

**Harold Christopher Burger, PhD**  
**Curriculum Vitae**  
**Sep. 25 2013**

- nationality** dual American and German citizenship
- date of birth** November 25, 1983
- website** <http://www.hcburger.com>
- languages** English (native speaker), German (native speaker), French (fluent)
- education** MSc and PhD in computer science
- activity** co-founder at TasteHit
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- skills**
- machine learning, especially neural networks applied on large datasets
  - signal/image processing
  - programming languages : Most proficient in C/C++ and Matlab
  - scientific writing skills
- The above skills have allowed me to achieve during my PhD the best image denoising results published to date.
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- education**
- PhD in Computer Science (magna cum laude), May 2013**  
**Eberhard Karls Universität Tübingen**  
My PhD supervisors were Bernhard Schölkopf and Stefan Harmeling, both at the Max Planck Institute for Intelligent Systems, Tübingen, Germany.
- Master of Science MSc in Computer Science with specialization in biocomputing, March 2008**  
**EPFL, Lausanne, Switzerland**
- Bachelor of Science in Computer Science, October 2005**  
**EPFL, Lausanne, Switzerland**  
The final year of bachelor studies was done at Linköping University in Linköping, Sweden, as part of an Erasmus exchange program.
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- experience**
- Research Internship, September 2008 to December 2008**  
**Max Planck Institute for Biological Cybernetics, Dept. Schölkopf, Tübingen, Germany**
- Goal : Remove sensor noise from astronomical photographs
- Research Internship, May 2008 to September 2008**  
**NEC Labs America, Princeton, NJ, USA**
- Transfer learning with convolutional neural networks

**Internship/master's project in Machine Learning, September 2007 to March 2008**

**NEC Labs America, Princeton, NJ, USA**

- Goal : Detection of cell division in histological samples
- Applied CNNs, SVMs and various image processing techniques
- Work led to a patent

**Consultant for Ensures Consulting, November 2006**

**Geneva, Switzerland**

- Taught a Microsoft course in object-oriented C# programming to experienced programmers

**Software Engineering Internship, March to September 2006**

**Roche Molecular Systems, Pleasanton, CA, USA**

- Goal : Develop a tool for growth curve generation and analysis intended for international release, to be used by researchers at Roche Molecular Systems
- Worked as part of a software engineering team
- Code was written in C#

**Computer Graphics Internship, August to September 2005**

**EPFL, Lausanne, Switzerland**

- Goal : Realistic real-time rendering of translucent objects with the aim of representing realistic medical radiographic images
- Project was directly linked with industry : Xitact SA, Morges, Switzerland
- Code was written in C++

**Lab Assistant, February 2004 to July 2007**

**EPFL, Lausanne, Switzerland**

- Assisted students with computer labs in an introductory course to Java
- Assisted students with logical systems labs

**Software Engineering Internship, August 2003**

**CERN, Geneva, Switzerland**

- Major Excel project to estimate delivery times of various pieces of equipment
- Programs were written in Visual Basic

**PhD thesis**

**H.C. Burger**

“Modelling and Learning Approaches to Image Denoising”

Eberhard Karls Universität Tübingen, 2013

<http://tobias-lib.uni-tuebingen.de/volltexte/2013/6821>

## publications

- H.C. Burger**, C. J. Schuler, S. Harmeling  
“Learning how to combine internal and external denoising methods”  
Proceedings of the German Conference on Pattern Recognition (GCPR 2013)
- C.J. Schuler, **H.C. Burger**, S. Harmeling, B. Schölkopf  
“A machine learning approach for non-blind image deconvolution”  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2013)
- M. Cavusoglu, R. Pohmann, **H.C. Burger**, K. Uludag  
“Regional effects of magnetization dispersion on quantitative perfusion imaging for pulsed and continuous arterial spin labeling”  
Magnetic Resonance in Medicine, 2013
- H.C. Burger**, C. J. Schuler, S. Harmeling  
“Image denoising with multi-layer perceptrons, part 1 : comparison with existing algorithms and with bounds”  
arXiv :1211.1544, 2012
- H.C. Burger**, C. J. Schuler, S. Harmeling  
“Image denoising with multi-layer perceptrons, part 2 : training trade-offs and analysis of their mechanisms”  
arXiv :1211.1552, 2012
- H.C. Burger**, C.J. Schuler, S. Harmeling  
“Image denoising : Can plain Neural Networks compete with BM3D ?”  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2012)
- H.C. Burger**, B. Schölkopf, S. Harmeling  
“Removing noise from astronomical images using a pixel-specific noise model”  
IEEE Conference on Computational Photography (ICCP 2011)
- H.C. Burger**, S. Harmeling  
“Improving denoising algorithms via a multi-scale meta-procedure”  
*Pattern Recognition*, 33rd DAGM Symposium, Springer, Berlin, Germany, 2011  
**DAGM award 2011 for outstanding work**
- C. Malon, M. Miller, **H.C. Burger**, E. Cosatto, H.P. Graf  
“Identifying Histological Elements with Convolutional Neural Networks”  
Proceedings of the 5th International Conference on Soft Computing as Transdisciplinary Science and Technology, 2008

## patents

- E. Cosatto, **H.C. Burger**, M. Miller  
“Mitotic Figure Detector and Counter System and Method for Detecting and Counting Mitotic Figures”  
US Patent, Publication Number : US 2010/0002920 A1  
Publication Date : Jan. 7, 2010