

## **Dae-Shik Kim, PhD**

Professor of Electrical Engineering  
Laboratory for Brain Reverse Engineering and Imaging  
Korea Advanced Institute of Science and technology (KAIST)

Adjunct Professor of Anatomy and Neurobiology, Boston University School of Medicine  
Affiliated Faculty, Department of Cognitive and Neural Systems, Boston University

**Research interests** Systems, developmental, and computational neurosciences; Functional and connectivity mapping of the human brain; Brain plasticity and development; Brain Reading; Developmental Robotics; Diffusion Tensor Imaging, Computational Neuroanatomy; MRI of neurodegeneration; Visual neuroscience; Development of Extremely high-field (7T+, 14T) MRI.

**Teaching Interests** Fundamental Neurosciences, Brain Signal Processing, Neuroimaging of Brain Function and Structure, Visual Neurosciences, Evolution of the Nervous Systems, Developmental Neuroscience, Methods in Neurosciences, Neural Modelling.

**Methods** Expertise in single and multiunit recording, computational modeling, optical imaging of intrinsic signals, high field magnetic resonance imaging (3T, 4.7T, 7T, and 9.4T); Design experience in Biosafety level-4 compatible MRI scanner.

**Leadership interests** International cooperation and outreach, Strategic research planning, Neuro- and Biotechnological entrepreneurship, Consulting & advisory for special research projects, healthcare IT.

### **Employment**

2011.08. - present: Director, KOLON-KAIST LifeStyle Innovation Center, Korea Advanced Institute of Sciences and Technology (KAIST)

2011.02. – 2012.05: Vice-Chair, Department of Electrical Engineering, Korea Advanced Institute of Sciences and Technology (KAIST).

2010.07. - present: Vice-Director, Brain Science Research Center, Korea Advanced Institute of Sciences and Technology (KAIST).

2009.10 - present: Full Professor with tenure, Department of Electrical Engineering, Korea Advanced Institute of Sciences and Technology (KAIST).

2006.10 - 2009.10: Director, Multimodal Whole Animal Imaging Core, National Emerging Infectious Laboratories (NEIDL), BUMC.

2006.07 - 2009.10: Associate Professor of Radiology, Boston University School of Medicine.

2003.10 - 2009.10: Associate Professor of Anatomy and Neurobiology, Boston University School of Medicine.

2003.10 - 2009.10: Director, Center for Biomedical Imaging, Boston University School of Medicine.

2000.10 - 2003.09: Full Faculty. Graduate Program in Neuroscience, University of Minnesota, MN.

2000.11 - 2003.09: Adjunct Professor. Department of Neuroscience, University of Minnesota Medical School, Minneapolis, MN.

1999.06 - 2003.09: Assistant Professor. Center for Magnetic Resonance Research, Department of Radiology, University of Minnesota Medical School, Minneapolis, MN. Currently on leave of absence.

1998.12 - 1999.05: Research Associate at the Center for Magnetic Resonance Research, Department of Radiology, University of Minnesota Medical School, Minneapolis, MN.

1997.11 - 1998.11: Research Instructor at Georgetown University Medical Center, Institute for Cognitive and Computational Sciences, Washington D.C.

1996.07 - 1997.10 : 'Frontier Researcher', Frontiers Brain Research Program, The Institute of Physical and Chemical Research (RIKEN), Japan.

### **Education**

1994.7 - 1996.6: Postdoctoral associate at the Massachusetts Institute of Technology (M.I.T.), Cambridge. Department of Brain and Cognitive Sciences. Advisor: Prof. Mriganka Sur.

1992.7 - 1994.6: PhD student at the Max-Planck-Institute for Brain Research in Frankfurt, Germany. Advisor: Professor Wolf Singer. PhD in Biology (Brain Systems Research).

1991.7 - 1992.6: M.A. student at the Max-Planck-Institute for Brain Research in Frankfurt, Germany. Advisors: Professors Wolf Singer and Dr. Tobias Bonhoeffer. MS degree in Psychology (1992; Cognitive Psychology).

