

# Boris Bernhardt

NeuroImaging of Epilepsy Laboratory  
Montreal Neurological Institute and Hospital  
3801 University Street. WB215  
Montreal, Quebec, Canada  
H3A2B4

boris@bic.mni.mcgill.ca  
<http://www.bic.mni.mcgill.ca/~boris>  
<http://www.bic.mni.mcgill.ca/~noel>

## Identification

### **Name**

Boris Christian Bernhardt

### **Gender**

Male

### **Date and place of birth**

Born on the 23rd of December, 1981  
in Bad Segeberg, Germany

### **Nationality**

German

### **Mother tongue**

German

### **Spoken languages**

English, French, and German.

### **Written languages**

English, French, and German.

### **Programming/Scripting Languages**

Matlab, R, Bash, Java, Prolog, Perl, SML, Flash/AS, JavaScript, HTML, CSS, and PHP.

### **Scientific Interests**

Neuroscience: MRI/DTI, neocortex, connectivity, graph-theory, morphometry, and epilepsy.  
Statistics: generalized linear models, mixed-effect models, classification, and data visualization.

## Education

2006-2010

**M.Sc/PhD. Neuroscience**

McGill University  
845 Sherbrooke Street West,  
Montreal, Quebec, Canada, H3A2T5

2004-2005

**Exchange Student in Science**

McGill University  
845 Sherbrooke Street West,  
Montreal, Quebec, Canada, H3A2T5

2002-2006

**B.Sc. Cognitive Science**

Institute of Cognitive Science  
University of Osnabrück  
Albrechtstrasse 28  
49069 Osnabrück, Germany

1991-2001

**High School, Abitur**

Dahlmannschule, Gymnasium der Stadt Bad Segeberg  
Am Markt 4  
23795 Bad Segeberg, Germany

## Work Experience

2006-2010

**Graduate student at Montreal Neurological Institute and Hospital**

**McGill University, Montreal, Quebec, Canada**  
(Supervised by A. Bernasconi, MD)

2006

**Visiting student at Douglas Hospital**

**McGill University, Montreal, Quebec, Canada**  
(Supervised by Jorge Armony, PhD)

2004

**Intern at Max Planck Institute of Human Cognitive and Brain Sciences, Leipzig, Germany**

(Supervised by Burkhard Maess, PhD)

## Teaching Experience

2009

**TA for the graduate level course 'Special topics in Neuroscience' at McGill University**  
(for Prof. Andrea and Neda Bernasconi)

2005

**TA for the M.Sc. course 'EEG of visual processing' at the University of Osnabrück**

40 hours/year, 2 hours/week  
(together with Hans-Peter Frey, Dipl. Psychologe)

2004-2006

**TA for the B.Sc. courses 'Action and Cognition 1' and 'Action and Cognition 2' at the University of Osnabrück**

80 hours/2 years  
(for Peter Koenig, PhD)

2003

**TA for the B.Sc. course 'Introduction to Logics' at the University of Osnabrück**

40 hours/year, 2 hours/week  
(for Achim Stephan, PhD)

## Awards

2009. Top-up award of the Integrated Program in Neuroscience (McGill).

2009-2010. Van Gelder - Savoy Studentship (Savoy-Foundation).

2009. Doctoral Transfer award by the Graduate Program in Neuroscience (McGill).

2008. Jeanne Timmins Costello Fellowship for returning graduate students (MNI).

2008. Alma mater travel grant to present my work at the AES meeting, Seattle (McGill).

2007-2008. Foreign studies scholarship by German Academic Exchange Service (DAAD).

2006-2008. Full-time scholarship by German Academic Merit Foundation (Studienstiftung).

2006. Distinction for first-class B.Sc. examination (University of Osnabrueck).

2004-2008. Scholarship by e-Fellows.net.

2003-2005. Full-time scholarship by German Academic Merit Foundation (Studienstiftung).

2001. First price in the national contest 'Wasserwelten' (Bund fuer Heimat und Umwelt).

2001. Awarded for outstanding achievements in physics (Deutsche Physikalische Gesellschaft).

2001. Award for excellent achievements in high-school graduation (Stadt Bad Segeberg).

## Peer-reviewed Articles

N.L Voets\*, **B.C. Bernhardt\***, H. Kim, U. Yoon, N. Bernasconi (2010) Increased temporo-limbic cortical folding complexity in temporal lobe epilepsy. *Neurology*, in press.

