Lukas **Pfannschmidt**

Data Scientist · Software Engineer

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Skills

Machine Learning	Feature Selection and Representation, Data Science, Model Selection and Design
Research	Scientific Writing and Presentation
Development	Software and algorithm design, parallel and efficient computing, Databases, Python, JAVA, Julia, C, LaTeX
DevOps	Docker, Kubernetes, Travis, Git, GitHub Actions, Linux
Languages	German (native), English (fluent)

Education

PhD in Machine Learning

Bielefeld, Germany
Vancouver, Canada

Bielefeld University, CITEC — *2016 - planned 2020*

- Thesis: Relevance Learning for Redundant Features

M.Sc. in Bioinformatics and Genome Research

Bielefeld, Germany

Bielefeld University — *2014 - 2016*

- Thesis: Interactive feature selection for biomedical data analysis

B.Sc. in Bioinformatics and Genome Research

Bielefeld, Germany

Bielefeld University — *2011 - 2014*

- Thesis: Survey of the cuckoo-RNA family beyond the Alphaproteobacteria

Projects

Feature Relevance Intervals - Python application

PhD project

- Goal: parallel and fast implementation of theoretical feature selection algorithm
- Developed with usability in mind by following *scikit-learn* API convention and extendable via modules
- Deployed via *GitHub* and *PyPi* package repository

Price Prediction in Dynamic Online Game Economy using Deep Learning

Side project

- Goal: predict prices of unseen in-game items based on historical data of similar ones
- Efficient data scraping of marketplace streaming data and compressed database storage
- Knowledge representation of in-game item features
- Prediction of unseen item combinations using deep learning with much higher accuracy than alternatives

Endoscope Management Terminal - Professional Health App

Team Competition - Technical Lead - Winning Team

- Goal: Android App for medical professionals handling endoscopes in a clinical setting
- Developed in competitive setting with the endoscope manufacturer (*Miele*) as client: focus on agile development with changing requirements

Parallel K-Means Clustering - High Throughput Library

Study project

- Goal: highly parallel and efficient implementation running on CPUs and GPUs
- C Kernel for GPU computing based on *OpenCL*
- Achieves linear performance scaling with number of compute units

Adverse Drug Reactions Warner - User Health App

Study project

- Goal: end user facing Android application warning against possible harmful interactions between medication
- Collaboration with *Franziskus* hospital Bielefeld
- Database backed query and visualization modules

Research

Center for Cognitive Interaction Technology — *Bielefeld, Germany*

PhD Candidate — *Oct. 2018 - 2020*

- Research in Prof. Hammer's machine learning group
- Research of feature relevance and potential applications

Simon Fraser University — *Vancouver, Canada*

Guest Researcher — *May. 2018 - Oct. 2018*

- Research stay at Prof. Martin Esters Datamining group
- Focus on feature representation and use of non-linear models

German-Canadian DFG International Research Training Group (1906/1) — *Bielefeld, Germany*

PhD Candidate — *Oct. 2016 - April. 2018*

- Bioinformatics focused application research and development

Publications

Feature Relevance Determination for Ordinal Regression in the Context of Feature Redundancies and Privileged Information
Lukas Pfannschmidt, Jonathan Jakob, Fabian Hinder, Michael Biehl, Peter Tino, Barbara Hammer
Neurocomputing (Apr. 9, 2020). 2020

FRI – Feature Relevance Intervals for Interpretable and Interactive Data Exploration
Lukas Pfannschmidt, Christina Göpfert, Ursula Neumann, Dominik Heider, Barbara Hammer
2019 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB), 2019

Feature Relevance Bounds for Ordinal Regression
Lukas Pfannschmidt, Jonathan Jakob, Michael Biehl, Peter Tino, Barbara Hammer
ESANN 2019, 2019, Bruges

Interpretation of Linear Classifiers by Means of Feature Relevance Bounds
Christina Göpfert, Lukas Pfannschmidt, Jan Philip Göpfert, Barbara Hammer
Neurocomputing 298 (July 12, 2018) pp. 69–79. Elsevier, 2018

Feature Relevance Bounds for Linear Classification
Christina Göpfert, Lukas Pfannschmidt, Barbara Hammer
Proceedings of the ESANN, 24th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, 2017, Bruges

Honors & Awards

2019 **Fellow,** Bielefeld Young Researchers' Fund — *Bielefeld, Germany*

2016 **Fellow,** DFG Fast Track Fellowship — *Bielefeld, Germany*