

# CURRICULUM VITAE

GUIDO GERIG

Update: September 29, 2019

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## ADDRESS

Guido Gerig  
Computer Science & Engineering CSE  
NYU Tandon School of Engineering  
2 MetroTech Center, 10.094  
Brooklyn, NY 11201, USA

Email: [gerig@nyu.edu](mailto:gerig@nyu.edu)  
Web: [http://engineering.nyu.edu/  
people/guido-gerig](http://engineering.nyu.edu/people/guido-gerig)  
Phone: (+1) 646-997-3975

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## EDUCATION

- 1993 Venia Legendi (Habilitation, Title: Dr. habil.)  
Swiss Federal Institute of Technology, ETH Zurich, Switzerland.
- 1987 Ph.D. in Electrical Engineering  
Swiss Federal Institute of Technology, ETH Zurich, Switzerland.
- 1981 Master in Natural Sciences ‘(Diploma ETH, equivalent M.Sc. )  
Swiss Federal Institute of Technology, ETH Zurich, Switzerland.

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## ACADEMIC APPOINTMENTS

- 9/2016– **Department Head Computer Science and Engineering,**  
NYU Tandon School of Engineering
- 7/2015– **Institute Professor Computer Science and Engineering,**  
NYU Tandon School of Engineering
- 7/2007–2015 **Professor Computer Science.** School of Computing, University of Utah.  
Associate Director SCI Institute, University of Utah.  
Director Utah Center for Neuroimage Analysis (<http://www.ucnia.org>).  
Adjunct Prof. Utah Depts. of Bioengineering and Psychiatry.  
Adjunct Prof. UNC Chapel Hill Depts. of Comp. Science and Psychiatry.
- 1998–2007 **Taylor Grandy Professor of Computer Science and Psychiatry.**  
University of North Carolina.
- 1995–1998 **Interim director of the BIWI computer vision laboratory** EE De-  
partment, ETH Zurich, Switzerland.
- 1993–1998 **Assistant Professor.** EE Department, ETH Zurich, Switzerland.
- 1993–1998 **Senior Lecturer.** (Privatdozent) EE Dept., ETH Zurich, Switzerland.

10/89–12/89 and 08/91–11/91 **Visiting Assistant Professor.** Department of Radiology, Brigham and Women’s Hospital, Harvard Medical School.

1987–1993 **Postdoctoral Research.** *Advisor:* Prof. Olaf Kübler.

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## HONORS & AWARDS

- 2019 IEEE Fellow, class of 2019
- 2012 AJP Best Paper: Co-authored a paper that made the list of the American Journal of Psychiatry’s ”Best of 2012” for their paper “Differences in White Matter Fiber Tract Development Present from 6 to 24 Months in Infants with Autism”
- 2010 Fellow of the American Institute for Medical and Biological Engineering (AIMBE) (Oct. 22, 2010).
- 2010 Dean’s letter University of Utah for Excellence in Teaching (May 2010).
- 2009 Fellow of the Medical Image Computing and Computer-Assisted Intervention (MICCAI) Society.
- 2009 ISMRM (Int Society for Magnetic Resonance in Medicine): Outstanding Teacher Award.
- 2001 Award from IEEE Transactions on Medical Imaging (IEEE-TMI) for most cited paper published in IEEE-TMI in 1992: Gerig G, Kikinis R, Kuebler O, Jolesz FA. Nonlinear Anisotropic Filtering of MRI Data, IEEE TMI, Vol. 11, No. 2, June 1992, pp. 221-232.
- 1988 DAGM-Prize, 10. DAGM-Symposium Zurich, Sept. 1988, Prize for the best student paper at the DAGM’88 conference titled ”Recognition of Nonrigid Objects Using the Generalized Hough Transform”, by D. Morgue and G. Gerig.
- 1987 Brown Boveri Company (BBC) Research Award 1987 for the Ph.D dissertation thesis ”Segmentierung zur symbolischen Beschreibung von Grauwertbildern” (Segmentation for symbolic description of gray level images).

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TEACHING EXPERIENCE

**NYU School of Engineering, CSE (range 1 to 5)**

Semester	Course	Title	Enroll.	RR	I7	<I>	C7	<C>
S2019	CS-GY 6643	Computer Vision	54	18	4.7		4.7	
S2018	CS-GY 6643	Computer Vision	84	29	4.7		4.5	
S2017	CS-GY 6643	Computer Vision	66	41	4.4		4.3	
S2016	CS-GY 6643	Computer Vision	30	27	5.0		4.7	

**Utah, School of Computing (range 1 to 6)**

Semester	Course	Title	Enroll.	RR	I7	<I7>	C7	<C7>
S2015	CS6320	3D Computer Vision	24	18	5.50	5.26	5.53	5.17
F2014	CS7938	Imaging Seminar						
F2014	CS6640	Image Processing	67	48	5.4	5.24	5.24	5.18
S2013	CS6320	3D Computer Vision	14	14	5.49	5.3	5.26	5.18
S2013	CS7938	Medical Imaging Seminar						
F2012	CS6640	Image Processing	36	23	5.57	5.3	5.4	5.18
S2012	CS6320	3D Computer Vision	33	29	5.32	5.30	5.01	5.18
S2012	CS7938	Medical Imaging Seminar						
F2010	CS6640	Image Processing	26	26	5.43	5.3	5.3	5.18
F2010	CS7938	Medical Imaging Seminar						
S2010	CS7660	<sup>1</sup> *Adv. Image Processing	31	16	5.9	5.3	5.88	5.18
S2010	CS7938	Medical Imaging Seminar						
F2009	CS6968	3D Computer Vision	19	12	5.61	5.22	5.60	5.17
F2009	CS7938	Medical Imaging Seminar						
F2008	CS6320	*3D Computer Vision	26	19	5.46	5.22	5.26	5.18
F2008	CS7938	*Medical Imaging Seminar						

**UNC Chapel Hill, Department of Computer Science**

2006	Comp254	<sup>2</sup> Image Proc. and Analysis
2005	Comp256	<sup>3</sup> Computer Vision
2004	Comp254	<sup>4</sup> Image Proc. and Analysis
2003	Comp255	*Recent Adv. in Image Analysis
2002	Comp254	Image Proc. and Analysis
2001	MedImProc	*Medical Image Processing II
2001	Comp254	Computer Vision
2000	MedImProc	*Medical Image Processing I
2000	Comp254	*Computer Vision
1999	Comp254	<sup>5</sup> Image Proc. and Analysis

**ETH Zurich, Switzerland**

S1997		Comp Vis and Im Proc I
F1996		Comp Vis and Im Proc II
S1996		Comp Vis and Im Proc I
F1995		Comp Vis and Im Proc II
S1995		Comp Vis and Im Proc I
F1994		Comp Vis and Im Proc II
S1994		Comp Vis and Im Proc I
F1993		Comp Vis and Im Proc II
S1993		Comp Vis and Im Proc I
F1990		Comp Vis and Im Proc II

**Legend:** Enrollment, RR: Returned responses, I7: Overall effective instructor, C7: Overall effective course, <I7> and <C7> averages over all School of Computing courses. Scores from 1 (poor) to 6 (best).

