Johannes Rieke

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Experience

Research Intern — Max Welling's Lab, University of Amsterdam
Mar 2018 - Apr 2018
Developed an improved version of Graph Convolutional Networks (a novel class of neural networks that operate on graph data) and implemented this model in PyTorch.

Research Intern — Berlin Center for Advanced Neuroimaging
Dec 2017 - Feb 2018
Trained a convolutional network for automated Alzheimer detection from medical images. Investigated several interpretation methods that visualize the behavior of the network. Paper presented at MLCN 2018 (a MICCAI workshop).

Working Student — SAP SE
Dec 2016 - Feb 2018
Research on Deep Learning, Natural Language Understanding and Graphs. Implemented machine learning models for internal products (e.g. word/graph embeddings, text classification with neural networks, question answering).

Google Summer of Code Student — OpenWorm
May 2014 - Aug 2014
Open source project which builds a simulation of the roundworm C. elegans. Implemented a Python package to write simulation data to HDF5 and interact with the neuronal simulators NEURON and Brian.

Voluntary Ecological Year — Bavarian Center for Applied Energy Research
Sep 2011 - Jul 2012
Conducted measurements for sample characterization. Implemented a data analysis software in C++. Investigated methods for chemical synthesis.

Publications

Rieke, J. / Eitel, F. / Weygandt, M. / Haynes, J.-D. / Ritter, K. (2018): Visualizing Convolutional Networks for MRI-based Diagnosis of Alzheimer's Disease. *MICCAI Workshop on Machine Learning in Clinical Neuroimaging.* *https://arxiv.org/abs/1808.02874*

Machine Learning Projects

shape-detection *github.com/jrieke/shape-detection*
Object detection on abstract geometric shapes. Bootstrapped image data and used feedforward and convolutional neural networks to predict bounding boxes. Wrote a tutorial blogpost on Medium (50k views).

timeseries-rnn *github.com/jrieke/timeseries-rnn*
Analysis of time series data with LSTM neural networks. Allows sequence prediction and generation. Applied the algorithm to data from biological cells.

Education

M. Sc. Computational Neuroscience
Technical University Berlin &
Bernstein Center for Computational Neuroscience Berlin
Oct 2016 – current
Scholarship from the Max Weber Program of the State of Bavaria

B. Sc. Physics
University of Erlangen-Nuremberg
Oct 2012 - Mar 2016
Initial studies at University of Würzburg (2012-2014), semester abroad at UC San Diego (2015)

Skills

- **Coding**: Python (●●●), Java (●●●), JavaScript (●●○), C++ (●●○), HTML/CSS (●●○)
- **Machine Learning**: PyTorch, keras, TensorFlow, scikit-learn, gensim
- **Scientific Computing**: NumPy, SciPy, Matplotlib, Pandas, Jupyter
- **Languages**: English, German

Online Courses

- Deep Learning for NLP (Stanford)
- Deep Learning (Oxford)
- Synapses, Neurons, Brains (Coursera)

Voluntary

Organizer of the meetup group „Deep Learning Berlin" (1k members)

Conferences

- PAISS Summer School 2018
- EMNLP 2017
- NIPS 2016
- Neuroinformatics 2014