managing IT infrastructure; Support in implementing reproducible research

#### SERVING ON ADMISSION COMMITTEES

2018, 2019

#### SUPERVISING AN INTERNSHIP

Jun 2017 – Jul 2017

## ACADEMIC WORK

#### **PUBLICATIONS**

- 2018 **R. Gutzen**, M. von Papen, G. Trensch, P. Quaglio, S. Grün, M. Denker "Reproducible neural network simulations: statistical methods for model validation on the level of network activity data" Frontiers in Neuroinformatics 12:90, doi:10.3389/fninf.2018.00090
- 2018 G. Trensch, **R. Gutzen**, I. Blundell, M. Denker, A. Morrison "Rigorous neural network simulations: a model substantiation methodology for increasing the correctness of simulation results in the absence of experimental validation data" Frontiers in Neuroinfromatics 12:81, doi:10.3389/fninf.2018.00081

#### POSTER PRESENTATIONS (SELECTION)

2020 Bernstein Conference, online

R. Gutzen, G. De Bonis, E. Pastorelli, C. Capone, C. De Luca, G. Mattheisen, A.L. Allegra Mascaro, F. Resta, F.S. Pavone, M.V. Sanchez-Vives, M. Mattia, S. Grün, A. Davison, P.S. Paolucci, M. Denker "Building adaptable and reusable pipelines for investigating the features of slow cortical rhythms across scales, methods, and species"

2020 Human Brain Project Summit, Athens

D. Ulianych, **R. Gutzen**, J. Sprenger, E. Pastorelli, G. De Bonis, P.S. Paolucci, A. Davison, S. Grün, M. Denker "Designing reproducible analysis workflows for experimental and simulated activity using Elephant"

2019 INM ICS Retreat, Jülich

**R. Gutzen**, S. Grün, M. Denker "A statistical test of eigenvector angles to evaluate the similarity of neural network simulations"

2019 Meeting of the German Neuroscience Society, Göttingen

**R. Gutzen**, M. von Papen, G. Trensch, P. Quaglio, S. Grün, M. Denker "Reproducible neural network simulations: model validation on the level of network activity data"

2018 Bernstein Conference, Berlin

**R. Gutzen**, M. von Papen, G. Trensch, P. Quaglio, S. Grün, M. Denker "Reproducible neural network simulations: model validation on the level of network activity data"

2018 Human Brain Project Summit, Maastricht

A. Yegenoglu, **R. Gutzen**, M. Denker, S. Grün "Utilizing the Elephant and NetworkUnit frameworks within the Collaboratory for an HPC enabled workflow"

2017 Data Science Summer School, Paris

R. Gutzen, S. Grün, M. Denker "Validation Methods for Neural Network Simulations"

#### **TALKS**

2020 Human Brain Project Summit, Athens

"Developing pipelines for multi-scale/species/method analysis"

2019 Human Brain Project SP3 meeting, Liége

"Building a workflow for the analysis of slow wave activity across heterogeneous measurement"

2019 INCF Neuroinformatics Conference, Warsaw

"Evaluating neural network models within a formal validation framework"

2019 Brain Twitter Conference

"How much do you trust a model? - Rigor in neuroscientific modeling and simulation through validation"

2019 Human Brain Project SP4 meeting, Paris

"Comparing activity dynamics of models and living brains"

#### **LAB VISITS**

2019 APE lab, Istituto Nazionale di Fisica Nucleare, Rome

3 weeks, working on a collaborative project to integrate heterogeneous measurements within a reproducible workflow

#### **WORKSHOPS & SCHOOLS**

2019 2nd Data Analysis Methods (DAME) Workshop, Hamburg

2018 Data Analysis Methods (DAME) Workshop, Karlsruhe

2017 Data Science Summer School, Paris

2017 HBP BSP Hackathon, Geneva

2017 G-Node Advance Neural Data Analysis Course, Barmen

#### **TUTORING**

2019 3rd G-Node Advance Neural Data Analysis Course, Barmen

2018-19 RWTH lecture 'Introduction to Computational Neuroscience', Aachen

#### **AWARDS & GRANTS**

2019 INCF Neuroinformatics poster price (sponsored by De Gruyter, 1500€)

2020 2nd place in the John Hunter Excellence in Plotting Contest (750\$)

#### **COMMUNITY SERVICE**

- Contributing to open source software: NetworkUnit, Elephant, SciUnit, Neo
- Peer review for Frontiers of Neuroinformatics (2018, 2019), and ReScience (2019)