Academic Curriculum Vitae
Dirk Gütlin

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Germany
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for more information and work examples, visit my blog:
https://digyt.github.io

Studies

University of Osnabrück
OCT 2019 - JUN 2022

Cognitive Science (Master of Science) - with honors (summa cum laude)
Thesis title: 'Brain Reading using Transformers'
Supervisors: Prof. Peter König, Prof. Tim Kietzmann

University of Salzburg
OCT 2016 - JUN 2019

Psychology (Bachelor of Science)
Thesis title: 'The Salzburg Visual Field Trainer: A Virtual Reality Application for Visual Restoration Therapy'
Supervisors: Stefan Hawelka, Michael Leitner

University of Koblenz-Landau
OCT 2015 - JUN 2016

Mathematics, Psychology (Bachelor of Science)

Research Experience

University of Osnabrück, Institute of Cognitive Science
MAR 2022 - CURRENT

Research Assistant, Machine Learning Group:
Neural Decoding using Transformer Neural Networks; Streamlining Dataset accessibility for Machine Learning use.
Supervisors: Prof. Tim Kietzmann.

University of Osnabrück, Institute of Cognitive Science
MAR 2020 - MAR 2022

Research Assistant, Neurobiopsychology:
Feature classification for eye tracking data; Concussion prediction based on eye tracking; Representational Similarity Analysis with EEG data; Investigation of automated noise removal algorithms for EEG data.
Supervisors: Artur Czeszumski, Prof. Peter König.

Interests

Cognitive Neuroscience
Machine & Deep Learning
Time Series & Statistics
Complex Systems
Data Analysis

Programming Languages

Python
MATLAB
R
C#
JS/HTML/CSS

University of Osnabrück, Institute of Cognitive Science
MAR 2020 - SEPT 2021

Research Assistant, Cognitive Modelling Group:
Interactive online experiments for investigating language pragmatics;
Teaching Assistant: 'Experimental Psychology Lab' - teaching experimental design, implementation, and statistical evaluation.
Supervisor: Prof. Michael Franke.

Google Summer of Code Project with Stipend for Python Software Foundation/ MNE-Python
MAY 2019 - AUG 2019

Google Summer of Code Participation, submitting the project:
'MNE-Python: Improve Time Frequency Analysis in Source Space' for M/EEG data analysis software MNE-Python.
Supervisors: Alexandre Gramfort, Joan Massich.

Centre for Cognitive Neuroscience Salzburg
SEPT 2018 - AUG 2019

Research Assistant, Neurocognition Lab:
Development of research applications, Eye-Tracking measurements.
Supervisors: Michael Leitner, Prof. Florian Hutzler.

University of Salzburg, Department of Psychology
MAR 2018 – AUG 2018

Tutor: 'MATLAB - Advanced Applications':
Neurophysiological data processing with FieldTrip, experimental Designs with Psychtoolbox.
Supervisor: Gianpaolo Demarchi.

Christian-Doppler-Klinik Salzburg
DEC 2017 – SEPT 2018

Intern, Department of Neurology:
Epilepsy monitoring, EEG measurement, automated epileptic spike detection.
Supervisors: Yvonne Höller, Aljoscha Thomschewski.

University of Salzburg, Department of Psychology
NOV 2017 – JUL 2018

Intern, Salzburg Brain Dynamics Lab:
MEG measurement support, MEG Data Analysis (Time-Frequency Analysis, MVPA, Speech Reconstruction using ANN).
Supervisor: Prof. Nathan Weisz.

Publications

Gütlin, D. C., Gert, A. L., Zerbe, J. A., Czeszumski, A., König, P. (2022). Automated EEG cleaning: A comparison of different algorithms in MNE-Python. Manuscript in preparation.

Maleki, N., Mildt, M., Pätzold, F., Schmidt, V., Tiemann, L., Walter, J. L., Zerbe, J. A.,

Gütlin, D. C., Haas, A., Lang, A., Nezami F. N., König, P., Czeszumski, A. (2021). A framework for low-level joint action in VR [Paper presentation]. *Neuroergonomics Conference, Munich, Germany*. www.neuroergonomicsconference.um.ifi.lmu.de

Leitner, M. C., Gütlin, D. C., & Hawelka, S. (2021). Salzburg Visual Field Trainer (SVFT): A virtual reality device for (the evaluation of) neuropsychological rehabilitation. PLOS ONE. DOI: 10.1371/journal.pone.0249762

Other Projects

CatEyes - Unified Categorization for Eye Tracking

Python Toolbox for simple and uniform application and visualization of popular feature classification algorithms for eye tracking.
Repository: https://github.com/DiGyt/CatEyes

AI for Climate: "Will it snow on christmas?"

Project for "AI for Climate" Hackathon 2021 hosted by Potsdam Climate Institute and University of Osnabrück. Predicting global snow sheet development based on climate data. Winner of the 'Cryosphere' Challenge.
With Lucas Feldmann & Elias Baumann.
Related Blog Post: https://digyt.github.io/snow_on_christmas

neuropynamics

Collection of Jupyter notebooks and visualization tools for intuitive introductions into the subject of Neurodynamics.
With Lucas Feldmann & Hunaid Hameed.
Repository: https://github.com/DiGyt/neuropynamics

Salzburg Visual Field Trainer

Bachelor Project.
Virtual Reality research application for Visual Restoration Therapy. Developed in C# with Unity, for Google Cardboard on Android.
Supervisor(s): Michael Leitner, Stefan Hawelka.
Repository: https://github.com/DiGyt/SVFT

fieldtrip2mne

Python Toolbox for importing MATLAB based FieldTrip data structures into MNE-Python. Integrated into MNE-Python release 0.17 as mne.io.fieldtrip.
With Thomas Hartmann.
Repository: https://gitlab.com/obob/fieldtrip2mne

pymatreader

Python Toolbox for uniform translation of MATLAB (.mat) files into Python.
With Thomas Hartmann.
Repository: https://gitlab.com/obob/pymatreader