- \* New courses and seminars introduced and developed
- <sup>1</sup> Dean's Letter of Excellence in Teaching, Utah College of Engineering
- <sup>2</sup> Student Teaching Award, UNC Computer Science
- <sup>3</sup> Nomination UNC Chapel Hill Teaching Award
- <sup>4</sup> Student Teaching Award, UNC Computer Science
- <sup>5</sup> Student Teaching Award, UNC Computer Science

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## STUDENT ADVISING

### **Mentoring Postdoctoral Research**

James Fishbaugh (Jan. 2015 - 2017)  
Shireen Elhabian (Jan. 2013 - 2016)  
Stanley Durrleman (2010-2012)  
Isabelle Corouge (2004-2006)

### **Mentoring Medical School M.D./Ph.D. Researcher Fellows**

Brandon Zielinsky (2013 - 2017, Utah )  
Lucia Cevidanes, DDS, PhD. (2003-2007, UNC)  
Rebecca Knickmeyer, Ph.D., (2001-2004, UNC)  
Robert McClure, M.D.,Ph.D., (1999-2004, UNC)

### **Mentoring PhD Thesis Research**

Name	Start Date	Date completed
<b>Current</b>		
Axel Elaldi	September 2019	
Mengwei Ren	September 2019	
Shijie Li	September 2019	
Neel Dey	September 2017	
Batool Abbas	September 2016	
Heejong Kim	September 2016	
Sungmin Hong	September 2014	expected Dec. 2019
Anuja Sharma	August 2009	expected 2019
<b>Past</b>		
Yang Gao		PhD Utah, Oct 2018
Avantika Vardhan		PhD Utah, July 2015
Bo Wang		PhD Utah, April 2015
James Fishbaugh		PhD Utah, Dec. 2015
Neda Sadeghi		PhD Utah Aug. 2013
Casey Goodlett		PhD Utah May 2009
Marcel Prastawa		PhD UNC Nov. 2007
Timothy Terriberry		PhD UNC Nov. 2007
Sean Ho		PhD UNC Oct. 2004
Martin Styner		PhD UNC July 2001
Daniel Welti		PhD ETHZ March 2001
Martin Berger		PhD ETHZ 1999
Andras Kelemen		PhD ETHZ 1998
Dimitris EkatoDRAMIS		PhD ETHZ 1998
Christian Brechbuehler		PhD ETHZ 1996
Tuomo Vehkomaki		PhD ETHZ 1995
Thomas M. Koller		PhD ETHZ 1995
Xin Cheng		PhD ETHZ 1993 (co-advisor)

### **Mentoring MS Thesis**

Name	Date completed
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#### **Current**

Michelle A La	MS CSE, AY2019-20
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#### **Past**

Andrew Dempsey	M.Sc. NYU Tandon CSE, April 2019
Neel Dey	M.Sc. NYU Tandon ECE, April 2017
Nishith Tirpankar	M.Sc. Utah April 2013
XiaoYue Huang	MS S2012, Utah
Christine Xu	M.Sc. F2011, UNC
Ran Tao	MS degree Fall 2009, Utah
Samuel Preston	MS May 2009, Utah, co-advising)
Neda Sadeghi	M.Sc. Utah April 2008
Kevin Gorczowski	MS Spring 2007, Utah
Bradley Moore	Fall 2007, UNC
Sampath Vetsa	MS Spring 2003, UNC
Megan Dunigan	MS Spring 2003, UNC
Nathan Moon	MS Spring 2002, UNC

### **International Student Internship Program**

Local organization of a Graduate Student Internship Program with CPE Lyon, France: 1999 - today: Supervision and advising of up to 2 MSc candidate students per year (students spend a full year at the Gerig reserach lab and get mentoring and advising on research).

**Guillame Gisbert (internship CPE Lyon, 2019/2020)**

Martin Blanchard (internship CPE Lyon, 2018/2019)  
Laura Degand (internship CPE Lyon, 2018/2019)  
Edouard Mior (internship CPE Lyon, 2017/2018)  
Mathilde Ravier (internship CPE Lyon, 2017/2018)  
Charly Girot (internship CPE Lyon, 2016/2017)  
Mathilde Guillaumot (internship CPE Lyon, 2016/2017)  
Clement Chagnaud (internship CPE Lyon, 2014/2015)  
Nicolas Fanjat (internship CPE Lyon, 2014/2015)  
Thibault Dupont (internship CPE Lyon, 2013/2014)  
Yohann Bearzi (internship CPE Lyon, 2013/2014)  
Florian Rousset (internship CPE Lyon, 2012/2013)  
Arthur Coste (internship CPE Lyon, 2011/2013)  
Bastien Bessiere (internship CPE Lyon, 2011/2012)  
Corentine Bouchard (internship CPE Lyon, 2010/2011)  
Laura Dumont (internship CPE Lyon, 2010/2011)  
Aurelia Augier (internship CPE Lyon, 2009/2010)  
Emmanuel Bitaud (internship CPE Lyon, 2009/2010)  
Delphine Mur (internship CPE Lyon 2008/2009)  
Guillaume Rongier (internship CPE Lyon 2008/2009)  
Alice Dufour (internship CPE Lyon 2007/2008)  
Benoit Caldairou (internship CPE Lyon 2006/2007)  
Delphine Ribes (internship CPE Lyon 2006/2007)  
Clément Varchet (internship CPE Lyon 2005/2006)  
Luc Fauvet (internship CPE Lyon 2005/2006)  
Nathalie Strehel (internship CPE Lyon 2005/2006)  
Aurelie Allain (internship CPE Lyon 2004/2005)  
Sylvain Gouttard (internship CPE Lyon 2004/2005)  
Benoit Pacquier (internship CPE Lyon 2003/2004)  
Pierre Fillard (internship CPE Lyon 2003/2004)  
Matthieu Ruffin (internship CPE Lyon 2002/2003)

