Toronto Western Hospital
University Health Network

CURRICULUM VITAE
Timo Krings

Date of Preparation: July 20th , 2019

Dr. Krings studied medicine in Aachen, Germany and at Harvard Medical School in Boston. After residency training in Neuroradiology in Aachen with Prof. Armin Thron, he completed a neurointerventional fellowship with Professor Pierre Lasjaunias in Paris, France and subsequently joined the Neuroradiology division of the University of Toronto as a diagnostic and interventional Neuroradiologist in 2008. He is currently cross appointed to Radiology and Neurosurgery at UHN and as an interventional Neuroradiologist at the Hospital for Sick Children. He is a Full Professor of Radiology and Surgery, the Chief of Radiology at the Toronto Western Hospital and the Head of the Division of Diagnostic and Interventional Neuroradiology at the University Health Network, Mount Sinai and Women's College Hospitals. He holds the David Braley and Nancy Gordon Chair in Interventional Neuroradiology at the University of Toronto.

Focusing his research efforts on Imaging and Treatment of Neurovascular Diseases, Dr. Krings has published more than 350 peer reviewed articles, and approximately 30 book chapters and four books on spinal, pediatric and interventional neuroradiology, and neurovascular anatomy.

His current research focusses on the prediction of brain bleeding from brain vascular malformations using a multidiscplinary approach, development of novel methods to treat these life changing events and estimating the relative effectiveness of treatments to determine the impact on Health Care. To this end he is leading a team of Neuro-imagers, Neurointerventionalists, Computational Scientists, Genetist Biologists and Epidemiologists within the Division of Neuroradiology.

Dr. Krings's leadership in the field of Neuroradiology is bolstered by his distinguished grants and awards, including the Scientific Award of the European Society of Neuroradiology, the Lucien Appel Prize, and the Founders Award in Interventional Neuroradiology of the ESNR. For the development of the Neuroradiology Program in Toronto he won the Anderson Award of the Wightman-Berris Academy and was granted the Edward Lansdown Award for outstanding teaching in the Residency Program of the University of Toronto.

Timo Krings, MD FRCP (C)
The David Braley and Nancy Gordon Chair in Interventional Neuroradiology
Chief of Diagnostic and Interventional Neuroradiology at the Toronto Western Hospital & University Health Network
Professor, Departments of Radiology and Surgery, University of Toronto

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University of Toronto

CONTENTS

A. Biographical Information

Timo Krings MD, FRCP (C)

1. Personal and Contact Information

Date of Birth:	6th of April, 1972
Place of Birth:	Heinsberg, North-Rhine Westphalia, Germany
Citizenship:	German
Marital Status:	Married
Language Skills:	German, English, French

Work Address:	University of Toronto, Toronto Western Hospital, UHN Division of Neuroradiology,399 Bathurst St., 3MCL-429 Toronto, ON, M5T 2S8, CANADA
Telephone/Fax:	+1 416-603-5562 / +1 416-603-4257
Email:	timo.krings@uhn.ca
Internet:	www.brainavm.com

2. Education /Degrees

Highschool:	1982-1991: Bischöfliches Gymnasium St. Ursula, Geilenkirchen, University Entrance diploma: (Abitur) June 1991
Medical Studies:	1991-1998: University of Aachen, Medical School August 1995 – July 1996: Harvard Medical School, Boston, USA
American License Exam:	August 1997 (USMLE Step 1 and 2)

German Medical Approbation and Graduation from Medical School: 22nd of June 1998

MD Thesis:	January 1999, Advisor: Prof. Dr. D. Graf v. Keyserlingk, Neuroanatomy, University Aachen: *Integrating functional MRI and transcranial magentic stimulation to evaluate human cortical motor represantation* „summa cum laude“
01.09.1998 – 31.8.2003	Residency Training Programme in Diagnostic Radiology, University Hospital Aachen
01.09.1998 – 31.08.1999	*Neurosugery (Prof. Dr. Gilsbach)*
01.09.1999 – 31.08.2000	*Neuroradiology (Prof. Dr. Thron)*
01.03.2000 – 31.03.2000	*Oberver at the Massachusetts General Hospital, Harvard Medical School, Department of Neuroradiology (Prof. Gonzalez)*
01.09.2000 – 31.08.2003	*Diagnostic Radiology (Prof. Dr. Günther)*
01.08.2001 – 09.09.2001	*Observer at the Beth Israel Hospital, Center for Endovascular Surgery, INN, Herbert and Nell Singer Division (Prof. Berenstein)*
November 2003	*Specialist Certificate in Diagnostic Radiology*
01.09.2003 – 31.08.2005	Fellowship in Diagnostic and Interventional Neuroradiology, University Aachen (Prof. Thron)
October 2005	*Subspecialisation Certificate in Neuroradiology*

2a Post Graduate Education

September 1998 - November 2002	Habilitation in Neuroradiology, Advisor Prof. Dr. A. Thron, Neuroradiology, University Aachen: *Functional MRI and anisotropic diffusion-weighted MRI of the brain: Methods and clinical applications*
November 2004 – April 2007	International Master Degree in Neurovascular Diseases, Faculté de Médecine de l'Université Paris XI
October 2005- July 2007	Certification in Medical Economics, Health Care Systems and Hospital Management (ZfU: 668201) (Ministry of Education of Bavaria, Germany)
April 2007	„European Qualification in Neuroradiology" of the European Board and the European Society of Neuroradiology
Juni 2008	Fellow of the Royal College of Physicians of Canada ; FRCP(C)

3a. Employment (Professional Appointments)

01.01.2002 – 30.10.2003	Assistant Staff, Neuroradiology
01.11.2003 – 01.07.2008	Staff Neuroradiologist, University Hospital Aachen (Prof. Thron)
01.09.2004 – 01.07.2008	Temporary Staff (Practicièn attaché), Service de Neuroradiologie Therapeutique, Hopital de Bicetre, Le Kremlin-Bicetre, Paris, France (Prof. Lasjaunias)
01.01.2005– 01.07.2008	Head of the Section of „Interventional Neuroradiology“ of the Division of Neuroradiology, University Hospital Aachen
01.01.2005 – 01.07.2008	Managing Director of the Division of Neuroradiology, University Hospital Aachen
01.07.2008 – present	Full-time Staff Neuroradiologist, Department of Medical Imaging, UHN, University of Toronto, Toronto Western Hospital
01.07.2008 – present	Associate Staff Interventional Neuroradiologist, University of Toronto, Hospital for Sick Children, Toronto
01.01.2016 – present	Chief of Diagnostic and Interventional Neuroradiology, Department of Medical Imaging, UHN, University of Toronto
01.01.2016 – present	Site Chief of Radiology, Toronto Western Hospital, University of Toronto

3b. Employment (University Appointments)

01.08.1992 – 31.07.1996	Research Assistant, Neuroanatomy, University Aachen
01.08.1996 – 30.06.1998	Research Assistant, Neuroradiology, University Aachen
October 1999 – November 2002	Lecturer, University Aachen
01.06.2001 – 31.03.2003	Acting Chief of the Research Group „*Neurofunctional Imaging*“ of the Interdisciplinary Center of Clinical Research, University Hospital Aachen
November 2002 – June 2007	Assistant Professor, University Aachen
June 2007 – June 2008	Associate Professor, University Aachen
June 2008 – present	APL Professor, University Aachen
July 2008 – March 2010	Associate Professor, University of Toronto
April 2010 – present	Full Professor of Radiology, University of Toronto
July 2012 – June 2017	Program Director Neuroradiology, University of Toronto
January 2014 – present	Full Professor of Surgery, University of Toronto
January 2016 – present	The David Braley and Nancy Gordon Chair in Interventional Neuroradiology, University of Toronto

4. Honours

- October 1992 **6year-Scholarship** of the „Program of the Gifted“ of the German Governement „*Konrad-Adenauer Stiftung”*
- August 1995 **Scholar** of the“Academic Year Program” of the *Biomedical Sciences Exchange Program* and der *Harvard University, Medical School, Boston, MA, USA* to study for one year at Harvard Medical School
- November 1997 **Research- Scholar** of the *Boehringer Ingelheim Fonds* for a 4 months research stay at Harvard Medical School: „EEG-Dipole Source Analysis in Epilepsy”
- June 2003 **Scholar** of the *Industrie-Clubs Düsseldorf* to participate at the 53. Meeting of nobel prize laureates in Lindau, Germany
- September 2004 **Scholarship** of the *Else Kröner Fresenius Stiftung* 150.000€
- Since 08/04 **External Consultant** of the Schweizer Nationalfonds (Swiss Research Council)
- Since 12/04 **External Consultant** of the Hongkong Research Grant
- Since 03/07 **External Consultant** of the National Medical Research Council Singapore
- Since 01/12 **External Consultant** of the Deutsche Forschungsgesellschaft (German Research Council)
- December 2015: **Wood Lecturer** of the University of North Carolina, Chapel Hill
- Since January 2016: **The David Braley and Nancy Gordon Chair** in Interventional Neuroradiology, University of Toronto

5. Professional Affiliations and Activities

- Since 1998: College of Physicians of Germany
- Since 1998: German Society of Neuroradiology
- Since 2003: German Society of Biomedical Engieneering
- Since 2004: European Society of Neuroradiology
- Since 2005: German Society of Radiology