1987.9 - 1991.6: Undergraduate student at the Darmstadt University of Technology, Germany. Departments of Psychology and Computer Science.

### **Active Research Support**

Korea Foundation for the Advancement of Science & Creativity Kim (PI) 2010/09/01 – 2011/08/31

뇌기반 특성에 따른 과학영재 교육효과 분석연구

연구비: 50,000,000 원

Ministry of Education, Science and Technology Kim (PI) 2010/05/01 – 2015/04/30

의도 관련 다중 뇌신경정보 계산모델 개발

연구비: 80,000,000 원

Ministry of Education, Science and Technology Kim (PI) 2010/05/01 – 2013/04/30

뇌 인지 시스템 모델링을 위한 뇌 영상 연구

연구비: 53,745,000 원

National Institute for Mathematical Sciences Kim (PI) 2009/10/05 – 2010/08/31

융합영상분석 및 뇌 매핑연구

연구비: 100,000,000 원

S10 RR025035-01 Kim (PI) 05/01/2009 – 04/30/2010

NIH/National Center for Research Resources (NCRR)

3T quasar dual MRI scanner for multimodal and molecular imaging

Funding (\$1,944,611) for a new 3T quasar dual MRI scanner for multimodal and molecular imaging.

Role: PI

UC7 AI070088 Klempner (PI) 5/1/2007 – 4/30/2011

NIH/NIAID

National Emerging Infectious Diseases Laboratories Operations: Whole Animal Imaging Core

The major goal of this is to provide whole animal multimodal imaging capabilities within the planned National Emerging Infectious Diseases Laboratory (NEIDL) funded through the NIH/NIAID. NEIDL will conduct strategic research in biodefense - emphasizing the development of diagnostic, preventive and therapeutic products to protect the population.

Role: Core PI

06131010 Kachnic (PI) 2007 – 2010

Department of Defense/Army Medical Research and Materiel Branch

The Application of Emerging Radiosurgical Technology for the Treatment of Cancer Patients from Underserved Communities

The aim of this project is to combine advanced Radiosurgical technology with multimodal MRI acquisition and analyses techniques.

Role: Co-Inv

NAAR Pascual-Leone (PI) 2006 - 2009

The language neural network in autism.

The main aim of this study is to use the technique of repetitive transcranial magnetic stimulation (rTMS) in language areas.

Role: Co-Inv

### **Active Training Support**

NIH - 1 K01 MH073944-01 Joseph (PI) 4/01/05 - 3/31/09

Neural Substrates of Gaze and Face Processing in Autism

Role: Sponsor

NIH – F32 EY175062 Thompson (PI) 8/01/07 – 7/31/09

Synaptic Competition during Visual System Development

Role: Sponsor

**Past Research Support**

Grant-in-aid Kim (PI) 07/01/00 – 01/15/02  
University of Minnesota  
Neural signature of high-resolution BOLD fMRI  
The major goal of this project to elucidate the neural signature of BOLD fMRI in an animal model.  
Role: PI

NARSAD Kim (PI) 07/01/00 – 06/30/02  
Neural correlate of blood oxygenation level dependent (BOLD) fMRI  
The major goal of this project to conduct simultaneous fMRI and single unit recording.  
Role: PI

The Whitaker Foundation Kim (PI) 09/01/00 – 08/31/03  
Electrophysiological Correlate of Ultra-High Resolution fMRI  
The major goal of this project to develop a novel technique for combined BOLD and electrophysiological recording.  
Role: PI

Human Frontiers Science Program Kim (PI) 04/01/01 – 04/30/05  
In vivo visualization of axonal connectivity and functional activity using diffusion tensor MRI  
The major goal of this project is to develop multimodal imaging techniques to elucidate the visual information processing streams along the ventral visual cortex.  
Role: PI

NIH – RO1 MH61937 Kim (PI) 07/01/00 – 06/30/06  
Functional MRI of layer-specific cortical maps  
The major goal of this project to assess the layer-specific cortical maps in the mammalian primary visual cortex using non-invasive functional MRI.  
Role: PI