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## STUDENT COMMITTEES

### Committee Member PhD/MS Thesis

Name	Degree	Completed
<b>Current</b>		
Rizkin, Benjamin	Ph.D.	
<b>Past</b>		
BLAUER,JOSHUA JACOB	Ph.D.	2018
Joshi, Anshul	Ph.D.	2018
Deepak, Antony	Ph.D.	2018
Preston, Sam	Ph.D.	2018
HOGREBE,LUKE A	Ph.D.	2017
MURALIDHARAN,PRASANNA	Ph.D.	2017
SEYEDHOSSEINI T.,SEYED M.	Ph.D.	2017
Veni,Gopalkrishna Balkrishna	Ph.D.	2016
DSOUZA,JOANITA EMILIA	M.S.	2016
Kemker, David	M.S.	2016
Alpert, Ben	M.S.	2016
Ledig, Christian	Ph.D.	Dec. 2015, Imperial College
Dinse, Juliana	Ph.D.	July 2015, Magdeburg
Ferguson, Michael	Ph.D.	July 2015
Zhang, Miaomiao	Ph.D.	Oct. 2015
Michael Ferguson	Ph.D.	July 2015
Hao, Xiang	Ph.D.	Feb. 2014
SINGH,NIKHIL PRATAP	Ph.D.	Oct. 2013
DATAR,MANASI PRAKASH	Ph.D.	Oct. 2013
Liu, Wei	Ph.D.	Oct. 2013
Ezequiel Geremia	Ph.D.	Feb. 2013, INRIA Sophia Antipolis, FR
Erik Anderson	Ph.D.	2010, Utah
Stanley Durrleman	Ph.D.	2010, INRIA Sophia Antipolis,FR
Hui Sun	Ph.D.	March 2010, U-Penn
Joshua Cates	Ph.D.	Fall 2009, Utah
Ender Konukoglu	Ph.D.	Feb. 2009, INRIA Sophia Antipolis, FR
Sudipta Sinha	Ph.D.	August 2008, UNC Chapel Hill
David Borland	Ph.D.	August 2007, UNC Chapel Hill
Hui Zhang	Ph.D.	July 2007, U-Penn
Eric Bennett	Ph.D.	March 2007, UNC Chapel Hill
Pierre Fillard	Ph.D.	Jan. 2007, INRIA Sophia Antipolis, FR
Oliver Commonwick	Ph.D.	2006, INRIA Sophia Antipolis, FR
Peter Lorenzen	Ph.D.	May 2006, UNC Chapel Hill
Michael Rosenthal	Ph.D.	March 2005, UNC Chapel Hill
Tom Fletcher	Ph.D.	2004, UNC Chapel Hill
Yonatan Fridman	Ph.D.	2004, UNC Chapel Hill
Paul Yushkevich	Ph.D.	2003, UNC Chapel Hill
Ruigang Yang	Ph.D.	2003, UNC Chapel Hill
Lucia Cevidanes	Ph.D.	2003, UNC Chapel Hill
JessicaCrouch	Ph.D.	2003, UNC Chapel Hill
Robert Katz	Ph.D.	2001, UNC Chapel Hill
Jonathan Oakley	Ph.D.	2000, PSI and ETH Zurich
G. Crelier	Ph.D.	1996, ETH Zurich
L. Felber	Ph.D.	1996, ETH Zurich
S. Fischer	Ph.D.	1994, ETH Zurich
B. Bomans	Ph.D.	1994, University Hamburg, Germany



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## INTERNAL SERVICE

- 2017–: NYU Tandon School of Engineering, CSE, Department Head
- 2016: NYU Tandon School of Engineering, Strategy Group Committee
- 2015–2017: NYU Global Network, Faculty Committee
- 2015–: NYU CSE multiple faculty search committees
- 2015: NYU CSE: Chair Faculty Search, NYU Tandon Member Chair Search
- 2015: NYU CSE: Chair NYU Tandon Dept. Chair Search
- 2010–2013: Chair Retention/Promotion/Tenure (RPT) Committee School of Computing, Utah.
- 2008–2014: Associate Director SCI Institute, University of Utah.
- 2014–2015: Director Utah Biomedical Image and Data Analysis and Visualization Center (Utah BIDAC, [bidac.sci.utah.edu](http://bidac.sci.utah.edu)).
- 2007–2015: Director Utah Center for Neuroimage Analysis ()
- 1997–2007: Director Neuroimaging Analysis Laboratory, UNC Department of Psychiatry (starting 1997 with one student, 2007 25 students, staff, postdoctoral researchers).

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## EXTERNAL SERVICE

### **Editorials, Memberships**

- Member AIMBE (American Institute for Medical and biological Engineering (2011 - today)
- Editorial Board (Executive Committee) MEDICAL IMAGE ANALYSIS Journal, published by Elsevier B.V., 2000 - today
- Fellow of the Medical Image Computing and Computer-Assisted Intervention (MICCAI) Society, 2009 - today
- Board Member Medical Image Computing and Computer Assisted Intervention MICCAI (2006- Jan 2010)
- Board Member SPIE Conference IMAGING (2008-today)

### **Organization**

- Co-Organized MICCAI 2014 Workshop on “DTI Tractography Challenge”.
- Organized MICCAI 2014 Workshop on “Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data” (with Durrleman, Niethammer, Fletcher, Pennec).

- Co-Organized MICCAI 2013 Workshop on “DTI Tractography Challenge”.
- Organized MICCAI 2012 Workshop on “Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data” (with Durrleman, Niethammer, Fletcher).
- Co-Organized MICCAI 2012 Workshop on “DTI Tractography Challenge”.
- Co-Organized MICCAI 2012 Workshop on “Neonatal Brain Segmentation”.
- Co-organized SPIE 2012 DTI Course, San Diego, CA (hands-on training on 3D Slicer Software).
- Co-Organized MICCAI 2011 Workshop on “DTI Tractography Challenge”.
- Co-organized SPIE 2012 DTI Course, San Diego, CA (hands-on training on 3D Slicer Software).
- Organized MICCAI 2010 Workshop on “Spatio-Temporal Image Analysis. for Longitudinal and Time-Series Image Data” (with Fletcher, Pennec).
- Co-Organized MICCAI 2010 Workshop on “DTI Tractography Challenge”.
- Organizer MICCAI 2008 Workshop: Imaging the Early Developing Brain: Challenges and Potential Impact.
- Organized MICCAI 2005 Conference, Palm Springs, as Program Chair (organizers: Jim Duncan, Yale and Guido Gerig, UNC, >600 attendees, 256 accepted papers).

### **Program Committees**

- Standing Member Program Committee MICCAI, SPIE, IEEE ISBI
- Program Committee MICCAI 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005
- Program Committee MICCAI 2009 (area chair, paper selection comm., paper award coordination)
- Program Committee IPMI 2009 (paper selection)
- Program Committee 2009: SPIE, ISBI
- Program Committee MICCAI 2008 (area chair and paper selection committee)
- Program Committee 2008: CVPR, MIAR, MMBIA, SPIE
- Program Committee 2007: IPMI, MICCAI, SPIE

### **Reviewer for Conferences**

- Regular reviewer IEEE ISBI, CVPR, ICCV, ECCV, MICCAI, MMBIA, IPMI, SPIE

### **Journal Reviews**

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Medical Imaging

- Medical Image Analysis
- NeuroImage
- Human Brain Mapping
- Academic Radiology
- IJCV
- JMIV

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## RESEARCH EXPERIENCE

### Research Direction

- Member of NYU Visualization, Imaging and Data Analysis (VIDA) group, director of medical imaging group
- Director of the Utah Center for Neuroimage Analysis UCNIA (<http://www.ucnia.org>), 2007 – 2015.  
UCNIA conducts imaging and image-based research and development by providing computational tools for quantitative image analysis. UCNIA supports end users with conducting research for advanced imaging technologies and clinical imaging research. The center offers consulting services and technical and methodological support for a broad range of medical and biological image analysis, including:
  - Computational infrastructure for image analysis (tools, image data bases).
  - A repository for novel image analysis tools (<http://www.ia.unc.edu/dev>).
  - Expertise in clinical imaging studies.
  - Training with image analysis methodology and tools.
  - Support in pilot studies and validation.
  - Advice on optimal imaging technologies given specific measurement tasks.
  - Organization of single and multi-site imaging research studies.
  - Development of novel image analysis methodology driven by novel applications.
- Former director and founder of the UNC Neuro Image Research and Analysis Laboratories NIRAL (<http://www.med.unc.edu/psych/research/niral>), 1998–2007.
- Interim director of the computer vision laboratory BIWI, EE Department, ETH Zurich, Switzerland, <http://www.vision.ee.ethz.ch/>, 1995–1998.