- Since 2005: College of Physicians of France (Ordre National des Médécins)
- Since 2005: Committee of the Marc-Dünzl Prize of the German Society of Neuroradiology
- 2005-2008: Board Member of the „Educational Committee of the European Course of Neuroradiology"
- 2006-2008: Board Member of the "Neurointerventional Committee of the European Society of Neuroradiology"
- 2006-2008: Board member of the European Society of Neuroradiology
- 2006-2009: Chairman of the "Scientific Committee" of the European Society of Neuroradiology
- 2007-2008: Vice President and President-elect of the European Board of Neuroradiology
- 2007-2008: Vice-President of the Award-Committee of the Scientific Award of the European Society of Neuroradiology, the Lucien-Appel Prize.
- Since July 2008: Fellow of the Royal College of Physicians of Canada (FRCP (C))
- Since July 2008: Senior Member of the Educational Board of the European Society of Neuroradiology
- Since June 2009: Member of the World Federation of Interventional Neuroradiology
- Since January 2011: Member of the Price Committee of the Codman Research Prize in Interventional Neuroradiology
- Since May 2011: Member of the American Society of Neuroradiology
- Since May 2012: Senior Member of the American Society of Neuroradiology
- June 2012 – May 2015: Member of the Publications committee of the ASNR
- June 2014-May 2015 Chairman of the Membership Committee of the ASNR
- November 2015 -2017: Member at Large of the WFITN and Co-Director of the Educational Committee of the WFITN
- Since June 2016: Member of the International Committee of the ASNR
- Since June 2016: Member of the Technical Exhibits Committee of the ASNR

Ad-hoc Reviewer for Journals

- since 02/01 Biological Psychiatry
- since 04/01 Der Nervenarzt
- since 04/02 Fortschritte auf dem Gebiet der Röntgenstrahlen und der Bildgebenden Verfahren (RöFo)

- since 11/02 NeuroImage
- since 02/03 IEEE Transactions on Medical Imaging
- since 01/04 Human Brain Mapping
- since 03/04 Journal of Restorative Neurology and Neuroscience
- since 04/04 European Journal of Neurology
- since 05/04 Clinical Neurophysiology
- since 07/04 Clinical Neurology and Neurosurgery
- since 10/04 Zentralblatt für Neurochirurgie
- since 10/04 European Radiology
- since 11/04 Biological Psychology
- since 01/05 Journal of Neuroscience Methods
- since 05/05 Psychological Reports – Perceptual and motor skills
- since 06/05 Epilepsia
- since 07/05 MAGMA (Magnetic Resonance Materials in Physics, Biology and Medicine)
- since 07/05 Stroke
- since 07/05 Interventional Neuroradiology
- since 09/05 European Journal of Radiology
- since 10/05 Neuroradiology
- since 01/06 American Journal of Neuroradiology
- since 09/06 Journal of Neurology
- since 03/07 Neurosurgical Review
- since 04/07 Brain
- since 11/07 Vascular Health and Risk Management
- since 01/09 Child's Nervous System
- since 05/09 Canadian Journal of Neurological Sciences
- since 05/10 Neurosurgery
- since 05/10 Journal of Cerebral Blood Flow and Metabolism
- since 07/10 Journal of Neuroimaging
- since 01/11 Stroke Research and Treatment
- since 02/11 Journal of Magnetic Resonance Imaging
- since 02/11 American Journal of Roentgenology
- since 01/12 PLOS One

Editorial Board Member

- Clinical Neuroradiology (Official Organ of the German, Austrian and Swiss Societies of Neuroradiology), Editor since 2006
- American Journal of Neuroradiology, Associate Editor, August 2010 - 2014
- Interventional Neuroradiology; Deputy Editor, since January 2011
- Neuroradiology, Member of Editorial Board since September 2012

Congress Organisation

- Scientific Secretary of the 29. Congress of the European Society of Neuroradiology, 8-11-9.2004, Aachen
- 1. Aachener Neuroradiologisches Kolloquium, 11.3.2006, Leverkusen
- Workshop „Interdisziplinäres Behandlungskonzept der symptomatischen Carotisstenose“, 18.10.2006, Aachen
- 2. Aachener Neuroradiologisches Kolloquium, 21.4.2006, Wesel
- Erasmus Course MRI CNS II, Aachen, 28.9-3.10 2007
- Neurovascular Symposium „Brain Aneurysms“ during the 44th Annual Congress of the Canadian Neurological Sciences Federation
- 10th Interventional Neuroradiology Symposium 2009, 10-11. September 2009, Toronto, Ontario
- 11th Interventional Neuroradiology Symposium 2010, 24-25. September 2010, Toronto, Ontario
- 12th Interventional Neuroradiology Symposium 2011, 23-24. September 2011, Toronto, Ontario
- University of Toronto Advanced Imaging and Education Centre Neuroradiology Module (2009-2011)
- Organization of the U of T Fellowship Course Curriculum since 2011
- 13th Interventional Neuroradiology Symposium 2012, 28-29. September 2012, Toronto, Ontario
- Epilepsy Review Symposium, Toronto (23.11.2012)
- 1st Neurovascular Simulator Course, Toronto (14-15.12.2012)

- Emergency Neuroradiolgy Course, Toronto 23.2.2013
- Physics Symposium, Toronto (10.5.2013)
- 14th Interventional Neuroradiology Symposium 2013, 20-21. September 2013, Toronto, Ontario
- Health Services Research and Clinical Epidemiology Symposium, Toronto (4.10.2013)
- 2nd Neurovascular Simulator Course, Toronto (29-30.11.2013)
- Physics Symposium, Toronto (5.2014)
- 15th Interventional Neuroradiology Symposium 2014, 23-24. September 2014, Toronto, Ontario
- Comprehensive Epilepsy Review Symposium, Toronto (6.10.2014)
- 3rd Neurovascular Simulator Course, Toronto (10, 2014)
- Physics Symposium, Toronto (5.2015)
- Advanced Brain Tumor Imaging, Toronto (9, 2015)
- 16th Interventional Neuroradiology Symposium 2015, 25-26. September 2015, Toronto, Ontario
- 4th Neurovascular Simulator Course, Toronto (10, 2015)
- Physics Symposium, Toronto (5.2016)
- 17th Interventional Neuroradiology Symposium September 2016, Toronto, Ontario
- 18th Interventional Neuroradiology Symposium September 2017, Toronto, Ontario
- 19th Interventional Neuroradiology Symposium ; September 2018, Toronto, Ontario
- 1st Canadian Course in Neuroradiology, November 2018, Toronto, Ontario
- Acute Ischemic Stroke Imaging, November 2018, OAR, Toronto Ontario

B. Academic History

1. Grants and Funded Research

- March 1998 – August 1998: EEG-Dipole Source Analysis in Epilepsy
  Principal Investigator: Dr. T. Krings
  Donator: Böhringer Ingelheim Fonds
  Sum: 4.000 DM

- January 1999-January 2000:Evaluation kortikaler Reorganisation nach Schlaganfall mittels funktioneller Magnet-Resonanz-Tomographie und transkranieller Magnetstimulation,
  Principal Investigators: Dr. T. Krings, Dr. R. Töpper
  Donator: START (Faculty of Medicine Research Grant),
  Sum: 40.000 DM

- February 2001 – March 2005: Präoperative Lokalisation des motorischen Systems: Vergleich von funktioneller Magnet-Resonanz-Tomographie (fMRT) und Aktivierungs-Positronenemissionstomographie (PET) und Validierung durch direkte elektrische kortikale Stimulation.
  Principal Investigator: Dr. T. Krings
  Donator: DFG (German Research Council – equivalent to NIH sponsored grants in the USA) (Aktenzeichen KR 2008/2-1)
  Sum: 100.000 DM

- Since October 2001: Langzeitprobleme endovaskulärer Prothesen
  Principal Investigators: Dr. T. Krings, Dr. F. Hans,
  Donator: Stiftung Tumorforschung Kopf-Hals (Independant Research Foundation)
  Sum: 38.000 DM

- January 2002-January 2003: Minimal invasive endovaskuläre Therapie zerebraler Aneurysmen mittels endovaskulärer Prothesen und selektiv ablösbarer Spiralen am Kaninchen-Modell, AZ: 50.203.2-AC 24, 24/01
  Principal Investigator: Dr. T. Krings

Donator: START (Faculty of Medicine Research Grant),
Sum: 30.000 Euro

- March 2003-July 2005: Minimal invasive endovaskuläre Therapie zerebraler Aneurysmen mittels endovaskulärer Prothesen und selektiv ablösbarer Spiralen am Kaninchen-Modell
  Principal Investigator: PD Dr. T. Krings
  Donator: DFG (German Research Council – equivalent to NIH sponsored grants in the USA) (Aktenzeichen KR 2008/4-1)
  Sum: 65.700 Euro

- April 2003-2007: Endovaskuläre Therapie zerebraler Aneurysmen am Kaninchen-Modell
  Principal Investigator: PD Dr. T. Krings
  Donator: Else Kröner Fresenius Stiftung (Independant Research Foundation)
  Sum: 150.000 Euro

- August 2005-2007: Endovaskuläre und chirurgische Therapie experimenteller Aneurysmen am Kaninchenmodell
  Principal Investigator: PD Dr. T. Krings
  Donator: DFG (German Research Council – equivalent to NIH sponsored grants in the USA) (Aktenzeichen KR 2008/4-2)
  Sum: 56.700 Euro

- Toshiba Research Grant 2009-2010 (CTA Dynamic Wall Imaging of Intracranial Aneurysms with a 320 detector row CT in Neuroradiology) Principal Investigator

- Toshiba Research Grant 2009-2010 (Noninvasive diagnostics of intracranial arteriovenous shunting lesions with a 320 detector row CT in Neuroradiology) . Principal Investigator

