Andreas Christian Müller

Curriculum Vitae

Address: Leibnizstr 69, 10625 Berlin, Germany
Phone: +49 (0)176 24963292
Email: importamueller@gmail.com

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Education and Qualifications

2009	Diploma in Mathematics
	University of Bonn, Grade A-
	Thesis: "Singularities of Minimal Degenerations in Affine Grassmannians"
expected Spring 2014	PhD in Computer Science
	University of Bonn
	Thesis: "Methods for Learning Structured Prediction in Semantic Segmentation"

Current Position

since October 2013	Machine Learning Scientist at Amazon Development Center Germany
	Design and implementation of large-scale machine learning and
	computer vision applications.

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

Research Interests

- Connectionist and deep models.
- Non-parametric entropy estimates for unsupervised learning.
- Random forests for structured output spaces.
- Inference and learning in CRFs / structured SVMs.

Open Source Projects

- Maintainer and core developer for the Python machine learning package "scikit-learn"[1].
- Creator and maintainer 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].

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

Peer Reviewing

- Journal of Machine Learning Research, open source software track
- 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

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

Publications

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. Müller, A and S Behnke (2014). PyStruct: Structured Prediction in Python. *Journal of Machine Learning Research (accepted)*.

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*.