NIH - RO1 NS44825 Kim (PI) 12/01/03 - 06/30/07  
NIH/NINDS  
Multimodal mapping of the human face perception  
The major goal of this project is to investigation of the computational architecture of the human ventral visual system.  
Role: PI

NIH - RO1 MH67530 Kim (PI) 08/15/02 – 07/30/08  
NIH/NIMH  
Points of contact between neuronal physiology and fMRI  
The major goal of this project is to investigation the electrophysiological foundation of functional MRI.  
Role: PI

NIH - R21 DA016355-01 Ronen (PI) 12/01/2002 - 09/30/2005

NIA/NIH

Effects of Drug Use and Cessation on Monkey Brain

The major aim of this study is to investigate the effects of drug use and cessation on monkey brain using MRI.

Role: Co-Inv

NLM Foundation

Tager-Flusberg (PI)

2004 - 2008

Functional and Connectivity Neuroimaging of Autism

The major goal of this project is to elucidate the pattern of fiber connections between language areas in normal and autistic children.

Role: Co-PI

NSF/NIH

Grossberg (PI)

2006 - 2008

Science of Learning Center Supplemental Funding

Learning, categorization, and autism

The major goal of this project is the neural network modeling of fMRI data obtained in autistic subjects.

Role: Co-Inv

Philips Medical Systems

Kim (PI)

2006-2009

Grant-in-Aid for advanced MR research

The aim of this research is to develop novel fMRI and DTI techniques for the 3T Intera platform.

Role: PI

### **Reviewer for Funding Agencies**

NIH ZRF1 MDCN-K (51): Special Emphasis Panel on Neuroimaging (ad hoc member)

NIH Neurotechnology Study Section (ad hoc member)

NIH ZRG1-S(20): Special Emphasis Panel (ad hoc member)

NIH ZEB1 OSR-C: NIBIB Institutional training and career award grants (ad hoc member)

Other funding agencies: Fonds zur Foedering der wissenschaftlichen Forschung (Austrian NSF), Human Frontier Science Program (HFSP), Medical Research Council (MRC, UK), National Science Foundation (NSF).

### **Teaching**

**AN 709:** Neural Development and Plasticity

**AN718:** Methods in Neuroscience

**AN 807:** Neurobiology of the Visual System

**PS738/BI756/AN811:** Systems and Behavioral Neuroscience

**IM6xx:** Special topics in Bioimaging

**Mentorship**

MS Students:

Sun Mi Park (Feb/1/2010 – present; Department of Electrical Engineering, KAIST).

Jung Su Lee (Feb/1/2010 – present; Department of Electrical Engineering, KAIST).

PhD students:

Cheryl Olman (2000 - 2001; Department of Neuroscience, University of Minnesota). Current: Assistant Professor of Psychology, University of Minnesota.

Mina Kim (2002 - 2005; Department of Biophysical Sciences and Medical Physics, University of Minnesota). Current: Post-doctoral associate, Johns-Hopkins School of Medicine (from 2009: Assistant Professor of Radiology, Chinese University of Hong Kong).

Frederick Powell (2004 - 2006; MD/PhD Program, Boston University School of Medicine).

Jaymin Upadhyia (2004 - 2007; Program in Neuroscience, Boston University). Current: Post-doctoral associate, Harvard Medical School.

Ning Sue Hua (2005 - ; PhD student, Department Biophysics, Boston University School of Medicine).

Kevin Bickart (2006 - ; MD/PhD Program, Boston University School of Medicine).

Geunwon Kim (2008 - ; MD/PhD Program, Boston University School of Medicine).

Amy Driscoll (2008 - ; PhD student, Program in Neuroscience, Boston University).

Postdoctoral/research associates:

Dr. Keun-Ho Kim (2001 – 2002; University of Minnesota), current: Executive, Samsung Electronics.

Dr. Itamar Ronen (2002-2003; University of Minnesota), current: Assistant Professor of Anatomy and Neurobiology, Boston University School of Medicine.

Dr. Stephane Lehericy (2003; University of Minnesota), current: Assistant Professor, Hopitaux de Paris, France.