- Toshiba Research Grant 2010-2011 (CT Perfusion of Brain AVMs employing a 320 detector row CT in Neuroradiology) . Principal Investigator

- January 2011: 2010 NARSAD Young Investigator Award : Neuronal migration and organization in the developing brain: genetic causes of epilepsy, Co-investigator, Donator: The Brain and Behaviour Research Fund NARSAD, Sum:$59.648

- 2012: PSI Foundation Health Grant: Genetic Causes of temporal lobe epilepsy Principle Co-investigator with primary role in identification of MRI endophenotypes. Donator: The Physicians' Services Incorporated Foundation, Ontario, Canada, Sum: $168.944

- June 2014: Brain Aneurysm Foundation Grant: Imaging Genomics of unruptured aneurysms. Principle Co-investigator. Sum: $25.000

- April 2015: CRU Masters Research Project of the University of Leiden: 'Predictors for procedure-related complications in patients with unruptured intracranial aneurysms" Principal Co-investigator; Sum Euro 5000

- June 2015: Philips Research Grant: Intra-aneurysmal Hemodynamics Sum: $300.000

2. Research Awards

- November 1997 **Deutscher Studienpreis** (German Prize for Students) of the *Körber-Stiftung* for the work „ Transkranielle Magnetstimulation und funktionelle MRT. Komplementäre Methoden zur Darstellung der motorischen Funktion des Gehirns", 2000DM
- March 1998 **Prize "Advances in Medicine – Student's research "** *9. Deutschen Ärztekongresses EUROMED* fort he work: „Funktionelle MRT zur präoperativen Planung neurochirurgischer Eingriffe" 1500DM
- January 1999**Borchers Plakette** of the *University Aachen* for the best Medical approbation
- December 1999 **Friedrich-Wilhelm Prize** of the *University Aachen* for the best medical Thesis: „Zur Integration von funktioneller Magnet-Resonanz-Tomographie und transkranieller Magnetstimulation in der Evaluation motorischer Repräsentation des menschlichen Gehirns", 1000DM

- March 2000: **International Lucien Appel Prize 2000** of the *Lucien Appel Foundation for Neuroradiology and the European Society of Neuroradiology*, Antwerp, Belgium for the work: „Functional MRI: Problems and Potentials“, 4000€
- September 2001 **Kurt-Decker-Prize 2001** of the *German Society for Neuroradiology (DGNR)* for the work: „Three-dimensional visualization of motor cortex and pyramidal tracts employing functional and diffusion weighted MRI. Methods, applications and limitations” 2000€
- April 2002 **1. Research Prize** of the *Stiftung Tumorforschung Kopf-Hals*, Wiesbaden for the work : „Functional and diffusion weighted MRI in space occupying lesions affecting the motor system: Imaging motor cortex and pyramidal tracts“, 5000€
- November 2002 **International Susanne-Klein-Vogelbach-Prize** for research on human movements, (Zurich, Switzerland) for the work „Activation in primary and secondary motor areas in patients with CNS neoplasms and weakness“, 10.000 CHF
- April 2003 **Klee Prize,** *German Society for biomedical Engiennering* for the work: „Anisotrope Diffusionsbildgebung und funktionelle MRT zur Darstellung des motorischen Kortex und seiner deszendierenden Faserverbindungen“ 5000€
- May 2003 3rd Prize **Wissenschaftspreises 2003** des *Wissenschaftszentrums Nordrhein-Westfalen* for the work „Funktionelle Magnet-Resonanz-Tomographie und anisotrope Diffusionsbildgebung des Gehirns – Methodik und klinische Applikationen“
- September 2003 **Award of outstanding Poster presentation** of the *German Society of Neuroradiology* for the work: „Anatomische Besonderheiten der zervikalen Gefäßanatomie als Ursache für das Versagen des Elastase-induzierten Aneurysmamodells beim Kaninchen“
- September 2004 **Scientific Award 2004** of the *European Society of Neuroradiology* for the work: “Treatment of experimental aneurysms using stents”, 4000€
- September 2005 **„Cum Laude“ Award** of the *European Society of Neuroradiology* for the work“Intracranial Arterial Aneurysm Vasculopathies: Targeting the outer vessel wall”
- January 2006 1.Prize of the *Faculty of Medicine Aachen* for Young researchers, 1500€
- February 2006 „**Editor’s Recognition Award 2005**“ *European Journal of Radiology*
- May 2007 “**Holthusen-Ring**” (highest scientific honorary medal) of the *German Society of Radiology* for scientific work accomplished

- September 2008 **„Cum Laude“ Award** of the *European Society of Neuroradiology* for the work“Pathomechanisms of symptomatic DVAs”
- September 2008: **„Lucien Appel Prize”** of the *European Society of Neuroradiology* im during the XXXIII Annual Congress of the European Society of Neuroradiology, Krakow, Poland, as Coauthor of the work “A new Classification of dural arteriovneous Shunts”
- April 2009: “**Research Award**” of the Canadian Association of Radiologists, 72nd Annual Meeting, Montreal, as Coauthor of the work “Novel Postprocessing applications in 320 slice CT”
- May 2009: “**Dr. Pierre Lasjaunias Award**” of the International HHT Society during the 8. HHT International Scientific Conference, Santander, Spain: “The spectrum of phenotypes in cerebral AVMs: The difference between micro AVMs and capillary vascular malformations
- May 2009: 1. **Posterpreis** of the German Society for Neurosurgery for the work “Long-term histological and electrone-microscopical evaluation of experimental Aneurysms treated with Matrix- and Hydrogel coated Coils“
- September 2009: **„Founders Award - Interventional Neuroradiology”** of the *European Society of Neuroradiology* im Rahmen des XXXIV Annual Congress of the European Society of Neuroradiology, Athens, Greece, as coauthor of the work “Symptomatic Developmental Venous Anomalies”
- June 30th 2010: “**Excellence in Teaching Award**” of the Department of Medical Imaging Residency Program
- June 30th 2011: “**Excellence in Teaching Award**” of the Department of Medical Imaging Residency Program
- June 30th 2011: “**Excellence in Teaching Award**” of the Department of Medical Imaging Neuroradiology Fellowship Program
- April 2013: **Anderson Award** of the Wightman Berris Academy of the University of Toronto for Program Innovation and Development
- June 30th 2013: “**Excellence in Teaching Award**” of the Department of Medical Imaging Residency Program
- June 30th 2013: “**Excellence in Teaching Award**” of the Department of Medical Imaging Neuroradiology Fellowship Program
- August 2013: Coauthor of the **Norman E.Leeds Award** of the Eastern Neuroradiological Society

- June 30th 2014: "**Excellence in Teaching Award**" of the Department of Medical Imaging Residency Program
- June 30th 2014: "**Excellence in Teaching Award**" of the Department of Medical Imaging Neuroradiology Fellowship Program
- April 2015: **Magna Cum Laude Award** of the American Society of Neuroradiology for the Presentation "Medication-Related Central Nervous System Complications: Pathophysiology and Imaging
- June 2015: "**Excellence in Teaching Award**" of the Department of Medical Imaging Neuroradiology Fellowship Program
- June 2015: "**Excellence in Teaching Award**" of the Department of Medical Imaging Residency Program
- June 2015: **Edward L. Lansdown Award** for Outstanding Teaching in the Residency Program
- June 2016: "**Excellence in Teaching Award**" of the Department of Medical Imaging Neuroradiology Fellowship Program
- June 2016: "**Excellence in Teaching Award**" of the Department of Medical Imaging Residency Program

3. Patents Awarded

- Method and System for managing imaging data, and associated devices and compounds, Serial No: 12/954,808, US20110150309 (Barfett, Mikulis, Krings , Coolens)

4. Core Imaging Lab Work

- PROMISE (Single-arm Acute Ischemic Stroke Treatment Trial using the ADAPT technique; Core Imaging Lab, Publication in preparation, sponsored by Penumbra)

- ESCAPE Trial (Core Imaging Lab)
  Goyal et al. Randomized assessment of rapid endovascular treatment of ischemic stroke. N Engl J Med. 2015 Mar 12;372(11):1019-30.

- ENACT Trial (Core Imaging Lab)
  Hill MD, et al., Safety and efficacy of NA-1 in patients with iatrogenic stroke after endovascular aneurysm repair (ENACT): a phase 2, randomised, double-blind, placebo-controlled trial. Lancet Neurol. 11(11):942-950, 2012

C. Publications

SRA = senior responsible author, PA = principal author, CPA = coprincipal author, C= collaborator

1a. Peer Reviewed Publications

1997

1. **Krings T,** Buchbinder BR, Butler WE, Chiappa KH, Jiang HJ, Rosen BR, Cosgrove GR.
Functional magnetic resonance imaging and Transcranial Magnetic Stimulation: Complementary approaches in the evaluation of cortical motor function.
Neurology. 1997;48:1406-1416
Impact: 4.972
PA

2. **Krings T**, Buchbinder BR, Butler WE, Chiappa KH, Jiang HJ, Rosen BR, Cosgrove GR.
Stereotactic Transcranial Magnetic Stimulation: Correlation with Direct Electrical Cortical Stimulation.
Neurosurgery, 1997, 41, 1319-1326
Impact: 2.403
PA

1998

3. **Krings T**, Naujokat C, Keyserlingk, Graf von, D.
Representation of cortical motor function as revealed by Stereotactic Transcranial Magnetic Stimulation.
Electroencephalography and clinical Neurophysiology, 1998, 109, 85-93.
Impact: 2.451
PA

4. **Krings T**, Chiappa KH, Cuffin BN, Buchbinder BR, Cosgrove GR.
Accuracy of electroencephalographic dipole localization of epileptiform activities associated with focal brain lesions.
Annals of Neurology, 1998, 44, 76-86.
Impact: 9.455
PA

5. **Krings T**, Reul J, Spetzger U, Klusmann A, Roessler F, Gilsbach JM, Thron A.