### Research Topics

It is the primary goal of my research to translate state-of-the-art image analysis methodologies to (pre-)clinical use. I conduct development of novel methods and tools driven by challenging clinical driving applications, testing and validation of these methodologies in clinical studies via multi-disciplinary collaborative research, and making these tools available to the international research community. New analysis methods and tools will potentially enable new insights and discoveries in medicine and thus advance science, but facing most challenging new problems will also help to push the frontiers in medical image analysis technology.

- **Current methodological research topics:**
  - Quantitative assessment of normal and pathological anatomy from data across the whole age range:
    - \* 3D segmentation/modeling of volumetric multi-channel medical imaging data.

- \* Segmentation of MRI/DWI of the early developing infant brain (neonates to 5 years).
- \* Statistical analysis of geometry and appearance of sets of 3D structures (example of brain fiber tracts).
- \* Automatic segmentation of healthy and pathological structures (tumor, edema, bleedings, deformations).
- Longitudinal (4D) image analysis: Development, degeneration, monitoring of disease progress and of therapeutic intervention:
  - \* Spatiotemporal segmentation, modeling and analysis of longitudinal image data (time-discrete 3D data).
  - \* Correspondence-free mapping/registration of 3D images and derived structures for longitudinal data of individuals (intra-subject) and across individuals (inter-subject).
  - \* 4D modeling of time-discrete 3D data presenting topology changes and large deformations (pathology, appearing, disappearing structures).
  - \* 4D continuous shape modeling from time-discrete 3D shapes and multi-shape complexes.
  - \* 4D Computational Anatomy: Building normative statistical atlases from longitudinal 3D images and sets of anatomical structures.
  - \* Joint spatiotemporal modeling of longitudinal 3D images and embedded shapes and structures.
  - \* Modeling and analysis of brain connectivity changes over time via interpolation of distributions.
- Novel tools and methods made available as open source packages (Insight Toolkit ITK, NITRC downloads, SNAP-ITK) and made available to public (<http://www.ia.unc.edu/dev>).

- **Current driving clinical problems:**

- Research of progression of glaucoma, collaboratively with NYU Ophthalmology
- Research of age-related macular degeneration (AMD), collaboratively with an international multi-site team led by University of Alabama
- Quantitative MRI to assess hip and knee cartilage pathology, collaborative research with NYU Radiology CBI
- Longitudinal neuroimaging studies in children with Down’s Syndrome (DS), collaborative multi-center effort with with PI at Washington University Saint Louis.
- Longitudinal neuroimaging studies in offsprings of drug-addicted mothers, collaborative research with UNC Chapel Hill, Department of Psychiatry.
- Longitudinal neuroimaging studies in children at risk for autism. Collaborative multi-center effort with PI at UNC Chapel Hill.
- Neuroimaging studies of normal infant development from birth to 5 years.
- Spatiotemporal analysis of longitudinal neuroimaging data to asses degeneration of brain structures in Huntington’s Disease (HD). Collaborative effort with University of Iowa, Department of Psychiatry.

- Modeling of brain tissue and brain lesions for profiling and prediction of outcome in traumatic brain injury (TBI). Collaborative effort with UCLA, Department of Radiology and Neurosurgery.
- Down syndrome (DS): Bridging Genes, Brain and Cognition via combining genetic, behavior, cognitive and image-derived brain anatomy measures. Collaborative effort with Genetics, University of Utah.
- Assessment of kidney function in patients with cirrhosis by measuring glomerular filtration rate via MR renography. Collaborative effort with Department of Radiology, University of Utah.

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## RESEARCH GRANTS

### Summary Federal Grants per Year

Budget Year	Institution	Direct Costs	Total Expensed
2018/2019	NYU	tbd	tbd
2017/2018	NYU	<sup>1</sup> \$285,000	<sup>1</sup> \$415,000
2016/2017	NYU	<sup>1</sup> \$265,000	<sup>1</sup> \$367,000
2015/2016	NYU	<sup>1</sup> \$214,000	<sup>1</sup> \$297,000
2014/2015	Utah	<sup>1</sup> \$550,000	<sup>1</sup> \$819,500
2013/2014	Utah	<sup>1</sup> \$589,481	<sup>1</sup> \$881,274
2013/2012	Utah	<sup>1</sup> \$590,273	<sup>1</sup> \$876,518
2012/2013	Utah	<sup>1</sup> \$520,000	<sup>1</sup> \$780,000
2011/2012	Utah	<sup>1</sup> \$516,834	<sup>1</sup> \$775,251
2010/2011	Utah	<sup>1</sup> \$446,469	<sup>1</sup> \$669,704
2009/2010	Utah	<sup>1</sup> \$391,743	<sup>1</sup> \$587,615
2008/2009	Utah	<sup>1</sup> \$375,147	<sup>1</sup> \$562,720
2007/2008	Utah	<sup>1</sup> \$184,349	<sup>1</sup> \$276,523
2006/2007	UNC	<sup>2</sup> \$826,838	<sup>2</sup> \$1,248,525
2005/2006	UNC	<sup>2</sup> \$826,837	<sup>2</sup> \$1,248,523
2004/2005	UNC	<sup>2</sup> \$716,336	<sup>2</sup> \$1,081,667
2003/2004	UNC	<sup>2</sup> \$587,335	<sup>2</sup> \$886,875
2002/2003	UNC	<sup>2</sup> \$587,334	<sup>2</sup> \$886,874
2001/2002	UNC	<sup>2</sup> \$527,001	<sup>2</sup> \$795,772
2000/2001	UNC	<sup>2</sup> \$382,000	<sup>2</sup> \$576,820
1999/2000	UNC	<sup>2</sup> \$321,999	<sup>2</sup> \$486,218
1998/1999	UNC	<sup>2</sup> \$251,998	<sup>2</sup> \$380,517
1997/1998	ETHZ		\$356,667
1996/1997	ETHZ		\$356,667
1995/1996	ETHZ		\$268,333
1994/1995	ETHZ		\$263,333
1993/1994	ETHZ		\$175,000
1992/1993	ETHZ		\$175,000
1991/1992	ETHZ		\$175,000

<sup>1</sup>estimates from Gerig annual returned overhead

<sup>2</sup>estimates from Gerig funding and Gerig UNC NIRAL lab support

### Current Funding

*Longitudinal MRI Characterization of Very Early Brain Development in Infants with Down Syndrome*

NIH 1R01HD088125-01A1

P.I. Kelly Botteron, Washington University, Role: Co-investigator

Gerig NYU subcontract, 09/20/2018 - 08/31/2023

*MRI BASED PRESYMPTOMATIC PREDICTION OF ASD*

NIH 1R01MH118362-01  
P.I. John Pruett, Washington University, Role: Co-investigator  
Gerig NYU subcontract , 04/01/2019 - 01/31/2024

