Andreas Christian Müller

Curriculum Vitae

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Education and Qualifications

2009 Diploma in Mathematics
University of Bonn
Thesis: "Singularities of Minimal Degenerations in Affine Grassmannians"

2014 PhD in Computer Science
University of Bonn
Thesis: "Methods for Learning Structured Prediction in Semantic Segmentation"

Current Position

Since 2014 **Research Engineer at the NYU Center for Data Science**
Development of open source tools for machine learning and data science.

Past Positions

2010–2013	**PhD Student at the Department of Computer Science, University of Bonn, Germany** Advisor: Prof. Sven Behnke.
2010–2013	PhD Scholarship of the B-IT, Bonn/Aachen, Germany
2011 and 2013	Lecture Assistant at the Department of Computer Science, University of Bonn, Germany
Spring 2012	**Visiting Scientist at the Austrian Institute of Science and Technology** Host: Prof. Christoph Lampert
Summer 2012	**Research Intern at Microsoft Research Cambridge** Hosts: Carsten Rother, Sebastian Nowozin
2013–2014	**Machine Learning Scientist at Amazon Development Center Germany** Design and implementation of large-scale machine learning and computer vision applications.

Research Interests

- Deep learning.
- Automatic machine learning.
- Inference and learning for structured prediction.

Open Source Projects

- Maintainer and core developer for the Python machine learning package "scikit-learn"[1].
- Creator and maintainer of the Python package "PyStruct"[2] for structured prediction.
- Co-author of "CUV", a C++ and Python interface for CUDA, targeted at machine learning and computer vision.[3]
- Contributor to the Python computer vision package "scikit-image"[4].

[1] http://scikit-learn.org/
[2] http://pystruct.github.org/
[3] https://github.com/deeplearningais/CUV
[4] http://scikit-image.org/

Peer Reviewing

- Neural Information Processing System
- Journal of Machine Learning Research
- Journal of Pattern Analysis and Machine Intelligence
- European Conference of Computer Vision

Spoken Languages

- German: Native.
- English: Full professional proficiency.
- French: Elementary proficiency.

Programming Languages

- Python / Cython: Very strong knowledge, in particular for scientific programming.
- C++ (C++03 and C++11): Strong knowledge.
- CUDA (with C++): Good knowledge.
- Java: Basic knowledge.
- Scala: Basic knowledge.

Publications

Books

1. Müller, A and Guido, S. (2016). *Introduction to Machine Learning with Python*. O'Reilly.

Journal Publications

1. Schulz, H., A. Müller, and S. Behnke (2011). Exploiting local structure in Boltzmann machines. *Neurocomputing* **74**(9), 1411–1417. ISSN: 0925-2312.
2. Abraham, A., F. Pedregosa, M. Eickenberg, P. Gervais, A. Müller, J. Kossaifi, A. Gramfort, B. Thirion, and G. Varoquaux (2014). Machine learning for neuroimaging with scikit-learn. *Frontiers in Neuroinformatics*.
3. Müller, A. and S. Behnke (2014). PyStruct: Structured Prediction in Python. *Journal of Machine Learning Research*.
4. Varoquaux, G., L. Buitinck, G. Louppe, O. Grisel, F. Pedregosa, and A. Müller (2015). Scikit-learn: Machine Learning Without Learning the Machinery. *GetMobile: Mobile Computing and Communications* **19**(1), 29–33.

Conference Publications

1. Müller, A., H. Schulz, and S. Behnke (2010). Topological Features in Locally Connected RBMs. In: *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*.
2. Scherer, D., A. Müller, and S. Behnke (2010). Evaluation of pooling operations in convolutional architectures for object recognition. In: *Proceedings of the Interntional Conference on Artificial Neural Networks (ICANN)*. Springer, pp.92–101.
3. Schulz, H., A. Müller, and S. Behnke (2010). Exploiting local structure in stacked Boltzmann machines. In: *European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN)*.
4. Müller, A., S. Nowozin, and C. Lampert (2012). Information Theoretic Clustering Using Minimum Spanning Trees. In: *Proceedings of DAGM / OAGM*, pp.205–215.
5. Müller, A. and S. Behnke (2014). Learning Depth-Sensitive Conditional Random Fields for Semantic Segmentation of RGB-D Images. In: *Proceedings of the International Conference of Robotics and Automation (ICRA)*.

Workshop Publications

1. Schulz, H., A. Müller, and S. Behnke (2010). Investigating Convergence of Restricted Boltzmann Machine Learning. In: *Advances in Neural Information Processing Systems (NIPS)*, *Deep Learning and Unsupervised Feature Learning Workshop*.
2. Müller, A. and S. Behnke (2011). Multi-Instance Methods for Partially Supervised Image Segmentation. In: *IAPR TC3 Workshop on Partially Supervised Learning*.
3. Buitinck, L., G. Louppe, M. Blondel, F. Pedregosa, A. Müller, O. Grisel, V. Niculae, P. Prettenhofer, A. Gramfort, J. Grobler, et al. (2013). API design for machine learning software: experiences from the scikit-learn project. *ECML PKDD 2013 Workshop on Languages for Data Mining and Machine Learning*.