Functional Magnetic Resonance Mapping of Sensory Motor Cortex for Image-guided Neurosurgical Intervention.
Acta Neurochirurgica, 1998, 140: 215-222.
Impact: 0.748
PA

6. **Krings T**, Krombach G, Reul J, Spetzger U, Roessler F, Klusmann A, Gilsbach J, Thron A
fMRI und direkte elektrische kortikale Stimulation: Eine Studie zur Integration verschiedener Hirnkartierungsmethoden
Klinische Neuroradiologie, 1998, 8: 99-107.
Impact: 0.124
PA

7. **Krings T.**
Dipole source analysis for presurgical planning of temporal lobe epilepsy.
BIF - Futura, 1998, 13:299-301.
Impact: 0.124
PA

1999

8. **Krings T**, Chiappa KH, Cuffin BN, Cochius JI, Connolly S, Cosgrove GR.
Accuracy of EEG dipole source localization using implanted sources in the human brain
Clinical Neurophysiology, 1999, 110, 106-114.
Impact: 2.451
PA

9. **Krings T**, Erberich S, Roessler F, Reul J, Thron A.
MR BOLD signal differences in parenchymal and large draining vessels. Implications for functional MR Imaging.
American Journal of Neuroradiology, 1999, 20: 1907-1914
Impact: 2.358
PA

10. Schmidt P, **Krings T**, Willmes K, Roessler F, Reul J, Thron A.
Determination of cognitive hemispheric lateralization by "functional" transcranial Doppler crossvalidated by functional magnetic resonance imaging
Stroke, 1999, 30, 939-945
Impact: 5.528
CPA

11. Borojeerdi B, Foltys H, **Krings T**, Spetzger U, Thron A, Töpper R.
Localization of the motor hand area using transcranial magnetic stimulation and functional magnetic resonance imaging.
Clinical Neurophysiology, 1999, 110, 609-704
Impact: 2.451
CPA

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13. **Krings T**, Lasjaunias P, Thron A (2006). Vascular diseases of the spine, In: Codorean I (ed): Erasmus Course on Magnetic Resonance Imaging – Central Nervous System II Syllabus

14. Thron A, **Krings T** (2006). Interventionelle Therapie spinaler vaskulärer Malformationen, in Brandt, Dichgans, Diener (eds.) Therapie und Verlauf neurologischer Erkrankungen. 5. Auflage, Kohlhammer, Stuttgart, 498 – 506, ISBN 978-3-17-019074-0

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17. **Krings T**, Lasjaunias P. (2007) Cerebral Vascular Malformations. In: Schaaf, Krings (eds): MR-Imaging of neuropediatric, spinal and posterior fossa diseases. Mainz Verlag, Aachen, 395-410. ISBN: 3-86130-889-4

18. **Krings T.** (2007) Dynamic MR Angiography at 3 Tesla. In: Schaaf, Krings (eds): MR-Imaging of neuropediatric, spinal and posterior fossa diseases. Mainz Verlag, Aachen, 421-431. ISBN: 3-86130-889-4

19. Mull M, **Krings T**, Thron A (2007). Spinal Vascular Anatomy and Spinal Ischemia. In: Schaaf, Krings (eds): MR-Imaging of neuropediatric, spinal and posterior fossa diseases. Mainz Verlag, Aachen, 329-340. ISBN: 3-86130-889-4

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26. **Krings T,** Geibprasert S, Terbrugge K. (2011) Interventional Therapy of Brain and Spinal Arteriovenous Malformations. In Mohr et al. (eds.) Stroke Pathophysiology, Diagnosis and Management, 5th Edition, Elsevier, New York, 1255-1279; ISBN 978-1-4160-5478-8

27. **Krings T**, Geibprasert S, Jiarakongmun P, Pongpech S, Pereira V, Lasjaunias P. Vascular malformations, In: Naidich T (ed). Imaging of the brain, Elsevier, New York, in press

28.**Krings T,** Geibprasert S, Pereira V, Jiarakongmun P, Pongpech S, Lasjaunias P. Aneurysms, In: Naidich T (ed). Imaging of the brain, Elsevier, New York, in press

29. **Krings T,** Geibprasert S. Classification of pediatric vascular malformations. In: Naidich T (ed). Neuroradiology of the brain and spine, Elsevier, New York, in press

30. Bharata A, **Krings T,** Terbrugge K. Coiling of unruptured Aneurysms. In: Al-Mefty et al. Controversies in Neurosurgery, Thieme, New York, in press

2b. Books

Thron A, **Krings T** (eds) Guest Editors Rivista di Neuroradiologia, 2004, 17 (3), Course Syllabus of the ESNR 2004.
Centauro S.r.L, Bologna. ISSN: 1120-9976

Schaaf M, **Krings T** (eds) (2007)
MR-Imaging of neuropediatric, spinal and posterior fossa diseases.
Mainz Verlag, Aachen ISBN: 3-86130-889-4

Krings T, Geibprasert S, Terbrugge K (2010)
Case-Based Interventional Neuroradiology
Thieme, New York ISBN 978-1-60406-373-8

Krings T, Geibprasert S, Cruz JP, Terbrugge K (2015)
Neurovascular Anatomy in Interventional Neuroradiology. A Case-Based Apporach
Thieme, New York ISBN 978-1-60406-839-9

3. Visiting Professorships

Harvard Medical School, Boston, MA, USA
Toward Integrated Mapping of the Human Motor Cortex: The Central Role of Frameless Stereotaxy
Neurosurgery Grand Rounds, Massachusetts General Hospital, 06/1996

University of Bruxelles, Belgium
Diffusion Tensor Imaging: Reserch and Clinical Applications
Hopital Erasme, Bruxelles, Belgium, 05/2003

Cambridge University, UK
Modern methods of endovascular aneurysmal management
Addenbrooke Hospital, Cambridge University, UK, 12/2005

University of Maastricht, The Netherlands

Spinal vascular malformations
Universiteitsziekenhuis Maastricht, The Netherlands, 11/2006

University of Toronto, Canada
Functional MRI in vascular diseases
Neurovascular Rounds, Toronto Western Hospital, 09/2007

University of Vienna, Austria
Management of the Ruptured Aneurysm.
Universitätskrankenhaus Wien, Kotscher Kurs, 12/2007

Mahidol University, Bangkok, Thailand
Contrast enhanced MR Angiography
Functional MRI in hemodynamic diseases
Ramathibodi Hospital, Mahidol Medical School, Bangkok, Thailand
03/2008

University of Zurich, Switzerland
Conditions mimicking brain tumors
Rare Strokes
Drug induced changes in the brain
Imaging of the Epilepsies.
Universitätsspital Zuerich, January 2013 and March 2013

University of Ulsan, Seoul, South Korea
Management of Aneurysms
AVM: From Imaging to Mangement
Dural AVFistulae
Arterial Dissecting Diseases
Future of Neuroimaging
Pediatric vascular malformations
Imaging of the Epilepsies
Spinal Vascular Malformations
Conditions mimicking tumors
The University of Toronto Neuroradiology Fellowship
Vessel Wall Imaging
Asan Medical Center, 2/2013

McGill University Montreal
Tumors and Conditions mimicking Tumors
Epilepsy Imaging
Arterial Dissections
Future of Imaging and Intervention in Neurovascular Diseases
Brain Arteriovenous Malformations: From Imaging to Therapy.
McGill University, December 2013

4a. Invited Lectures National Scientific Meetings

06/99	Transcranial Magnetic Stimulation: Experimental design and analysis. Brain Mapping Course at the Human Brain Mapping Meeting 1999, Düsseldorf
10/00	Zerebrale hämodynamische Veränderungen bei epileptischer Aktivität im BOLD fMRT. 45. Jahrestagung der Deutschen Gesellschaft für klinische Neurophysiologie, Mainz
09/01	Darstellung kortikaler Aktivität und ihrer zugehörigen Faserbahnen Deutsche Gesellschaft für Neurologie 2001, Aachen
10/01	Presurgical motor mapping International Symposium on the clinical neurophysiology of functional MRI im Rahmen der 46. Jahrestagung der Deutschen Gesellschaft für klinische Neurophysiologie 2001, Bonn
11/01	Aktueller Stand der MR-Diagnostik bei Erkrankungen des ZNS MEDICA 2001, Düsseldorf
06/03	Zukunftsperspektiven der funktionellen MRT 119. Neurologische Wanderversammlung, Baden Baden
08/03	Perspektiven der Faserbahndarstellung mittels Diffusionsbildgebung 38. Jahrestagung der Deutschen Gesellschaft für Neuroradiologie, Lübeck
09/04	New developments in MRA: time resolved MR European Society for Neuroradiology, Aachen, Germany
09/05	Diffusions Tensor Imaging: Fehlfarben oder echt? 39. Jahrestagung der Deutschen Gesellschaft für Neuroradiologie, Dresden
05/06	Einblick in die vierte Dimension: Zerebrale Dynamische 3D MRA Annual Meeting of the German Society of Radiology, Berlin
05/07:	Postoperative Befunde am Spinalkanal Annual Meeting of the German Society of Radiology, Berlin
06/09	The Aneurysm Wall, the key to a subclassification of Aneurysmal Vasculopathies? 44th Annual Congress of the Canadian Neurological Sciences Federation
04/10	Lesions that Resemble Tumors Canadian Association of Radiologists, Montreal
11/12	Imaging of the Patient with Seizures