*Novel Glaucoma Diagnostics for Structure and Function*  
NIH-NEI P.O. Joel Schumann, NYU Ophthalmology, Role: Co-investigator  
Gerig NYU subcontract, 8/01/2019-7/31/2024

*Shape Analysis Toolbox SALT*  
NIH-NIBIB 1 R01 EB021391-01  
P.I. Paniagua, Role: Investigator  
Gerig NYU subcontract \$393,000, 01/01/2017 - 12/31/2020

*A hyperspectral approach to RPE fluorophores in health and disease*  
NIH-NEI 1R01 EY027948-01  
P.I. Curcio, Role: Investigator  
Gerig NYU subcontract, 07/01/2017 - 06/30/2020

*Cocaine and Maternal Behavior: Effects on Trajectory of Infant Brain Development*  
NIH-NIDA 1 R01 DA038215-01A1  
P.I. K. Grewen, UNC Chapel Hill, Role: Investigator  
Gerig NYU subcontract, 07/01/2016 - 06/30/2021

*Brain and Behavior Study of Autism from Infancy through School Age*  
*NIH (NICHD) 2 R01 HD055741-11*  
P.I. Joseph Piven, UNC Chapel Hill, Role: P.I. Imaging Core  
07/01/17 - 06/30/22, subcontract to NYU.

*Hip Chondromics: Comprehensive Cartilage Characterization with MR Fingerprinting*  
NIH 1R01AR070297  
P.I. Riccardo Lattanzi, NYU, Role: Co-investigator  
09/01/16 - 08/31/21, subcontract to NYU.

*Temporal connectomics for infant brain: neurodevelopment modulated by pathology*  
1 R01 MH110058-01  
P.I. Ragini Verma, U-Penn, Role: Co-investigator  
01/02/12-01/31/21, subcontract to NYU.

## **Past Funding**

*A Longitudinal MRI Study of Infants at Risk for Autism: Autism Centers of Excellence (ACE) Network*  
NIH (NICHD) 2 R01 HD055741-06  
P.I. Joseph Piven, UNC Chapel Hill, Role: P.I. Imaging Core  
09/04/12-05/31/17, subcontract to NYU.

*Web-based infrastructure for comparison and validation of image computing methods*  
NIH (NIBIB) 9R42MH106302-02



*P.I. S. Aylward, Kitware, Role: Co-Investigator  
08/26/14 - 07/31/16, subcontract to NYU.*

*Down syndrome: Bridging Genes, Brain and Cognition  
NIH NINDS R01 HD067731-01A1  
P.I. Julie Korenberg, Utah, Role: co-P.I.  
09/01/11 - 08/30/16, no-cost extension*

*4D Shape Analysis for Modeling Spatiotemporal Change Trajectories in Huntington's  
NIH (NINDS) 1 U01 NS082086-01  
Role: Principal Investigator  
07/01/12- 09/29/15, no-cost extension to 09/29/16*

*Continued Development and Maintenance of ITK-SNAP 3D Image Segmentation  
NIH NIBIB 1R01EB014346-01  
P.I. Paul Yushkevich, U-Penn, Role: co-investigator  
09/19/11 - 08/31/15, subcontract to Utah.*

*Neurobiological and Behavioral Consequences of Cocaine Use in Mother-Infant Dyads.  
NIH P01 DA022446-011  
P.I. Joey Johns, UNC Chapel Hill, Role: P.I. Human Imaging Core  
08/15/08-05/31/13 (no-cost extension '15), subcontract to Utah.*

*NA-MIC: National Alliance for Medical Image Computing  
NIH 2U54EB005149-06  
P.I. Ron Kikinis, Harvard, Role: co-investigator  
09/01/10-08/31/14, subcontract to Utah.*

*Imaging Segmentation and Analysis for Polymer Fiber Reinforced Concrete.  
Univ. of Utah Seed Grant  
P.I. Amanda Bordelon, co-PI Guido Gerig  
1 year 08/01/13 - 07/31/13*

*Medical Image Processing applied to pediatric autism research R. Harold Burton Founda-  
tion, Salt Lake City  
P.I. Guido Gerig  
1 year 08/01/13 - 07/31/13*

*NIH R01 MH070890 (Gilmore), 05/01/10 - 01/31/13  
NIH  
Prospective studies of Early Brain Development in Twins*

*NIH 1 R01 NS055754-01 (Lin) 07/01/10-04/30/13  
NIH NIBIB BRP  
Characterization of Normal Brain Development Using Parallel MRI.*

*1 R01 HD055741-01 (Piven), 07/01/07-08/30/12  
NIH (NICHD), Role: PI Imaging Core*

*Autism Centers of Excellence: Infant Brain Imaging Study ACE-IBIS*

*2 P50 MH064065-06 (Gilmore), 08/01/07-07/31/12*

*NIMH, Role: PI Neuroimaging Core*

*Silvio Conte Center*

*K000432S01 COVALIC, NIH - STTR (Jomier), 08/01/10 - 07/30/12*

*Role: PI Utah subcontract.*

*HHSN276201000584P (Prastawa), 06/01/2010 - 05/31/2012*

*NIH/NLM Role: Co-investigator*

*Score: Systematic Comparison through Objective Rating and Evaluation*

*R01 EB00219-09 (Bullitt, PI), 02/15/97-06/30/09*

*NIH NIBIB, Role: Co-Investigator*

*3D cerebral vessel location for surgical planning*

*P01 EB002779-14 Gerig (PI), 07/3/02- 06/30/07*

*NIH NIBIB, Role: PI Project 3*

*Medical image Presentation MIP: Structural Image Analysis and Medical Uses*

*P50 MH064065-01A1 Lieberman (PI), 08/01/02-07/31/07*

*NIH NIBIB, Role: PI Imaging Core*

*Prospective Studies of the Pathogenesis of Schizophrenia, UNC Silvio Conte Res. Centr.*

*5 P30 HD03110 Piven (PI), 07/01/03-06/30/08*

*NIH NIMH, Role: Director Imaging Core*

*Child Development and Mental Retardation, NDRC Core - Morphology*

*R01 MH64708-01 Piven (PI), 09/26/02-06/30/07*

*NIH NIMH, Role: Co-Investigator*

*Longitudinal MRI Study of Brain Development in Fragile X*

*Lilly Eli Corp., Gerig (PI), 2005–2007*

*Nat. Alliance for Autism Res. NAAR, Gerig (PI), 2005–2007*

*Stanley Foundation, Gerig (PI), 2001–2004*

*Foundation of Hope, Gerig (PI), 2001–2002*

*BIOMORPH, Gerig/Kübler (PIs), 1996–1999, European Union*

*Accurate Quantification of PET-Activity, Gerig/Kübler (PIs), 1997–1999,*

*Swiss National Science Foundation*

*Patient Positioning Control, Gerig/Kübler (PIs), 1995–1998,*

*Swiss National Science Foundation*

*Geometry-Driven Diffusion in Vision, Kübler/Gerig (PIs), 1992–1995, European Union*

