

# Andreas C Mueller

## Curriculum Vitae

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### Education and Qualifications

2009 Diploma in Mathematics  
University of Bonn, Grade A-  
Topic: "Singularities of Minimal Degenerations in Affine Grassmannians"  
expected October 2013 PhD in Computer Science  
University of Bonn  
Topic: "Structured Prediction Models for Semantic image Segmentation"

### Current Position

since 2010 PhD Student at the Department of Computer Science, University of Bonn, Germany  
Advisor: Prof. Sven Behnke  
since 2010 PhD Scholarship of the B-IT, Bonn/Aachen, Germany  
renewed 2011 until 2013  
starting October 2013 Machine Learning Scientist at Amazon Research, Berlin, Germany

### Other Positions

2011 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

### Past Research

- Generative models of image patches and images.
- Connectionist and deep models.
- Kernel methods for multi-instance learning.
- Non-parametric entropy estimates for unsupervised learning.
- Random forests for structured output spaces.

### Current Research and Thesis

- Conditional random fields for image processing and segmentation.
- Inference and learning in CRFs / structured SVMs.
- Latent variable CRFs.

### Open Source Projects

- Maintainer and core developer for the Python machine learning package "scikit-learn"<sup>1</sup>.
- Co-author of "CUV", a C++ and Python interface for CUDA, targeted at machine learning and computer vision.<sup>2</sup>
- Contributor to the Python computer vision package "scikit-image"<sup>3</sup>.

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<sup>1</sup><http://scikit-learn.org/>

<sup>2</sup><https://github.com/deeplearningais/CUV>

<sup>3</sup><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.

### 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 International 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.

### 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*.