	Epilepsy Review Course, Toronto
12/12	* Aneurysm Management * Intra- and Extracranial Stenosis * Management of Complications in Neurovascular Procedures 1st Toronto Neurovascular Simulation Course, Toronto
06/13	Future of Imaging and Intervention in Neurovascular Diseases 38th Annual William S. Keith Professorship in Neurosurgery, Toronto
08/13	Conditions mimicking Stroke Eastern Neuroradiological Society, Greenbrier, West Virginia
10/13	What went wrong with recent Neurointerventional Trials? Health Services Research Symposium, Toronto
11/13	* Aneurysm Management * Intra- and Extracranial Stenosis * Management of Complications in Neurovascular Procedures 2nd Toronto Neurovascular Simulation Course, Toronto
12/13	Vein of Galen Vascular Malformations 42 Annual Meeting of the AANS/CNS Section on Pediatric Neurological Surgery, Toronto

4b. Invited Lectures International Scientific Meetings

10/01	Functional MRI: methods, artefacts and clinical applications Double congress of medical radiological technicians Belgium and the VMB, Bruxelles, Belgium
02/03	* Basics and Applications of functional MRI * Fiber tracking in the human cortex * Cerebral Reorganization studied by fMRI * Future Perspectives of fMRI. International Satellite Symposium of fMRI at the International Congress of Stereotactic Radiosurgery and Radiotherapy, Mexico City, Mexico
05/04	Zukunftsperspektiven der funktionellen Bildgebung: Multimodality Neuroimaging 13. Annual Meeting of the Austrian Society of Neuroradiolgy, Vienna, Austria
10/04	* Functional MRI: Basics and Clinical Applications * Epilepsy Imaging Meeting of the Society of Neurology of Chile, Iquique, Chile
04/06	Functional MRI of the spinal cord American Society of Neuroradiology, Annual Meeting San Diego, USA

09/06	* Functional MRI in the evaluation of cerebral vascular disease * Dynamic contrast enhanced MR angiography European Society of Neuroradiology, Annual meeting, Geneva, Switzerland
10/06	* Functional MRI of the spinal cord * Non-invasive imaging of spinal cord vessels Annual Meeting of the Italian Association of Neuroradiology, AINR Milano, Italy
03/07	Dynamic MR Angiography in Neuroradiology. Technique and applications European Society of Radiology, Annual Meeting, Vienna, Austria
09/07:	Spinal MR angiography European Society of Neuroradiology, Annual Meeting, Genova, Italy
02/08:	Modern Imaging of the Spinal Cord: MRA and fMRI of the spine Japanese Society of Neuroradiology, Annual Meeting, Yokohama, Japan
03/08	* Management of Stroke – Interactive Case Presentations * Treatment of non-ruptured aneurysms European Society of Radiology, Annual Meeting, Vienna, Austria
09/08:	* The Aneurysm Wall – the key to a subclassification of Aneurysms? * Pediatric Aneurysmsal Vasculopathies * Spinal Vascular Malformations European Society of Neuroradiology, Annual Meeting, Krakow, Poland
03/09	* Spinal Vascular Diseases * Management of Stroke - Interactive Case Presentations European Society of Radiology, Annual Meeting, Vienna, Austria
06/09	Partial Treatment of Brain AVMS World Federation of Therapeutic and Interventional Neuroradiology, Montreal, Canada
09/09:	Classification of Spinal Vascular Malformations European Society of Neuroradiology, Annual Meeting, Athens, Greece
03/09	Vascular Disorders of the Spinal Cord European Society of Radiology, Annual Meeting, Vienna, Austria
10/10	Tinnitus German Society of Neuroradiology Annual Meeting, Cologne Germany
08/11	* Transvenous Approaches for intracranial Dural AV Fistuale * Transarterial Approaches for intracranial Dural AV Fistuale

	* Histology and Imaging of Intracranial Dissecting Diseases * Endovascular Treatment of Intracranial Dissecting Diseases 11th Oriental Conference of Interventional Neuroradiology, Shanghai, China
11/11	* AVM Symptomatology * Intracranial Stenting – Challenging Cases * Flowdiversion for Intracranial Aneurysms – The Marco Polo Trial World Federation of Therapeutic and Interventional Neuroradiology, Cape Town, South Africa
01/12	Midbasilar Artery Aneurysms: Pathophysiology and Natural History World Federation of Therapeutic and Interventional Neuroradiology, ABC-WIN Meeting, Val d'Isere, France
06/12	* The Aneurysm Wall * Managment of Dissecting Diseases * Diagnosis and Management of intracranial atherosclerotic disease * Dural AVFistulae * Pediatric Vascular Malformations * AVM: From Imaging to Management SOBRICE (Interventional Radiology Society of Brazil, Salvador, Brazil
09/12:	Pediatric AVMs 1st International AVM Conference and European Society of Neuroradiology, Annual Meeting, Edinburgh, Scotland
10/12	* Transvenous Approaches through occluded sinuses for intracranial Dural AV Fistuale * Dangerous Anastomoses * Intracranial Stenosis * Vessel Wall imaging * The Future of Neuroimaging 12th Oriental Conference of Interventional Neuroradiology, Shanghai, China
11/12:	Vein of Galen AVMs Swiss Society of Neuroradiology, Annual Meeting, Berne, Switzerland
03/13	Head and Neck Vascular Trauma European Society of Radiology, Annual Meeting, Vienna, Austria
09/13	Advances in spinal Imaging European Society of Neuroradiology, Annual Meeting, Frankfurt, Germany
10/13	*Conditions mimicking Stroke and Tumors * INR Case Discussions * Advances in Aneurysm Imaging * Dissecting Diseases

	* AVM and dAVF: Advances in Imaging and Treatment Joint Meeting of the Spanish and Portuguese Societies of Neuroradiology, Lisbon, Portugal
10/13	* Advances in Aneurysm Imaging * Recurrence of Aneurysms: How to treat * Intracranial Stenosis 13th Oriental Conference of Interventional Neuroradiology, Shanghai, China
11/13	Classification of Pediatric Vascular Malformations Word Federation of Therapeutic and Interventional Neuroradiology, Buenos Aires, Argentinia
01/14	Angioscopy World Federation of Therapeutic and Interventional Neuroradiology, ABC-WIN Meeting, Val d'Isere, France
03/14	* Arterial Dissections * Pediatric Aneurysms * Intracranial Stenting in the post SAMMPRIS era * Conditions mimicking Stroke Asian Australian Federation of Interventional Neuroradiology Meeting (AAFITN), Danang, Vietnam
07/14	* Arterial Dissections * Treatment of recurrent Aneurysms * Targetted treatment of brain AVMs * Imaging the Vessel Wall * Dural Arteriovenous Fistulae - Imaging and Management "Surfing Brain Arteries" Neurovascular Meeting of the Italian Federation of Neuroradiology, Rome, Italy
07/14	* Mechanical Thrombectomy * Conditions mimicking Stroke * Pediatric and Spinal Vascular Malformations "Stroke Meeting", Cagliari, Italy
01/15	* Vein of Galen AVMs * Managment of Pediatric Vascular Malformations * Pediatric Stroke European Course of Pediatric Neuroradiology, Ioannidis, Greece
02/15	* Spinal Vascular Anatomy * Angiogenesis and Vasculogenesis * Developmental Venous Anomalies * Spinal Cord Vascular Malformations PLANET Course I, Chiang Mai, Thailand

04/15	* Transvenous Approaches through occluded sinuses for intracranial Dural AV Fistuale * Dangerous Anastomoses * Intracranial Stenosis * Vessel Wall imaging * The Future of Neuroimaging Chinese Forum of Cerebrovascular Diseases, Beijing, China
06/15	* Conditions mimicking Stroke * Hemorrhagic Strokes – Differential diagnoses IDKD Asia, Beijing, China
07/15	* Optical Flow Imaging LINNC Course, Paris
08/15	* Endovascular Considerations of Head and Neck Trauma * Intracranial dural AVFs and the epidural spaces * Endovascular Treatment of A1 and Acom aneurysms * Giant intracranial aneurysms: Pathobiology, Phenotypic spectrum and endovascular treatment * Carotid artery stenting: Update * Intracranial atherosclerotic disease: Update * Classification of spinal arteriovenous vascular malformations * Endovascular treatment of spinal perimedulaary AVFs * Targetted embolization in brain AVMs: Concept and Applications Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
08/15	* Classification of spinal arteriovenous vascular malformations ENRS Meeting, Newport, USA
09/15	* Optical Flow Imaging and Angioscopy European Society for Neuroadiology Annual Meeting, Naples, Italy
09/15	*Conditions mimicking Stroke and Tumors * INR Case Discussions * Advances in Aneurysm Imaging * Dissecting Diseases Annual INR Symposium, Toronto
10/15	* Aneurysm Management * Intra- and Extracranial Stenosis * Management of Complications in Neurovascular Procedures 4th Toronto Neurovascular Simulation Course, Toronto
10/15	* Advances in Aneurysm Imaging * Recurrence of Aneurysms: How to treat * Intracranial Stenosis 15th Oriental Conference of Interventional Neuroradiology, Shanghai, China