*Computer Vision in Radiology COVIRA, Kübler/Gerig (PIs), 1992–1995, European Union*

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## OPEN SOURCE SOFTWARE DEVELOPMENTS

*The NYU VIDA Center Medical Imaging, the former Utah Center for Neuroimage Analysis ([www.ucnia.org](http://www.ucnia.org)) and the former laboratory at UNC (Neuroimaging Laboratory) are closely linked to the Insight Toolkit (ITK) Open Source development and distribution of software for medical image analysis.*

*Web download of most Neurolab Software and Tutorials available at (NIRAL-SW) and at the NIH NITRC source for neuroimaging tools and resources (<http://www.nitrc.org/>). Our group is also closely involved in the 3D Slicer development via the large NIH funded grant NAMIC (<http://www.slicer.org/>).*

### **Major packages available to the international community:**

<sup>1</sup> *Insight SNAP: User-guided 3D segmentation and 3D implicit snake segmentation (<http://www.itksnap.org/pmwiki/pmwiki.php?n=Main.Downloads>).*

*ExoscelAccel: 4D shape modeling*

*DTIStats: Statistics of fiber tracts, made available on NITRC*

*ABC: Atlas-Based Classification, made available on NITRC and NA-MIC Slicer 3*

*Fiber Tracking: Tensor calculation and tractography applied to DTI data*

*FiberViewer: Quantitative analysis of white matter bundles*

*DTIChecker: Quality checking of MR-DTI image data*

*EMS: Automatic MRI brain tissue segmentation*

*Head Circumference: Head circumference measurement from 3D brain MRI*

*Imagine: Dataflow pipeline software for ITK modules*

*Intensity Rescaler: Adjustment of intensity histograms between pairs of volumetric images*

*Imconvert: Conversion of various volumetric image formats*

*VALMET: Tool for validation of intra- and inter-rater segmentation reliability*

*MeshValmet: Tool for object surface distance validation*

<sup>1</sup> *The concept of the SNAP tool has been originally developed by Guido Gerig's group at UNC Chapel Hill, starting 1998. Paul Yushkevich at U-Penn significantly extended it into ITK-SNAP using the Insight Toolkit software libraries. Currently, both groups have a joint grant to further develop the tool. ITK-SNAP shows an average of over 1000 downloads per month. ITK-SNAP appears 2nd among over 300 tools on the list of most downloaded neuroimaging tools on nitrc.org, the website of the NIH-sponsored Neuroimaging Informatics Tools and Resources Clearinghouse. It also appears first among the 40 tools listed in the "segmentation" category. According to Google Analytics, the website had over 58,000 "absolute unique visitors". In JanJanuary 2018, the tool gets 3200 downloads per month, with over 1900 current users, and the associated paper received over 2700 citations).*

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## PATENTS

*"METHODS AND SYSTEMS TO PRODUCE CONTINUOUS TRAJECTORIES FROM DISCRETE ANATOMICAL SHAPES" for which we filed United States Patent Application*

*No. 13/613,850 on September 13, 2012 (Atty. File No. 026389-9045-US02).*

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## PUBLICATIONS

- *Google Scholar Citations: Scholar.*
- *DBLP Computer Science Bibliography and Downloads: DBLP.*
- *PubMed: PubMed Gerig*
- *SCI Institute Bibliography List and Downloads (till 2017): SCI Pubs.*

---

## BOOKS, BOOK CHAPTERS AND THESES

1. *Neda Sadeghi, Guido Gerig, and John H. Gilmore. Modeling brain growth and development. In Brain Mapping: An Encyclopedic Reference: Volume 1: Acquisition Methods, Methods and Modeling, volume 1, pages 429–436. Feb 2015.*
2. *Durrleman, S.; Fletcher, T.; Gerig, G.; Niethammer, M.; Pennec, X.(Eds.), Spatio-temporal Image Analysis for Longitudinal and Time-Series Image Data, Third International Workshop, STIA 2014, Held in Conjunction with MICCAI 2014, Boston, Sept. 18, 2014, Proceedings, Publisher: Springer, Series: Lecture Notes in Computer Science, Vol. 8682, Subseries: Image Processing, Computer Vision, Pattern Recognition, and Graphics, 2015, 89 p. 35 illus.*
3. *Durrleman, S.; Fletcher, T.; Gerig, G.; Niethammer, M. (Eds.), Spatio-temporal Image Analysis for Longitudinal and Time-Series Image Data, Second International Workshop, STIA 2012, Held in Conjunction with MICCAI 2012, Nice, France, Oct. 1, 2012, Proceedings, Publisher: Springer, Series: Lecture Notes in Computer Science, Vol. 7570, Subseries: Image Processing, Computer Vision, Pattern Recognition, and Graphics, 2012, X, 163 p. 73 illus.*
4. *Rueckert D, Hawkes D, Gerig G, Yang GZ., MedIA Journal, Elsevier, Sept 2010, Special Issue, Med Image Anal. 2010 Oct;14(5):631-2. PMID: 20627174*
5. *James S. Duncan and Guido Gerig, "Medical Image Computing and Computer-Assisted Intervention – MICCAI 2005", Lecture Notes in Computer Science LNCS, Springer Verlag, Vol. LNCS 3749 and 3750*
6. *Yoshinobu Sato and Guido Gerig. MICCAI: medical image computing and computer assisted intervention 1. Special Issue Academic Radiology, 10, 2003.*
7. *Lin, W., An, H., Chen, Y., Nicholas, P., Zhai, G., Gerig, G., Gilmore, J., and Bullitt, E., "Practical Consideration for 3T imaging", Magn Reson Imaging Clin N Am (W.B. Saunders Company, Elsevier), 11(2003), 615-639 (Book Chapter)*
8. *Guido Gerig, Daniel Welti, Gabor Szekely, Ernst W. Radue and Ludwig Kappos, Quantification of MS lesion evolution in a serial MRI Study, In: Multiple sclerosis: tissue destruction and repair, Edited by L Kappos, K Johnson, J Kesselring, and E W Radu, Published by Martin Dunitz Ltd, London, 2001. ISBN 1 85317 872 1, pp. 99-112*

9. Guido Gerig, Gabor Szekely, Cyril Burger, *Digital Image Processing for functional analysis*, in *Functional Imaging - Principles and Methods*, edited by von Schulthess, Gustav Konrand and Hennig, Jurgan, Lippincott-Raven Publishers, 1998, pp. 115-156
10. Gabor Szekely, Thomas Koller, Ron Kikinis, and Guido Gerig, *Structural description and combined 3-D display for superior analysis of cerebral vascularity from MRA*, in *Medical Imaging*, L. Beolchi and M.H. Kuhn, editors, *Studies in Health Technology and Informatics*, Vol. 19, IOS Press, 1995, pp. 183-194
11. Ross Whitaker and Guido Gerig, *Vector-valued diffusion*, pp. 93-134, in: *Geometry-Driven Diffusion in Computer Vision*, edited by Bart M. ter Haar Romeny, Kluwer Academic Publishers, *Series on Computational Imaging and Vision*, Volume 1, October 1994
12. Guido Gerig, *Multidimensional Image Analysis with applications to medical image data*, *Habilitation Monograph ETH Zurich*, November 17, 1992
13. Guido Gerig, *Segmentierung zur symbolischen Beschreibung von Strukturen in Grauwertbildern*, *PhD thesis Nr. 8390, ETH-Zurich*, 1987