Dr. Jaekeun Park (2002 – 2005; University of Minnesota), current: Research Associate, Emory University, GA.

Dr. Emi Oki (2004 – 2006), current: postdoctoral fellow at MGH Martinos Imaging Center, Ma.

Dr. Kevin Hallock (2006 – 2008; Boston University)

Dr. Dorothe Poggel (2004 – 2009; Boston University)

Dr. Jeffrey Thompson (2005 – 2009; Boston University)

Dr. Bangbon Koo (2008 - current; Boston University)

### **Professional Membership**

- Society for Neuroscience
- International Society for Magnetic Resonance in Medicine
- Organization for Human Brain Mapping
- IEEE
- Vision Science Society
- Computational Neuroscience Society, Korea
- New York Academy of Sciences
- American Association for the Advancement of Science
- Sigma Xi, Section M.I.T.
- Korean Stroke Society

### **Academic Committee Activities**

- 2004 - Member, Appointments and Promotions Committee, Department of Anatomy and Neurobiology, Boston University School of Medicine
- 2004 - Member, Steering Committee, Center for Biomedical Imaging, Boston University Medical Center
- 2006 - Member, Faculty Affairs Committee, Boston University School of Medicine
- 2006 - Faculty representative to the information technology (IT) office of the Boston University Medical Campus
- 2007 - Institutional Radiation Protection Oversight Board

### **Board Membership:**

- 2005 - Member, Scientific Advisory Board, **“Ettore Majorana” Foundation and Centre for Scientific Culture School for functional MR**
- 2007- Editorial Board Member, **The Open Neuroimaging Journal**
- 2008 - Member, Internal Scientific Committee, **National Emerging Infectious Diseases Laboratories Institute (NEIDL)**

- 2009 – Board Member, Boston University **Alzheimer’s Disease Center Internal Advisory Board (IAB)**
- 2009 - Editorial Board Member, **Anatomy Research International**
- 2010 - Co-Editor-in-Chief, **International Journal of Imaging Systems and Technology – Neuroimaging and Brain Mapping, Wiley**

**Organizer/Co-organizer for major conferences:**

- Nov, 2009: Steps towards Extremely high-field MRI (Seoul, Co-organizer)
- Jan, 2010: Korean Computational Neuroscience Society Winterschool (Pohang, Organizer)
- March, 2010: The Human Connectome: views from MRI and Microscopy (Seoul, Organizer)

**Invited Talks (not complete)**

Boston University (MA), Brain Connectivity Workshop '06 (Sendai, Japan), Brigham & Women’s Hospital (MA), Brown University (RI), California Institute of Technology (Caltech), Cambridge University (Human Frontiers Science Program Annual meeting), Cold Spring Harbor Laboratory (NY), Columbia University (NY), “Ettore Majorana” Foundation and Centre for Scientific Culture (Sicily, Italy), Federal Institute of Technology (ETH, Switzerland), Georgetown University (DC), Harvard Medical School (MA), Harvard University (Psychology), Japan-Korea winterschool in Computational Neuroscience (Pyungchang, Korea), Johns-Hopkins School of Medicine (MD), Massachusetts Institute of Technology (M.I.T.), Massachusetts General Hospital (MGH), Max-Planck-Institute for Brain Research (Germany), Mayo Clinic (Jacksonville, Florida), Medical Collage of Wisconsin (MCW), Mount Sinai Hospital, National Institutes of Health (Bethesda, MD), Pohang University of Science and Technology (Pohang, Korea), Princeton University, The Institute of Physical and Chemical Research (RIKEN), Samsung Advanced Institute of Technology (SAIT, Suwon, Korea), The Salk Institute for Biological Studies/UCSD (CA), Seoul National University, Smith-Kettlewell Eye Research Institute (CA), Stanford University (CA), University of British Columbia (Vancouver), UC Berkeley (CA), UC Los Angeles (UCLA), UC San Francisco (UCSF), University of Maastricht (The Netherlands), University of Newcastle (England), University of Rochester (NY).