10/15	* Aneurysm Classification * Brain AVM Classificaton * Brain AVM Targetted Treatment * Pediatric Vascular Malformations * Flow Diversion of Aneurysms * Mechanical Thrombectomy in Acute Stroke * Peripheral Aneurysms * Intracranial Stenosis * Giant Aneurysms PLANET Course II, Chiang Mai Thailand
11/15	* Optical Flow Imaging *Angioscopy – Tool or Toy? * Spinal Vascular Malformation – Classification WFITN Meeting, Gold Coast, Australia
12/15	* Carotid Revascularization * Dural AVF and Brain AVMs * Neuroradiology of Brain Tumors * Venous Anatomy * Imaging in Epilepsy Comprehensive Neurosurgical Review Course, Krakow, Poland
02/16	* Aneurysm Classification * Brain AVM Classificaton * Brain AVM Targetted Treatment * Pediatric Vascular Malformations * Flow Diversion of Aneurysms * Mechanical Thrombectomy in Acute Stroke * Peripheral Aneurysms * Intracranial Stenosis * Giant Aneurysms Symposium “Circle of Willis and beyond”, Mumbai, India
03/16	* Spinal Vascular Anatomy * Angiogenesis and Vasculogenesis * Developmental Venous Anomalies * Spinal Cord Vascular Malformations PLANET Course I, Tokio, Japan
04/16	* Imaging the Patient with Seizures * Brain AVMs and Dural AVFs: Imaging Clues to Determine If, Why, When and How to Treat 44th International Diagnostic Course in Davos, Switzerland
04/16	* The Aneurysm Wall * Managment of Dissecting Diseases * Diagnosis and Management of intracranial atherosclerotic disease

	* Dural AVFistulae * Pediatric Vascular Malformations * AVM: From Imaging to Management Chilenean Society for Neuroradiology, Satiago de Chile, Chile
04/16:	*Sinuvenous Thrombosis *Pediatric AVMs *Spinal Vascular Malformations PAULISTA, Sao Paulo, Brazil
07/16	*Conditions mimicking Stroke and Tumors * INR Case Discussions * Advances in Neurovascular Imaging Sardegna Stroke Symposium, Sardegna, Italy
08/16	* Endovascular Considerations of Head and Neck Trauma * Classification of Aneurysms * Giant intracranial aneurysms * Flow Diversion Treatment * Carotid artery stenting: Update * Intracranial atherosclerotic disease: Update * Classification of spinal arteriovenous vascular malformations * Targetted embolization in brain AVMs: Concept and Applications Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
09/16	*High Flow Angiopathy * Advances in Neurovascular Imaging INR Symposium, Toronto
10/16	* Inflammation and Aneurysms * Stroke Imaging - Update 16th Oriental Conference of Interventional Neuroradiology, Shanghai, China
10/16	* Aneurysm Classification * Brain AVM Classificaton * Brain AVM Targetted Treatment * Pediatric Vascular Malformations * Flow Diversion of Aneurysms * Mechanical Thrombectomy in Acute Stroke * Peripheral Aneurysms * Intracranial Stenosis * Giant Aneurysms PLANET Course II, Tokyo, Japan
12/16	* Carotid Revascularization * Dural AVF and Brain AVMs * Neuroradiology of Brain Tumors * Venous Anatomy * Imaging in Epilepsy

	Comprehensive Neurosurgical Review Course, Krakow, Poland
03/17	* Spinal Vascular Anatomy * Angiogenesis and Vasculogenesis * Developmental Venous Anomalies * Spinal Cord Vascular Malformations PLANET Course I, Cape Town , South Africa
04/17	* Hemorrhagic Dissections * Partial embolisation of brain AVMs * Conditions mimicking stroke * Spinal Vascular Anatomy * Angiogenesis and Vasculogenesis Chinese Forum of Cerebrovascular Diseases, Beijing, China
09/17	* Dissecting Diseases * AVM and dAVF: Advances in Imaging and Treatment Joint Meeting of the Spanish and Portuguese Societies of NEIMS Meeting, Shenzhen, China
09/17	* Advances in Aneurysm Imaging * Recurrence of Aneurysms: How to treat Eastlake Conference, Wuhan, China
10/17	* Concepts of Brain AVM Treatment * High Flow Angiopathy in brain AVMs INR Symposium, Toronto
10/17	*Spinal Vascular Malformations Word Federation of Therapeutic and Interventional Neuroradiology, Budapest, Hungary
10/17	* Aneurysm Classification * Brain AVM Classificaton * Brain AVM Targetted Treatment * Pediatric Vascular Malformations * Flow Diversion of Aneurysms * Mechanical Thrombectomy in Acute Stroke * Peripheral Aneurysms * Intracranial Stenosis * Giant Aneurysms PLANET Course II, Cape Town, South Africa
11/17	Spinal Vascular Malformations below the conus JSNET, Tokyo, Japan
12/17	* Carotid Revascularization * Dural AVF and Brain AVMs * Neuroradiology of Brain Tumors * Venous Anatomy

	* Imaging in Epilepsy Comprehensive Neurosurgical Review Course, Krakow, Poland
01/18	* Vein of Galen AVMs * Managment of Pediatric Vascular Malformations * Pediatric Stroke European Course of Pediatric Neuroradiology, Athens, Greece
02/18	* Spinal Vascular Malformations * Optical Flow Imaging Japanese Society for Neuroradiology, Tsukuba, Japan

5a. Invited Lectures National Courses and Symposia

04/99:	fMRT zur präoperativen Funktionslokalisation. Neuroradiolgie Aktuell, Hamburg
10/99	Transfer of function to the operative situs: The role of neuronavigation. 2nd Workshop on Navigated brain surgery, University of Erlangen-Nürnberg, Dept. of Neurosurgery
11/01	Prinzipien der funktionellen MRT, Neuropsychologisches und Neurophysiologisches Symposium, Aachen
11/01	Kombinierte Diffusions- und funktionelle MRT zur Darstellung von kortikaler Aktivität und zugehörigen Faserbahnen Neurobiologisches Kolloquium der Ludwig-Maximillian Universität, München.
05/02	Diffusion Tensor Imaging, Erasmus Course on MRI, CNS I, Dresden
01/04	Funktionelle Bildgebung in der Neuropädiatrie. Neuropädiatrisches Seminar, Giessen
02/04	Grundlagen und Möglichkeiten des MRT bei neuropsychiatrischen Erkrankungen Symposium „Bildgebende Verfahren in der Neuropsychiatrie“ Bezirksklinikum Mainkofen
03/04	Diffusion Tensor Imaging, 5. Tübinger FMR Kurs, Tübingen
05/04	Stroke MRI: What’s new? Schlaganfallsymposium der Rheinischen Kliniken Bedburg
04/05	Zeitaufgelöste MR-Angiographie, Neuroradiologie Aktuell, Hamburg
06/05	Klinische Applikationen der funktionellen MR, Krankenhaus Siegen
03/06	* Venöse Kongestion des ZNS * Hirninfarkttypen * Spinales Trauma

	Neuroradiologie Basiskurs, Frankfurt
03/06	* Kopfschmerzen, Rationale Diagnostik * Pitfalls und Probleme von MR Angiographien Aachener Neuroradiologisches Kolloquium, Leverkusen
04/06	Hereditäre Hämorrhagische Telangieektasie, Neuroradiologie Aktuell, Hamburg
10/06	Nicht-invasive Behandlung symptomatischer Carotisstenosen Carotissymposium, Aachen
11/06:	Postoperative Befunde am Spinalkanal, Mannheim, Forum Neuroradiologicum
02/07:	Venöse Erkrankungen des ZNS, MRI Kurs, Garmisch-Partenkirchen
02/07:	Venöse Anatomie und Kongestion des ZNS, Basiskurs Neuroradiologie, Frankfurt
04/07	* Postoperative Befunde am Spinalkanal * Aktueller Stand der MR-Angiographie 2. Aachener Neuroradiologisches Kolloquium, Wesel
04/07:	Vena Magna Galeni Malformationen, Neuroradiologie Aktuell, Hamburg
06/07:	Spinale vaskuläre Malformationen, Neuro-Kolloquim Frankfurt
06/07:	Vena Magna Galeni Malformationen, Neuro-Kolloquim München
06/07:	Die venöse Kongestion des ZNS, Grundkurs Neuroradiologie Dresden
10/07	* Pediatric Vascular malformations * Spinal Vascular malformations * 3 Tesla MRA * Pitfalls of MR Angiography Erasmus Course CNS II, Aachen, Germany
11/07:	Spinale arteriovenöse Malformationen, Academy of the German Society of Neurosurgery, Bonn
12/07:	Vaskuläre Malformationen des Kindesalters, Neurochirurgische Fortbildung, Würzburg
04/08:	* Spinale Vaskuläre Malformationen * Neurotoxische Effekte von Drogem Neuroradiologie Aktuell, Hamburg
09/08	Stenting of Intracranial Atheromatous Disease 9th Annual Interventional Neuroradiology Symposium, Toronto

