Robin Gutzen

robin.gutzen@live.de

@rgutzen
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robin-gutzen

RESEARCH INTERESTS

Neural Network Dynamics
Simulation & Validation
Statistical Testing
Signal Processing
Data Visualization
Data Management

SKILLS

PROGRAMMING/PLATFORMS

Python
C++
Java
MatLab
JavaScript
PHP
SQL
HTML/CSS
Latex
Git
Linux

LANGUAGE

German
English
French

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

WORK-RELATED ACTIVITY

Serving on the scientific and technical council
since Jan 2020

Content Curation
Jan 2019 – Feb 2021
Managing IT infrastructure; Support in implementing reproducible research

Serving on admission committees
2018, 2019

Supervising an Internship
Jun 2017 – Jul 2017

EXTRACURRICULAR ACTIVITY

TEDXRWTHAACHEN CONFERENCE
Organisator and Chair of TEDxRWTHAachen e.V.
2016, 2017

BEBUDDY-PROGRAMM
Supporting newly arrived foreign students
2015-16

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 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"

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

2020 Young Entrepreneurs in Science: From PhD to Innovator, *online*
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*

SERVICE

- Contributing to open source software: NetworkUnit, Elephant, SciUnit, Neo
- Peer review for Frontiers of Neuroinformatics (2018, 2019), and ReScience (2019, 2021)

2021 Tutoring the EBRAINS Infrastructure Training on Model Validation, *online*
2021 Tutoring the 4th G-Node Advance Neural Data Analysis Course, *online*
2021 Presenting a workshop at the Human Brain Project Student Conference, *online*
2020 Tutoring the 2nd Elephant User Workshop, *online*
2019 Tutoring the 3rd G-Node Advance Neural Data Analysis Course, *Barmen*
2018-21 Tutoring the 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$)