**Research Papers:**

1. Zoltán F. Kisvárdy, **Dae-Shik Kim**, Ulf T. Eysel, and Tobias Bonhoeffer\*, “Relationship between Lateral Inhibitory Connections and Topography of the Orientation Map in Cat Visual-cortex”, **European Journal of Neuroscience**, **6(10)**, 1619-1632, 1994. 10.
2. **Dae-Shik Kim** and Tobias Bonhoeffer\*, “Reverse Occlusion Leads to a Precise Restoration of Orientation Preference Maps in Visual Cortex, **Nature**, **370(6488)**, 370-372, 1994. 08.



3. Tobias Bonhoeffer\*, **Dae-Shik Kim**, Dov Malonek, Doron Shoham, and Amiram Grinvald, "Optical Imaging of the Layout of Functional Domains in Area 17 and Across the Area 17/18 Border in Cat Visual-Cortex", **European Journal of Neuroscience**, **7(9)**, 1973-1988, 1995. 09.
4. Ralf A. W. Galuske, **Dae-Shik Kim**, Eero Castren, Hans Thoenen, and Wolf Singer\*, "Brain-derived Neurotrophic Factor Reverses Experience-dependent Synaptic Modifications in Kitten Visual Cortex", **European Journal of Neuroscience**, **8(7)**, 1554-1559, 1996. 07.
5. Louis J. Toth, S. Chenchal Rao, **Dae-Shik Kim**, David Somers, and Mriganka Sur\*, "Subthreshold Facilitation and Suppression in Primary Visual Cortex Revealed by Intrinsic Signal Imaging", **Proceedings of the National Academy of Sciences of the United States of America**, **93(18)**, 9869-9874, 1996. 09.
6. Masanobu Miyashita, **Dae-Shik Kim**, and Shigeru Tanaka\*, "Cortical Directional Selectivity without Directional Experience", **NeuroReport**, **8(5)**, 1187-1191, 1997. 03.
7. Kerstin E. Schmidt, **Dae-Shik Kim**, Wolf Singer, Tobias Bonhoeffer, and Siegrid Loewel\*, "Functional Specificity of Long-range Intrinsic and Interhemispheric Connections in the Visual Cortex of Strabismic Cats", **Journal of Neuroscience**, **17 (14)**, 5480-5492, 1997. 07.
8. Imke Goedecke, **Dae-Shik Kim**, Tobias Bonhoeffer, and Wolf Singer\*, "Development of Orientation Preference Maps in Kitten Visual Cortex", **European Journal of Neuroscience**, **9(8)**, 1754-1762, 1997. 08.
9. Louis J. Toth, **Dae-Shik Kim**, S. Chenchal Rao, and Mriganka Sur\*, "Integration of Local Inputs in Visual Cortex", **Cerebral Cortex**, **7(8)**, 703-710, 1997. 12.
10. David C. Somers, Emanuel V. Todorov, Athanassios G. Siapas, Louis J. Toth, **Dae-Shik Kim**, and Mriganka Sur\*, "A Local Circuit Approach to Understanding Integration of Long-range Inputs to Primary Visual Cortex", **Cerebral Cortex**, **8(3)**, 204-217, 1998. 04.
11. Siegrid Loewel, Kerstin E. Schmidt, **Dae-Shik Kim**, Fred Wolf, Frank Hoffstuemmer, Wolf Singer, and Tobias Bonhoeffer\*, "The Layout of Orientation and Ocular Dominance Domains in Area 17 of Strabismic Cats", **European Journal of Neuroscience**, **10(8)**, 2629-2643, 1998. 08.
12. Ayako Ajima, Yoshitaka Matsuda, Kenichi Ohki, **Dae-Shik Kim**, and Shigeru Tanaka\*, "GABA-mediated Representation of Temporal Information in Rat Barrel Cortex", **NeuroReport**, **10(9)**, 1973-1979, 1999. 06.
13. Tagrid Yousef, Tobias Bonhoeffer, **Dae-Shik Kim**, Ulf T. Eysel, Eva Toth, and Zoltan F. Kisvarday\*, "Orientation Topography of Layer 4 Lateral Networks Revealed by Optical Imaging in Cat Visual Cortex (Area 18)", **European Journal of Neuroscience**, **11(12)**, 4291-4308, 1999. 12.
14. **Dae-Shik Kim**, Yoshitaka Matsuda, Kenichi Ohki, Ayako Ajima, and Shigeru Tanaka \*, "Geometrical and Topological Relationships between Multiple Functional Maps in Cat Primary Visual Cortex", **NeuroReport**, **10(12)**, 2515-2522, 1999. 08.
15. Ralf A. W. Galuske, **Dae-Shik Kim**, and Wolf Singer\*, "The Role of Neurotrophins in Developmental Cortical Plasticity", **Restorative Neurology and Neuroscience**, **15(2-3)**, 115-124, 1999. 09.