---

## Journal Papers

- [1] M. A. Cloos, J. Asslander, B. Abbas, J. Fishbaugh, J. S. Babb, G. Gerig, and R. Lattanzi. *Rapid Radial T1 and T2 Mapping of the Hip Articular Cartilage With Magnetic Resonance Fingerprinting*. *J Magn Reson Imaging*, 50(3):810–815, Sep 2019.
- [2] N. Dey, S. Hong, T. Ach, Y. Koutalos, C. A. Curcio, R. T. Smith, and G. Gerig. *Tensor decomposition of hyperspectral images to study autofluorescence in age-related macular degeneration*. *Med Image Anal*, 56:96–109, Aug 2019.
- [3] S. J. Paterson, J. J. Wolff, J. T. Elison, B. Winder-Patel, L. Zwaigenbaum, A. Estes, J. Pandey, R. T. Schultz, K. Botteron, S. R. Dager, H. C. Hazlett, J. Piven, J. Piven, H. C. Hazlett, C. Chappell, S. Dager, A. Estes, D. Shaw, K. N. Botteron, R. C. McKinstry, J. Constantino, J. Pruett, R. T. Schultz, S. Paterson, L. Zwaigenbaum, J. Elison, A. C. Evans, D. L. Collins, G. B. Pike, V. Fonov, P. Kostopoulos, S. Das, G. Gerig, M. Styner, and H. Gu. *The Importance of Temperament for Understanding Early Manifestations of Autism Spectrum Disorder in High-Risk Infants*. *J Autism Dev Disord*, 49(7):2849–2863, Jul 2019.
- [4] Claire J. McKinnon, Adam T. Eggebrecht, Alexandre Todorov, Jason J. Wolff, Jed T. Elison, Chloe M. Adams, Abraham Z. Snyder, Annette M. Estes, Lonnie Zwaigenbaum, Kelly N. Botteron, Robert C. McKinstry, Natasha Marrus, Alan Evans, Heather C. Hazlett, Stephen R. Dager, Sarah J. Paterson, Juhi Pandey, Robert T. Schultz, Martin A. Styner, Guido Gerig, Bradley L. Schlaggar, Steven E. Petersen, Joseph Piven, and John R. Pruett. *Restricted and repetitive behavior and brain functional connectivity in infants at risk for developing autism spectrum disorder*. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 4(1):50–61, 2019.

- [5] Paul A. Yushkevich, Artem Pashchinskiy, Ipek Oguz, Suyash Mohan, J. Eric Schmitt, Joel M. Stein, Dzenan Zukic, Jared Vicory, Matthew McCormick, Natalie Yushkevich, Nadav Schwartz, Yang Gao, and Guido Gerig. *User-guided segmentation of multi-modality medical imaging datasets with ITK-SNAP*. *Neuroinformatics*, 17(1):83–102, 2019.
- [6] N. Marrus, L. P. Hall, S. J. Paterson, J. T. Elison, J. J. Wolff, M. R. Swanson, J. Parish-Morris, A. T. Eggebrecht, J. R. Pruett, H. C. Hazlett, L. Zwaigenbaum, S. Dager, A. M. Estes, R. T. Schultz, K. N. Botteron, J. Piven, J. N. Constantino, J. Piven, H. C. Hazlett, C. Chappell, S. Dager, A. Estes, D. Shaw, K. Botteron, R. McKinstry, J. Constantino, J. Pruett, R. T. Schultz, S. Paterson, L. Zwaigenbaum, J. Elison, A. C. Evans, D. L. Collins, G. B. Pike, V. Fonov, P. Kostopoulos, S. Das, G. Gerig, M. Styner, and H. Gu. *Language delay aggregates in toddler siblings of children with autism spectrum disorder*. *J Neurodev Disord*, 10(1):29, Oct 2018.
- [7] J. J. Wolff, A. F. Dimian, K. N. Botteron, S. R. Dager, J. T. Elison, A. M. Estes, H. C. Hazlett, R. T. Schultz, L. Zwaigenbaum, J. Piven, C. Chappell, D. Shaw, R. McKinstry, J. Constantino, J. Pruett, J. Pandey, S. Paterson, J. Elison, A. C. Evans, D. L. Collins, G. B. Pike, V. Fonov, P. Kostopoulos, S. Das, L. MacIntyre, G. Gerig, M. Styner, and H. Gu. *A longitudinal study of parent-reported sensory responsiveness in toddlers at-risk for autism*. *J Child Psychol Psychiatry*, Oct 2018.
- [8] Martijn A. Cloos, Jakob Assländer, Batool Abbas, James Fishbaugh, James S. Babb, Guido Gerig, and Riccardo Lattanzi. *Rapid radial t1 and t2 mapping of the hip articular cartilage with magnetic resonance fingerprinting: Rapid hip cartilage t1 and t2 mapping*. *Journal of Magnetic Resonance Imaging*, 2018.
- [9] Natasha Marrus, Adam T. Eggebrecht, Alexandre Todorov, Jed T. Elison, Jason J. Wolff, Lyndsey Cole, Wei Gao, Juhi Pandey, Mark D. Shen, Meghan R. Swanson, Robert W. Emerson, Cheryl L. Klohr, Chloe M. Adams, Annette M. Estes, Lonnie Zwaigenbaum, Kelly N. Botteron, Robert C. McKinstry, John N. Constantino, Alan C. Evans, Heather C. Hazlett, Stephen R. Dager, Sarah J. Paterson, Robert T. Schultz, Martin A. Styner, Guido Gerig, Bradley L. Schlaggar, Joseph Piven, and John R. Pruett. *Walking, gross motor development, and brain functional connectivity in infants and toddlers*. *Cerebral Cortex*, 28(2):750–763, 2018.
- [10] Meghan R. Swanson, Jason J. Wolff, Mark D. Shen, Martin Andreas Styner, Annette Estes, Guido Gerig, Robert C. McKinstry, Kelly N. Botteron, Joseph Piven, and Heather Cody Hazlett. *Development of white matter circuitry in infants with fragile x syndrome*. *JAMA Psychiatry*, 75(5):505–513, 2018.
- [11] Paul A. Yushkevich, Artem Pashchinskiy, Ipek Oguz, Suyash Mohan, J. Eric Schmitt, Joel M. Stein, Dzenan Zukic, Jared Vicory, Matthew McCormick, Natalie Yushkevich, Nadav Schwartz, Yang Gao, and Guido Gerig. *User-guided segmentation of multi-modality medical imaging datasets with itk-snap*. *Neuroinformatics*, pages 1–20, 2018.
- [12] James Fishbaugh, Stanley Durrleman, Marcel Prastawa, and Guido Gerig. *Geodesic Shape Regression with Multiple Geometries and Sparse Parameters*. *Medical Image Analysis*, Elsevier, 39:1–17, July 2017.