10/08	Pediatric Vascular Malformations Minisymposium on Pediatric Vascular Diseases, HSC, Toronto
10/08	Venous Vascular Anatomy Lougheed Course Neurosurgical Skills, Neurosurgery, Toronto
11/08	Pediatric Vascular Malformations Mc Master University Neurosurgery Grand Rounds, Hamilton
02/08	Venous Vascular Anatomy Lougheed Course Neurosurgical Skills, Neurosurgery, Toronto
09/09	* Pediatric Aneurysms: Are Children small adults? * Vascular Trauma * When DVAs turn bad: Pathomechanisms of Symptomatic DVAs * Spinal Vascular Malformations: Classification and Treatment 10th Annual Interventional Neuroradiology Symposium, Toronto
09/10	* Hemorrhagic Dissections * Partial embolisation of brain AVMs * Conditions mimicking stroke 11th Annual Interventional Neuroradiology Symposium, Toronto
11/10	Rare and Unusual Strokes Practical Imaging in Acute Stroke Symposium, Toronto
09/11	* Intracranial Stenosis – Lessons Learned * Classification of spinal vascular malformations * Treatment of nidus-type spinal AVMs 12th Annual Interventional Neuroradiology Symposium, Toronto
01/12	Intra- and extracranial stenting Richards Symposium in Neurology, Toronto
09/12	* Venous Anatomy and AVMs * Endovascular Complications * Treatment of giant aneurysms * Vein of Galen AVMs 13th Annual Interventional Neuroradiology Symposium, Toronto
02/13	Vascular Trauma Emergency Neuroradiology Course, Toronto
09/13	* Intracranial Stenting * Spinal Vascular Anatomy * EC-IC Anastomoses * Paragangliomas 14th Annual Interventional Neuroradiology Symposium, Toronto

5b. Invited Lectures International Courses and Symposia

10/05	* Spinal Cord Vascularisation and Ischemia * Spinal dural AV fistulas and Cord AV malformations Erasmus Course MRI, CNS II, Maastricht, The Netherlands
11/05	* Pitfalls of MR Angiography * Imaging of intracranial hemorrhages * Hereditary hemorrhagic telangiectasia European Course of Neuroradiology – Vascular Diseases , Basel, Switzerland
03/06	* Vascular Trauma * Mechanisms of cerebral trauma European Course of Neuroradiology – Trauma, Degeneration and Inflammatory Diseases , Basel, Switzerland
08/06	* Cerebral Vascular malformations * Spinal Vascular malformations Erasmus Course CNS II, Bucarest, Romania
09/06	* Vascular anatomy of the cervical spine * Endovascular management of cervical lesions * Endovascular management of cervical tumors AO Spine Symposium, Mallorca, Spain
09/06	* Contrast enhanced MR angiography of the spine * Cerebral dynamic contrast enhanced MR angiography Advances in Neuroradiology, Florence, Italy
04/07:	* Classification of pediatric arteriovenous malformations * Managment of Vein of Galen AVMs European Course of Pediatric Neurosurgery, Istanbul, Turkey
08/06	* Cerebral Vascular malformations * Spinal Vascular malformations Erasmus Course CNS II, Budapest, Hungary
11/07	* Pediatric vascular malformations * Incidence of vascular malformations European Course of Neuroradiology – Vascular Diseases , Basel, Switzerland
10/08	* Concepts of Angioarchitecture and Clinical Expression * Hereditary Vascular Diseases * Pediatric Vascular Malformations * Treatment of Brain Arteriovenous Malformations European Course of Neuroradiology – Anatomy and Genetics, Tarragona, Spain
03/09	* Dural Arteriovenous Shunts

	* Venous Approach to dural arteriovenous Lesions * Paragangliomas * EC – IC Anastomoses * Spinal MRA: Techniques and Applications European Course of Neuroradiology – Tumors and Tumor-Like Lesions, Rome, Italy
08/09	* Concept and Technique opf partial targeted embolization of AVMs * Neuroradiologic Evaluation of spinal vascular malformations * Carotid Artery Stenting * Giant, partially thrombosed and dissecting intracranial aneurysms Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
10/09	* The Aneurysm Wall * Managment of Dissecting Diseases * Diagnosis and Management of intracranial atherosclerotic disease * Management of the Unruptured Aneurysm * Pediatric Aneurysms * Uncommon hemorrhagic and ischemic strokes European Course of Neuroradiology – Vascular Diseases, Tarragona, Spain
03/10	* Vascular Trauma * Drug Induced Changes in the Brain * Toxic Leucencephalopathies European Course of Neuroradiology –Trauma-Degenerative-Metabolic-Inflammatory Diseases, Rome, Italy
08/10	* Concept and Technique opf partial targeted embolization of AVMs * Intracranial Stenosis and Stenting * Pediatric Aneurysms *Classification of Aneurysmal Diseases * Dural AV Fistulae of the Dorsal Epidural Space * Carotid Artery Stenting * Giant, partially thrombosed and dissecting intracranial aneurysms Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
10/10	* Concepts of Angioarchitecture and Clinical Expression * Hereditary Vascular Diseases * Pediatric Vascular Malformations * Treatment of Brain Arteriovenous Malformations European Course of Neuroradiology – Anatomy and Genetics, Tarragona, Spain
12/10	Brain AVMs: When to treat? Neuroradiological Symposium Dresden, Germany
01/11	* Tricks and Treats of CT and MR angiography * Indications to neurovascular treatment of pediatric vascular malformations

	* Concepts and Techniques of pediatric endovascular Treatment European Course of Pediatric Neuroradiology, Marseille, France
03/11	* Dural Arteriovenous Shunts * Venous Approach to dural arteriovenous Lesions * Paragangliomas * EC – IC Anastomoses * Vascular Lesions of the Head and Neck * Epistaxis European Course of Neuroradiology – Tumors and Tumor-Like Lesions, Rome, Italy
05/11	Dural Arteriovenous Shunts Neuroradiological Symposium Munich, Germany
08/11	* Endovascular Considerations of Head and Neck Trauma * Intracranial dural AVFs and the epidural spaces * Endovascular Treatment of A1 and Acom aneurysms * Giant intracranial aneurysms: Pathobiology, Phenotypic spectrum and endovascular treatment * Carotid artery stenting: Update * Intracranial atherosclerotic disease: Update * Classification of spinal arteriovenous vascular malformations * Endovascular treatment of spinal perimedulaary AVFs * Targetted embolization in brain AVMs: Concept and Applications Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
10/11	* The Aneurysm Wall * Managment of Dissecting Diseases * Diagnosis and Management of intracranial atherosclerotic disease * Management of the Unruptured Aneurysm * Management of the Ruptured Aneurysm * Neurovascular Complications * Management of Giant Aneurysms European Course of Neuroradiology – Vascular Diseases, Tarragona, Spain
3/12	* Imaging the Patient with Seizures * Brain AVMs and Dural AVFs: Imaging Clues to Determine If, Why, When and How to Treat 44th International Diagnostic Course in Davos, Switzerland
04/12	* Vascular Trauma * Drug Induced Changes in the Brain * Toxic Leucencephalopathies European Course of Neuroradiology –Trauma-Degenerative-Metabolic-Inflammatory Diseases, Milan, Italy
06/12	Brain AVMs

	Neuroradiological Symposium Munich, Germany
08/12	* Endovascular Considerations of Head and Neck Trauma * Classification of Aneurysms * Giant intracranial aneurysms * Flow Diversion Treatment * Carotid artery stenting: Update * Intracranial atherosclerotic disease: Update * Classification of spinal arteriovenous vascular malformations * Targetted embolization in brain AVMs: Concept and Applications Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
01/13	* Tricks and Treats of CT and MR angiography * Indications to neurovascular treatment of pediatric vascular malformations * Concepts and Techniques of pediatric endovascular Treatment European Course of Pediatric Neuroradiology, Genoa, Italy
04/13	* Facial Vascular Malformations * Treatment of Meningeomas and Hemangioblastomas * Intradural Extramedullary Spinal Tumors European Course of Neuroradiology “Tumors and Tumor-Like Lesions”, Athens, Greece
06/13	Pediatric Vascular Malformations Neuroradiological Symposium Munich, Germany
08/13	* Endovascular Considerations of Head and Neck Trauma * Classification and Vessel Wall Imaging of Aneurysms * Giant intracranial aneurysms * Flow Diversion Treatment * Carotid artery stenting: Update * Intracranial atherosclerotic disease: Update * Concepts of Brain AVM Treatment * High Flow Angiopathy in brain AVMs Zurich Course on Interventional Neuroradiology, Zurich, Switzerland
10/13	* Aneurysm Classification * Brain AVM Classificaton * Brain AVM Targetted Treatment * Pediatric Vascular Malformations * Flow Diversion of Aneurysms * Mechanical Thrombectomy in Acute Stroke * Peripheral Aneurysms * Intracranial Stenosis * Giant Aneurysms PLANET Course , Chiang Mai, Thailand

12/13	* Carotid Revascularization * Dural AVF and Brain AVMs * Neuroradiology of Brain Tumors * Venous Anatomy * Imaging in Epilepsy Comprehensive Neurosurgical Review Course, Krakow, Poland
04/14	* Spinal Vascular Anatomy * Angiogenesis and Vasculogenesis * Developmental Venous Anomalies * Spinal Cord Vascular Malformations PLANET Course, Seoul, South Korea

D. Teaching

1. Teaching Activity Synopsis

- Teaching Assistant „Neurobiology in Medicine“ 1992 - 1994
- Teaching Assistant „Neuroanatomy“ 1992 - 1994
- Lecturer „Diagnostic Radiology“ 2000 - 2008
- Lecturer “Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences” 2000 - 2008
- Lecturer „Neuroradiological-Neuropediatric Tutorial“ 2000 - 2008
- Lecturer „Neuroradiological – Neuroanatomical Correlations“ 2001- 2008
- Lecturer „Advanced Seminar in Neurosciences“ 2003 - 2008
- Lecturer „Basics of Interventional Neuroradiology“ 2003 - 2004
- Lecturer „Neuroimaging in Neuroscience“ 2003 – 2008
- Lecturer „Medical Imaging in Biomedical Engineering“ 2004 - 2008
- Lecturer “Neurology Main Course” 2004 – 2008
- Lecturer „Blended Learning in Medicine – Neuro“ 2005 - 2008
- Lecturer Workshop “Exploring Medicine“ 2005 – 2008
- One-on-One Teaching Case Readouts
- Presentations at Professor Rounds
- Presentations at Stroke Rounds and City Wide Neuroradiology Rounds
- Since 2011 Fellowship Site Supervisor: Toronto Western Hospital