16. **Dae-Shik Kim**, Timothy Q. Duong, and Seong-Gi Kim\*, "High-resolution Mapping of Iso-orientation Columns by fMRI", **Nature Neuroscience**, **3(2)**, 164-169, 2000. 02.
17. Kenichi Ohki, Yoshitaka Matsuda, Ayako Ajima, **Dae-Shik Kim**, and Shigeur Tanaka\*, "Arrangement of Orientation Pinwheel Centers Around Area 17/18 Transition Zone in Cat Visual Cortex", **Cerebral Cortex**, **10(6)**, 593-601, 2000. 06.
18. Timothy Q. Duong, **Dae-Shik Kim**, Kamil Ugurbil, and Seong-Gi Kim\*, "Spatiotemporal Dynamics of the BOLD fMRI Signals: Toward Mapping Submillimeter Cortical Columns using the Early Negative Response", **Magnetic Resonance in Medicine**, **44(2)**, 231-242, 2000. 08.
19. **Dae-Shik Kim**, Timothy Q. Duong, and Seong-Gi Kim\*, "Can Current fMRI Techniques Reveal the Microarchitecture of cortex? Reply", **Nature Neuroscience**, **3(5)**, 414-414, 2000. 05.
20. Ralf A. W. Galuske, **Dae-Shik Kim**, Eero Castren, and Wolf Singer\*, "Differential Effects of Neurotrophins on Ocular Dominance Plasticity in Developing and Adult Cat Visual Cortex", **European Journal of Neuroscience**, **12(9)**, 3315-3330, 2000. 09.
21. Kamil Ugurbil\*, Gregor Adriany, Peter Andersen, Wei Chen, Rolf Gruetter, Xiaoping Hu, Hellmut Merkle, **Dae-Shik Kim**, Seong-Gi Kim, John Strupp, Xiao Hong Zhu, and Seiji Ogawa, "Magnetic Resonance Studies of Brain Function and Neurochemistry", **Annual Review of Biomedical Engineering**, **2**, 633-660, 2000.
22. Yoshitaka Matsuda, Kenichi Ohki, Tomoya Saito, Ayako Ajima, and **Dae-Shik Kim**\*, "Coincidence of Ipsilateral Ocular Dominance Peaks with Orientation Pinwheel Centers", **NeuroReport**, **11(15)**, 3337-3343, 2000. 10.
23. **Dae-Shik Kim**\*, Elia Formisano, Pierre-Francois Van de Moortele, Kamil Ugurbil, and Rainer Goebel, "Ultra-high Field (7T) Mapping of the Human Ventral Visual Area for "Head-from-motion"", **NeuroImage**, **13(6)**, Supplement 1, 901-S901, 2001. 06.
24. Kamil Ugurbil\*, **Dae-Shik Kim**, Tim Duong, Xiaoping Hu, Seiji Ogawa, Rolf Gruetter, Wei Chen, Seong-Gi Kim, Xiao-Hung Zhu, Essa Yacoub, Pierre-Francois Van de Moortele, Amir Shmuel, Josef Pfeuffer, Hellmut Merkle, Peter Andersen, and Gregor Adriany, "Magnetic Resonance Imaging of Brain Function and Neurochemistry", **Proceedings of the IEEE**, **89(7)**, 1093-1106, 2001. 07.
25. Timothy Q. Duong, **Dae-Shik Kim**, Kamil Ugurbil, and Seong-Gi Kim\*, "Localized Cerebral Blood Flow Response at Submillimeter Columnar Resolution", **Proceedings of the National Academy of Sciences of the United States of America**, **98(19)**, 10904-10909, 2001. 09.
26. **Dae-Shik Kim**\*, "Points of contact between neuronal physiology and fMRI", **Rivista di Neuroradiologia**, 53-60, 2001.
27. Noam Harel, Sang-Pil Lee, Tsukasa Nagaoka, **Dae-Shik Kim**, and Seong-Gi Kim\*, "Origin of Negative Blood Oxygenation Level-dependent fMRI Signals", **Journal of Cerebral Blood Flow and Metabolism**, **22(8)**, 908-917, 2002. 08.
28. **Dae-Shik Kim**\* and Kamil Ugurbil, "Bridging the Gap between Neuroimaging and Neuronal Physiology", **Image Analysis and Stereology**, **21**, 97-105, 2002. 04.