**B.C. Bernhardt**, N. Bernasconi, L. Concha, A. Bernasconi (2010) Cortical thickness analysis in temporal lobe epilepsy: reproducibility and relation to outcome. *Neurology*, 74(22): 1776-84

---

\* Joint first co-authorship

**B.C. Bernhardt**, D.A. Rozen, K.J. Worsley, A.C. Evans, N. Bernasconi, A. Bernasconi (2009) Thalamo-cortical network pathology in idiopathic generalized epilepsy: insights from MRI-based morphometric correlation analysis. *NeuroImage*, 46(2):373-81.

**B.C. Bernhardt**, K.J. Worsley, H. Kim, A.C. Evans, A. Bernasconi, N. Bernasconi (2009) Longitudinal and cross-sectional analysis of atrophy in pharmaco-resistant temporal lobe epilepsy. *Neurology*, 72(20): 1747-54

**B.C. Bernhardt**, K.J. Worsley, P. Besson, L. Concha, J.P. Lerch, A.C. Evans, N. Bernasconi (2008) Mapping limbic network organization in temporal lobe epilepsy using morphometric correlations: insights on the relation between mesiotemporal connectivity and cortical atrophy. *NeuroImage*, 42(2): 515-24.

H. Kim, N. Bernasconi, **B.C. Bernhardt**, O. Colliot, A. Bernasconi (2008) Temporal lobe epilepsy is associated with a single-branch collateral sulcus. *Neurology*, 70(22 Pt 2): 2159-65.

## Commentaries

N. Bernasconi, **B.C. Bernhardt** (2010) Temporal lobe epilepsy is a progressive disorder. *Nature Reviews Neurology*, 6(3):1.

## Meeting Presentations

**B.C. Bernhardt**, N. Bernasconi, L. Concha, A. Bernasconi (2010) MRI-based cortical thickness analysis: relationship to surgical outcome. 16th Annual Meeting of the Organization for Human Brain Mapping, Barcelona, Spain.

**B.C. Bernhardt**, A. Bernasconi, L. Concha, N. Bernasconi (2010) Trajectories of cortical pathology in temporal lobe epilepsy: A longitudinal MRI study. 16th Annual Meeting of the Organization for Human Brain Mapping, Barcelona, Spain.

**B.C. Bernhardt**, A. Bernasconi, Z. Chen, Y. He, A.C. Evans, N. Bernasconi (2010) Disrupted small-world organization of structural cortical networks in temporal lobe epilepsy. 16th Annual Meeting of the Organization for Human Brain Mapping, Barcelona, Spain.

D.S. Schrader, **B.C. Bernhardt**, A. Bernasconi (2010) MRI-based cortical thickness in malformations of cortical development. 16th Annual Meeting of the Organization for Human Brain Mapping, Barcelona, Spain.

N.L. Voets, **B.C. Bernhardt**, H. Kim, U. Yoon, N. Bernasconi, A. Bernasconi (2010) MRI-based cortical thickness analysis: relationship to surgical outcome. Proceedings of the ISMRM 18th scientific meeting and exhibition, Stockholm, Sweden.

**B.C. Bernhardt**, H. Kim, J. Natsume, A. Bernasconi (2009) Mapping thalamic nuclear pathology in temporal lobe epilepsy. 63rd Annual Meeting of the American Epilepsy Society, Boston, MA, USA.

L. Concha, H. Kim, **B.C. Bernhardt**, N. Bernasconi (2009) Spatial localization of diffusion abnormalities along DTI tracts in temporal lobe epilepsy. MICCAI Workshop, London.

L. Concha, H. Kim, **B.C. Bernhardt**, N. Bernasconi (2009) Distance based analysis of DTI Tractography: Evidence for Focal Pathology in Temporal Lobe Epilepsy. 63rd Annual Meeting of the American Epilepsy Society, Boston, MA, USA.

A. Bernasconi, **B.C. Bernhardt**, H. Kim, J. Natsume, N. Bernasconi (2009) Idiopathic generalized epilepsy is associated with atrophy in pulvinar and somatomotor thalamic nuclei. 28th International Epilepsy Congress, Budapest, Hungary.

K.J. Worsley, J.E. Taylor, F. Carbonell, M.K. Chung, E. Duerden, **B. C. Bernhardt**, O. Lyttelton, M. Boucher, A.C. Evans (2009) SurfStat: A Matlab toolbox for the statistical analysis of univariate and multivariate surface and volumetric data using linear mixed effects models and random field theory. Proceedings of the 15th Annual Meeting of the Organization for Human Brain Mapping, San Francisco, California.