- Teacher and Lecturer at the „European Course of Neuroradiology“, the „Erasmus Course of MRI of the CNS “ the „European Course of Pediatric Neurosurgery“, the “Visiting Fellowship – MRI of the Massachusetts General Hospital, Harvard Medical School” and various national and international Refresher Courses as indicated above

- Invited Speaker at the Annual meetings of the German, Swiss, Spanish, Portugese, Austrian, Italian, European, and American Societies of Neuroradiology, the German Societies of Neurology, Radiology, Clinical Neurophysiology, and Neurosurgery, the International Society of Human Brain Mapping, the AO Spine Society and the European Society of Radiology as indicated above

2. Supervisor / Advisor for PhD and MD Theses and Research Projects

- Elke Ueffing (MD-Thesis), 2007 „Wertigkeit der kontrastverstärkten Mehrzeilen-Spiral-CT-Angiographie (CTA) bei Patienten mit akuter intrakranieller Blutung verglichen mit der selektiven intraarteriellen digitalen Subtraktionsangiographie (DSA)“
- Dagmar Nölchen (MD-Thesis), 2007 „Die hyperdense A. cerebri posterior. ein CCT - morphologisches Frühzeichen des ischämischen Hirninfarktes im hinteren Stromkreislauf ”
- Petra Gorgels (PhD-Thesis); 2007 „Experimentell induziertes Elastase-Aneurysmamodell beim Kaninchen im Vergleich zu anderen Aneurysma-Tiermodellen“
- Mareike Müller (MD-Thesis) 2007 „Reorganisation des motorischen Systems bei Pianisten. Eine fMRT-Studie“
- Franz J. Hans (PhD Thesis), 2007 „Langzeitexperimentelle Untersuchungen gecoilter und geclippter Aneurysmen am Kaninchenmodell“
- Klaus-Peter Stein (MD-Thesis), 2007 „Zur endovaskulären Therapie intrakranieller Aneurysmen mit verschiedenen Stents. Eine experimentelle Analyse im Tiermodell.“
- Heiko Dreeskamp (MD-Thesis), 2008 „Angiographische und histologische Langzeitergebnisse nach stentassistierter Coilbehandlung im Tiermodell“
- Eva-Maria Welty (MD-Thesis), 2008 „Funktionelle Reorganisation der semantischen Wortverarbeitung nach Aphasie: eine Studie zur funtionellen Magnetresonanztomographie“
- Marcus Reinges (PhD Thesis), 2008 „Wertigkeit der Naviation in der Neurochirurgie“
- Rainer Ackermann (MD-Thesis), 2008 „Klinische Applikationen der dynamischen 2D Projektions-MR Angiographie“
- Claudia Busch (MD-Thesis), 2009 „Angiographische, histologische und rasterelektronenmikroskopische Ergebnisse nach endovaskulärer und operativer Behandlung experimenteller Aneurysmen“
- Nils Lück (MD-Thesis), 2009 „Wertigkeit der magnetischen Navigation in der interventionellen Neuroradiologie. In-vitro-Ergebnisse“

3. Teaching Activity at Aachen University

Teaching Activity Winter-Term 2002/2003 (17 weeks)

Course	Accomplished hours
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	8
Neuroradiological-Neuropediatric Tutorial	8
Neuroradiological – Neuroanatomical Correlations	9
Overall Teaching Activity Winter Term 2002/2003	27

Teaching Activity Summer-Term 2003 (13 weeks)

Course	Accomplished hours
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	13
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	6
Neuroradiological-Neuropediatric Tutorial	6
Overall Teaching Activity Summer Term 2003	32

Teaching Activity Winter-Term 2003/2004 (14 weeks)

Course	Accomplished hours
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	14
Basics of Interventional Neuroradiology	14
Neuroimaging in Neuroscience	14
Overall Teaching Activity Winter Term 2003/2004	63

Teaching Activity Summer-Term 2004 (14 weeks)

Course	Accomplished hours
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	14
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Medical Imaging in Biomedical Engineering	2
Neuroimaging in Neuroscience	14
Neurology Main Course	2
Overall Teaching Activity Summer Term 2004	53

Teaching Activity Winter-Term 2004/2005 (15 weeks)

Course	Accomplished hours
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	8
Neuroradiological-Neuropediatric Tutorial	8
Neuroradiological – Neuroanatomical Correlations	8
Advanced Seminar in Neurosciences	15
Neurology Main Course	2
Neuroimaging in Neuroscience	15
Overall Teaching Activity Winter Term 2004/2005	56

Teaching Activity Summer-Term 2005 (13 weeks)

Course	Accomplished hours
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	13
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Medical Imaging in Biomedical Engineering	2
Neuroimaging in Neuroscience	13
Neurology Main Course	2
Blended Learning in Medicine – “Neuro”	6
Overall Teaching Activity Summer Term 2005	57

Teaching Activity Winter-Term 2005/2006 (14 weeks)

Course	Accomplished hours
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	14
Neurology Main Course	2
Neuroimaging in Neuroscience	14
Workshop "Exploring Medicine"	2
Overall Teaching Activity Winter Term 2005/2006	53

Teaching Activity Summer-Term 2006 (13 weeks)

Course	Accomplished hours
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	13
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Medical Imaging in Biomedical Engineering	2
Neuroimaging in Neuroscience	13
Neurology Main Course	2
Blended Learning in Medicine – "Neuro"	6
Overall Teaching Activity Summer Term 2006	57

Teaching Activity Winter-Term 2006/2007 (14 weeks)

Course	Accomplished hours
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	14
Neurology Main Course	2
Neuroimaging in Neuroscience	14
Workshop "Exploring Medicine"	2
Overall Teaching Activity Winter Term 2006/2007	53

Teaching Activity Summer-Term 2007 (13 weeks)

Course	Accomplished hours
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	13
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Medical Imaging in Biomedical Engineering	2
Neuroimaging in Neuroscience	13
Neurology Main Course	2
Blended Learning in Medicine – "Neuro"	6
Overall Teaching Activity Summer Term 2007	57

Teaching Activity Winter-Term 2007/2008 (14 weeks)

Course	Accomplished hours
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	14
Neurology Main Course	2
Neuroimaging in Neuroscience	14
Workshop "Exploring Medicine"	2
Overall Teaching Activity Winter Term 2007/2008	53

Teaching Activity Summer-Term 2008 (13 weeks)

Course	Accomplished hours
Neuroradiological – Neuroanatomical Correlations	7
Advanced Seminar in Neurosciences	13
Neurosurgical-Neurological-Neuroradiological-Neuropathological Conferences	7
Neuroradiological-Neuropediatric Tutorial	7
Medical Imaging in Biomedical Engineering	2
Neuroimaging in Neuroscience	13
Neurology Main Course	2
Blended Learning in Medicine – "Neuro"	6
Overall Teaching Activity Summer Term 2008	57

Teaching Activity Winter-Term 2008/2009 (15 weeks)

Course	Accomplished hours
Neuroradiological Course (5 days Course with 8 hours each day) • **Imaging Physics and Anatomical Basics** • **Tumors** • **Infections** • **Vascular Diseases** • **Trauma and Degeneration**	**40**
Overall Teaching Activity Winter Term 2008/2009	**40**

Teaching Activity University of Toronto

- Daily One-on-One Teaching "Case Readouts" with Interventional and Diagnostic Neuroradiology Fellows and Residents
- Presentations at Professor Rounds:
  - Drug Induced Changes in the Human Brain
  - Brain Arteriovenous Malformations
  - Management of the Unruptured Aneurysm
  - Spinal Vascular Malformations
  - Venous Anatomy
  - The Aneurysmal Wall
  - Management of Unruptured Aneurysms
  - Management of Ruptured Aneurysms
  - Intracranial Stenting in the Post-SAMMPRIS Era Imaging
  - Management of Carotid Artery Stenosis
  - Head and Neck Vascular Malformations
  - Vascular Trauma: Imaging and Endovascular Treatment
  - Functional Neuroimaging Methods
  - Epilepsy Imaging
  - Spinal Vascular Anatomy
  - Conditions mimicking Stroke: Case based discussion
  - Conditions mimicking Tumors: Case based discussion
  - Vein of Galen Arteriovenous Malformations
  - Pediatric vascular Malformations: Classification, Imaging and Management Pediatric Aneurysms
  - Tricks and Treats in MRA and CTA
  - Spinal MRA: Technique and Applications
  - Concepts of Angioarchitecture and Angiogenesis
  - Dural AVF
  - Intra- and Extracranial Stenting
- Weekly Presentations at Stroke Rounds
- Weekly City Wide Neuroradiology Rounds
- Literature Club Lectures

- Teaching at the Lougheed Course on Neurosurgical Skills
- Teaching at the Neurosurgery Resident Teaching Curriculum
  - Epilepsy
  - Spinal Vascular Malformations
- Weekly Epilepsy Rounds
- Monthly Neurovascular Rounds
- Monthly Epilepsy-Genetics Rounds