29. Kamil Ugurbil, Louis Toth, and **Dae-Shik Kim\***, “How Accurate is Magnetic Resonance Imaging of Brain Function?”, **Trends in Neurosciences**, **26(2)**, 108-114, 2003. 02.
30. Itamar Ronen\*, Keun-Ho Kim, Michael Garwood, Kamil Ugurbil, and **Dae-Shik Kim**, “Conventional DTI vs. Slow and Fast diffusion Tensors in Cat Visual Cortex”, **Magnetic Resonance in Medicine**, **49(5)**, 785-790, 2003. 05.
31. Song, A\*., Harshbarger, T., Li, T., Kim, K-H., Ugurbil, K., Mori, S., and **Dae-Shik Kim**, “Functional Activation using Apparent Diffusion Coefficient-dependent Contrast Allows better Spatial Localization to the Neuronal Activity: Evidence using DTI Fiber Tracking”, **NeuroImage**, **20(2)**, 955-961, 2003. 10.
32. Elia Formisano, **Dae-Shik Kim**, Francesco Di Salle, Pierre-Francois Van de Moortele, Kamil Ugurbil, and Rainer Goebel\*, “Mirror-symmetric Tonotopic Maps in Human Primary Auditory Cortex”, **Neuron**, **40(4)**, 859-869, 2003. 11.
33. **Dae-Shik Kim\*** and Michael Garwood, “High-field Magnetic Resonance Techniques for Brain Research”, **Current Opinion in Neurobiology**, **13(5)**, 612-619, 2003. 10.
34. Cheryl Olman, Itamar Ronen, Kamil Ugurbil, and **Dae-Shik Kim\***, “Retinotopic Mapping in Cat Visual Cortex using High-field Functional Magnetic Resonance Imaging”, **Journal of Neuroscience Methods**, **131(1-2)**, 161-170, 2003. 12.
35. **Dae-Shik Kim\***, Mina Kim, Itamar Ronen, Elia Formisano, Keun-Ho Kim, Kamil Ugurbil, Susumu Mori, and Rainer Goebel, “In Vivo Mapping of Functional Domains and Axonal Connectivity in Cat Visual Cortex using Magnetic Resonance Imaging”, **Magnetic Resonance Imaging**, **21(10)**, 1131-1140, 2003. 12.
36. Rainer Goebel\*, Alard Roebroeck, **Dae-Shik Kim**, and Elia Formisano, “Investigating Directed Cortical Interactions in Time-resolved fMRI Data using Vector Autoregressive Modeling and Granger Causality Mapping”, **Magnetic Resonance Imaging**, **21(10)**, 1251-1261, 2003. 12.
37. **Dae-Shik Kim\***, Itamar Ronen, Cheryl Olman, Seong-Gi Kim, Kamil Ugurbil, and Louis J. Toth, “Spatial Relationship between Neuronal Activity and BOLD Functional MRI”, **NeuroImage**, **21(3)**, 876-885, 2004. 03.
38. Christoph Kayser, Mina Kim, Kamil Ugurbil, **Dae-Shik Kim**, and Peter Koenig\*, “A Comparison of Hemodynamic and Neural Responses in Cat Visual Cortex using Complex Stimuli”, **Cerebral Cortex**, **14(8)**, 881-891, 2004. 08.
39. Stéphane Lehericy\*, Mathieu Ducros, Pierre-Francois Van de Moortele, Chantal Francois, Lionel Thivard, Cyril Poupon, Nick Swindale, Kamil Ugurbil, and **Dae-Shik Kim**, “Diffusion Tensor Fiber Tracking Shows Distinct Corticostriatal Circuits in Humans”, **Annals of Neurology**, **55(4)**, 522-529, 2004. 04.
40. Stéphane Lehericy\*, Mathieu Ducros, Alexandre Krainik, Chantal Francois, Pierre-Francois Van de Moortele, Kamil Ugurbil, and **Dae-Shik Kim**, “3-D Diffusion Tensor Axonal Tracking Shows Distinct SMA and Pre-SMA Projections to Human Striatum”, **Cerebral Cortex**, **14(12)**, 1302-1309, 2004. 12.