**B.C. Bernhardt**, H. Kim, J. Natsume, N. Bernasconi, A. Bernasconi (2009) Temporal lobe epilepsy is associated with atrophy of limbic thalamic nuclei. Proceedings of the 15th Annual Meeting of the Organization for Human Brain Mapping, San Francisco, California.

**B.C. Bernhardt**, K.J. Worsley, A.C. Evans, A. Bernasconi (2009) Cortical atrophy in temporal lobe epilepsy: distinguishing aging from disease progression. Proceedings of the 15th Annual Meeting of the Organization for Human Brain Mapping, San Francisco, California.

**B.C. Bernhardt**, K.J. Worsley, A. Bernasconi, N. Bernasconi (2008) Temporal lobe epilepsy is associated with progressive neocortical thinning: A longitudinal study. 62nd Annual Meeting of the American Epilepsy Society, Seattle, WA, USA.

A. Bernasconi, **B.C. Bernhardt** (2008) Mapping thalamo-cortical connectivity in idiopathic generalized epilepsy using morphometric correlations. 62nd Annual Meeting of the American Epilepsy Society, Seattle, WA, USA.

N. Bernasconi, **B.C. Bernhardt** (2008) Mapping cortical thickness in temporal lobe epilepsy: Similar findings in patients with and without hippocampal atrophy. 62nd Annual Meeting of the American Epilepsy Society, Seattle, WA, USA.

**B.C. Bernhardt**, J.P. Lerch, A.C. Evans, N. Bernasconi, A. Bernasconi (2008) Mapping of entorhinal cortex connectivity in temporal lobe epilepsy. Proceedings of the 14th Annual Meeting of the Organization for Human Brain Mapping, Melbourne, Australia.

**B.C. Bernhardt**, H. Kim, U. Yoon, N. Bernasconi, A. Bernasconi (2008) TLE is associated with reduced folding of the temporal neocortex. Proceedings of the ISMRM 16th scientific meeting and exhibition, Toronto, Canada.

**B.C. Bernhardt**, D. Rozen, L. Horwood, A. Bernasconi (2008) Thalamocortical atrophy in patients with primary generalized tonic and clonic seizures. Proceedings of the ISMRM 16th Scientific Meeting and Exhibition, Toronto, Canada.

H. Kim, M. Niethammer, **B.C. Bernhardt**, S. Bouix, N. Bernasconi, and A. Bernasconi (2008) SPHARM detects hippocampal subfield pathology in temporal lobe epilepsy. Proceedings of the ISMRM 16th Scientific Meeting and Exhibition, Toronto, Canada.

**B.C. Bernhardt**, S. Onat, S.K. Nagel, H. Frey, P. König (2007) The neural processing of natural stereoscopic images. An EEG study. Proceedings of the 7th Meeting of the German Neuroscience Society / 31th Göttingen Neurobiology Conference 2007, Eds: K. Hoffman and K. Kriegstein, TS12-3B. Neuroforum 2007, Göttingen, Germany.

P. König, A. Açık, **B.C. Bernhardt**, C. Carl, T. Dierkes, I. Dombrowe, S. Gelesz, C. Honey, L. Jansen, C. Kabisch, T. Kringe, L. Kurzen, C. Lörken, R. Martin, S. Nagel, H. Saal, M. Stefaner, C. Stöbel, V. Willenbockel (2005) feelSpace - The Sixth Sense. Poster & Demo at ASSC9, Association for the scientific study of consciousness, 9th annual meeting, California Institute of Technology, Pasadena, California.

P. König, A. Açık, **B.C. Bernhardt**, C. Carl, T. Dierkes, I. Dombrowe, S. Gelesz, C. Honey, L. Jansen, C. Kabisch, T. Kringe, L. Kurzen, C. Lörken, R. Martin, S. Nagel, H. Saal, M. Stefaner, C. Stöbel, V. Willenbockel (2005) feelSpace - Report of a Study Group. Proceedings of the 6th Meeting of the German Neuroscience Society / 30th Göttingen Neurobiology Conference 2005, Eds: H. Zimmermann and K. Krieglstein, 1 Suppl.: 434B. Neuroforum 2005, Göttingen, Germany.

## Reviewer

Grant reviews for Deutsche Forschungsgemeinschaft since 2009.

Manuscript reviews for the journal *Epilepsia* since 2009.

Abstract reviews for the Annual Meeting of the Organization of Human Brain Mapping in 2010.

## Memberships

Organization for Human Brain Mapping since 2009.