

Franziska Horn

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experience

04/2015 – present	Research Assistant TU Berlin (Technische Universität Berlin) <ul style="list-style-type: none">- in the machine learning group of Prof. Dr. Klaus-Robert Müller- developed the Similarity Encoder (SimEc) neural network architecture for learning low dimensional embeddings of data points by preserving similarity structures found in the original high dimensional input data; with applications e.g. in the area of NLP by extending the word2vec algorithm to produce embeddings for out-of-vocabulary words and words with multiple meanings- supervised bachelor and master students- funded by the Elsa-Neumann Scholarship from the state of Berlin
07/2016 – 06/2017	Machine Learning Scientist spectrm <ul style="list-style-type: none">- developed a chatbot AI to respond to user messages automatically- implemented a content recommendation API for newspaper articles, which can be used by all clients to promote their content- selected new members for the machine learning team
02/2014 – 06/2016	Data Scientist idalab <ul style="list-style-type: none">- advanced analytics consulting projects, algorithm development, presentation of results, and project management- clients included razorfish (NLP backend for automatic content classification) and outfittery (style prediction algorithms for curated shopping)
09/2013 – 09/2014	Student Research Assistant TU Berlin <ul style="list-style-type: none">- machine learning research in the group of Prof. Dr. Klaus-Robert Müller- focus on text classification, unsupervised learning (word2vec vector space embedding, dimensionality reduction), and information extraction- short-term research stay at UCLA; collaboration with Prof. Dr. Alcino Silva
08/2012 – 08/2013	Student Research Assistant TU Berlin <ul style="list-style-type: none">- EEG data analysis at the Berlin Brain-Computer Interface Lab- developed and efficiently implemented new algorithms in MatLab- three peer-reviewed publications (journal and conferences)
07/2011 – 10/2011	Research Intern Massachusetts Institute of Technology (MIT) <ul style="list-style-type: none">- at the McGovern Institute for Brain Research / Gabrieli Lab- analyzed fMRI data using NIPY with results published in JAMA Psychiatry- sponsored by a DAAD RISE scholarship
07/2007 – 12/2009	Student Research Assistant Fraunhofer Institute for Chemical Technology <ul style="list-style-type: none">- hands-on science in the field of chemical analysis / infrared spectroscopy- devised creative solutions for tricky experimental setups- worked independently with the sole responsibility for the collection of data

education

04/2013 – 03/2015	M.Sc. Computer Science TU Berlin (Technische Universität Berlin) <ul style="list-style-type: none">- focus: intelligent systems. machine learning: theory, lab course, project; advanced information management (big data & Hadoop); neurobiology- thesis: KNOWLEDGE EXTRACTION FROM COMPLEX BIOLOGICAL TEXTS: A MACHINE LEARNING APPROACH (supervisor: Prof. Dr. Klaus-Robert Müller, TU Berlin)- graduated top of my class (1.0)
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10/2012 – 03/2013	M.Sc. Computational Neuroscience <ul style="list-style-type: none"> - interdisciplinary & strongly research oriented international master program - highly competitive application process (10 places/year) - switched to computer science after 1 semester to deepen my technical knowledge and get a wider choice of application areas 	BCCN / TU Berlin
10/2009 – 09/2012	B.Sc. Cognitive Science <ul style="list-style-type: none"> - interdisciplinary study program including courses in neurobiology, computer science, psychology, artificial intelligence, mathematics, computational linguistics, neuroinformatics, and philosophy; taught in English - thesis in the field of brain-computer interfaces at the TU Berlin: COMPARING AND COMBINING MULTIPLE EEG FEATURES IN MOTOR IMAGERY BCI – A LARGE SCALE STUDY (supervisor: Prof. Dr. Benjamin Blankertz, TU Berlin) - graduated with distinction (1.1) 	Universität Osnabrück
09/2000 – 06/2009	Abitur (secondary school) <ul style="list-style-type: none"> - 11th grade as a year abroad in Missouri (USA) 	Fichte-Gymnasium Karlsruhe

activities

October 2015	Data2Day Workshop in Karlsruhe, Germany: Introduction to Data Science <ul style="list-style-type: none"> - 1 day workshop where I was responsible for the practical part and instructed the 25 participants on how to use Python, numpy, pandas, and sklearn to get the most out of their data 	
September 2014	Advanced Scientific Programming in Python – Summer School in Split, Croatia <ul style="list-style-type: none"> - lectures and tutorials on advanced topics like parallelization and Cython - programming project in teams: artificial intelligence for a pacman game 	
July 2012	McKinsey Technology Lab “Big Data” in Prague <ul style="list-style-type: none"> - 4 day workshop to discuss the importance and usability of big data technology in various business areas, including a case study developing the concept for a big data application 	
regularly	various Meetups in Berlin <ul style="list-style-type: none"> - e.g. PyData and Machine Learning Talks 	

skills

language	native German, fluent English, basic French
programming	Python (main), SQL, MatLab, R, Java ~ https://github.com/cod3licious
computing	Linux/Unix office applications & LaTeX Adobe Photoshop, InDesign, Illustrator

publications

Learning Similarty Preserving Representations with Neural Similarity Encoders

Franziska Horn and Klaus-Robert Müller

arXiv preprint arXiv:1702.01824, 2017.

Interactive Exploration and Discovery of Scientific Publications with PubVis

Franziska Horn

arXiv preprint arXiv:1706.08094, 2017.

Context encoders as a simple but powerful extension of word2vec

Franziska Horn

Proceedings of the 2st Workshop on Representation Learning for NLP, 2017.

Explaining Predictions of Non-Linear Classifiers in NLP

Leila Arras, Franziska Horn, Gregoire Montavon, Klaus-Robert Müller and Wojciech Samek

Proceedings of the 1st Workshop on Representation Learning for NLP, 2016.

Predicting Treatment Response in Social Anxiety Disorder From Functional Magnetic Resonance Imaging

O. Doehrmann, S. S. Ghosh, F. E. Polli, G. O. Reynolds, F. Horn, A. Keshavan, ... & J. D. Gabrieli

JAMA Psychiatry, 70(1), 87-97, 2013.

Robust Artifactual Independent Component Classification for BCI Practitioners

I. Winkler, S. Brandl, F. Horn, E. Waldburger, C. Allefeld, M. Tangermann

Journal of Neural Engineering, 11(3):035013, 2014.

Increasing the Spectral Signal-To-Noise Ratio of Common Spatial Patterns

Franziska Horn, Sven Dähne

Proceedings of the Fifth International Brain-Computer Interface Meeting, 2013.

Combining Multiple EEG Features in Motor Imagery BCI

Franziska Horn, Johannes Höhne, Sven Dähne, Benjamin Blankertz

BBCI Workshop - Advances in Neurotechnology, 2012, Berlin, Germany