41. Itamr Ronen\*, Kamil Ugurbil, and **Dae-Shik Kim**, "How Does DWI Correlate with White Matter Structures", **Magnetic Resonance in Medicine**, **54(2)**, 317-323, 2005. 08.
42. **Dae-Shik Kim**\* and Mina Kim, "Combining Functional and Diffusion Tensor MRI", **Annals of the New York Academy of Sciences**, **1064**, 1-15, 2005. 12.
43. Itamar Ronen\*, Steen Moeller, Kamil Ugurbil, and **Dae-Shik Kim**, "Analysis of the Distribution of Diffusion Coefficients in Cat Brain at 9.4 T using the Inverse Laplace Transformation", **Magnetic Resonance Imaging**, **24(1)**, 61-68, 2006. 01.
44. Stéphane Lehericy\*, Eric Bardinet, Leon Tremblay, Pierre-Francois Van de Moortele, Jean-Baptiste Pochon, Didier Dormont, **Dae-Shik Kim**, Jerome Yelnik, and Kamil Ugurbil, "Motor Control in Basal Ganglia Circuits using fMRI and Brain Atlas Approaches", **Cerebral Cortex**, **16(2)**, 149-161, 2006. 02.
45. Mina Kim, Mathieu Ducros, Thomas Carlson, Itamar Ronen, Sheng He, Kamil Ugurbil, and **Dae-Shik Kim**\*, "Anatomical Correlates of the Functional Organization in the Human Occipitotemporal Cortex", **Magnetic Resonance Imaging**, **24(5)**, 583-590, 2006. 06.
46. Itamar Ronen\*, Steen Moeller, Kamil Ugurbil, and **Dae-Shik Kim**, "Investigation of Multicomponent Diffusion in Cat Brain using a Combined MTC-DWI Approach", **Magnetic Resonance Imaging**, **24(4)**, 425-431, 2006. 05.
47. Kim, M, Ronen, I., Ugurbil, K, and **Dae-Shik Kim**\*, "Spatial Resolution Dependence of DTI Tractography in Human Occipito-callosal Region", **NeuroImage**, **32(3)**, 1243-1249, 2006. 09.
48. Emi Takahashi\*, Kenichi Ohki, and **Dae-Shik Kim**, "Diffusion Tensor Studies Dissociated Two Fronto-temporal Pathways in the Human Memory System", **NeuroImage**, **34(2)**, 827-838, 2007. 01. 15
49. Jaymin Upadhyay, Mathieu Ducros, Tracey A. Knaus, Kristen A. Lindgren, Andrew Silver, Helen Tager-Flusberg, and **Dae-Shik Kim**\*, "Function and Connectivity in Human Primary Auditory Cortex: A Combined fMRI and DTI Study at 3 Tesla", **Cerebral Cortex**, **17 (10)**, 2420-2432, 2007. 10.
50. **Dae-Shik Kim**\*, "Functional Connectivity Measurement of the Brain", **Neural Information Processing-Letters and Reviews**, 11(4-6), 75-81, 2007. 10.
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