- [13] P. A. Yushkevich and G. Gerig. *Itk-snap: An interactive medical image segmentation tool to meet the need for expert-guided segmentation of complex medical images*. *IEEE Pulse*, 8(4):54–57, July 2017.
- [14] Robert W. Emerson, Chloe Adams, Tomoyuki Nishino, Heather Cody Hazlett, Jason J. Wolff, Lonnie Zwaigenbaum, John N. Constantino, Mark D. Shen, Meghan R. Swanson, Jed T. Elison, Sridhar Kandala, Annette M. Estes, Kelly N. Botteron, Louis Collins, Stephen R. Dager, Alan C. Evans, Guido Gerig, Hongbin Gu, Robert C. McKinstry, Sarah Paterson, Robert T. Schultz, Martin Styner, IBIS Network, Bradley L. Schlaggar, John R. Pruett Jr, and Joseph Piven. *Functional neuroimaging of high-risk 6-month-old infants predicts a diagnosis of autism at 24 months of age*. *Science Translational Medicine*, 9(393), June 2017. DOI: 10.1126/scitranslmed.aag2882.
- [15] John D Lewis, Alan C Evans, John R Pruett, Kelly N Botteron, Robert C McKinstry, Lonnie Zwaigenbaum, Annette Estes, D Louis Collins, Penelope Kostopoulos, Guido Gerig, Stephen Dager, Sarah Paterson, Robert T Schultz, Martin Styner, Heather Hazlett, and Joseph Piven for IBIS network. *The emergence of network inefficiencies in infants with autism spectrum disorder*. *Biological Psychiatry*, March 2017.
- [16] Mark D. Shen, Sun Hyung Kim, Robert C. McKinstry, Hongbin Gu, Heather C. Hazlett, Christine W. Nordahl, Robert E. Emerson, Dennis Shaw, Jed T. Elison, Meghan R. Swanson, Vladimir S. Fonov, Guido Gerig, Stephen R. Dager, Kelly N. Botteron, Sarah Paterson, Robert T. Schultz, Alan C. Evans, Annette M. Estes, Lonnie Zwaigenbaum, Martin A. Styner, David G. Amaral, and Joseph Piven for the IBIS Network. *Increased extra-axial cerebrospinal fluid in high-risk infants who later develop autism*. *Biological Psychiatry*, March 2017.
- [17] Meghan R. Swanson, Jason J. Wolff, Jed T. Elison, Hongbin Gu, Heather C. Hazlett, Kelly Botteron, Martin Styner, Sarah Paterson, Guido Gerig, John Constantino, Steve Dager, Annette Estes, Clement Vachet, and Joseph Piven. *Splenium Development and Early Spoken Language in Human Infants*. *Developmental Science*, March 2017. doi: 10.1111/desc.12360.
- [18] H. C. Hazlett, H. Gu, B. C. Munsell, S. H. Kim, M. Styner, J. J. Wolff, J. T. Elison, M. R. Swanson, H. Zhu, K. N. Botteron, D. L. Collins, J. N. Constantino, S. R. Dager, A. M. Estes, A. C. Evans, V. S. Fonov, G. Gerig, P. Kostopoulos, R. C. McKinstry, J. Pandey, S. Paterson, J. R. Pruett, R. T. Schultz, D. W. Shaw, L. Zwaigenbaum, J. Piven, J. Piven, H. C. Hazlett, C. Chappell, S. R. Dager, A. M. Estes, D. W. Shaw, K. N. Botteron, R. C. McKinstry, J. N. Constantino, J. R. Pruett, R. T. Schultz, S. Paterson, L. Zwaigenbaum, J. T. Elison, J. J. Wolff, A. C. Evans, D. L. Collins, G. B. Pike, V. S. Fonov, P. Kostopoulos, S. Das, G. Gerig, M. Styner, C. H. Gu, and C. H. Gu. *Early brain development in infants at high risk for autism spectrum disorder*. *Nature*, 542(7641):348–351, Feb 2017.
- [19] N. Sadeghi, J. H. Gilmore, and G. Gerig. *Twin-singleton developmental study of brain white matter anatomy*. *Hum Brain Mapp*, 38(2):1009–1024, Feb 2017.
- [20] A. T. Eggebrecht, J. T. Elison, E. Feczko, A. Todorov, J. J. Wolff, S. Kandala, C. M. Adams, A. Z. Snyder, J. D. Lewis, A. M. Estes, L. Zwaigenbaum, K. N.

- Botteron, R. C. McKinstry, J. N. Constantino, A. Evans, H. C. Hazlett, S. Dager, S. J. Paterson, R. T. Schultz, M. A. Styner, G. Gerig, S. Das, P. Kostopoulos, B. L. Schlaggar, S. E. Petersen, J. Piven, and J. R. Pruett. *Joint Attention and Brain Functional Connectivity in Infants and Toddlers*. *Cereb. Cortex*, Jan 2017.
- [21] A. Mitra, A. Z. Snyder, E. Tagliazucchi, H. Laufs, J. Elison, R. W. Emerson, M. D. Shen, J. J. Wolff, K. N. Botteron, S. Dager, A. M. Estes, A. Evans, G. Gerig, H. C. Hazlett, S. J. Paterson, R. T. Schultz, M. A. Styner, L. Zwaigenbaum, B. L. Schlaggar, J. Piven, J. R. Pruett, and M. Raichle. *Resting-state fMRI in sleeping infants more closely resembles adult sleep than adult wakefulness*. *PLoS ONE*, 12(11):e0188122, 2017.
- [22] J. J. Wolff, M. R. Swanson, J. T. Elison, G. Gerig, J. R. Pruett, M. A. Styner, C. Vachet, K. N. Botteron, S. R. Dager, A. M. Estes, H. C. Hazlett, R. T. Schultz, M. D. Shen, L. Zwaigenbaum, J. Piven, J. Piven, H. C. Hazlett, S. Dager, A. Estes, D. Shaw, K. Botteron, R. McKinstry, J. Constantino, J. Pruett, R. Schultz, S. Paterson, L. Zwaigenbaum, J. Elison, A. C. Evans, D. L. Collins, G. B. Pike, V. Fonov, P. Kostopoulos, S. Das, G. Gerig, M. Styner, and H. Gu. *Neural circuitry at age 6 months associated with later repetitive behavior and sensory responsiveness in autism*. *Mol Autism*, 8:8, 2017.
- [23] Y. Tong, T. Ben Ami, S. Hong, R. Heintzmann, G. Gerig, Z. Ablonczy, C. A. Curcio, T. Ach, and R. T. Smith. *Hyperspectral Autofluorescence Imaging of Drusen and Retinal Pigment Epithelium in Donor*. *Retina (Philadelphia, Pa.)*, 36 Suppl 1:S127–S136, Dec 2016. doi: 10.1097/IAE.0000000000001325.
- [24] G. Gerig, J. Fishbaugh, and N. Sadeghi. *Longitudinal modeling of appearance and shape and its potential for clinical use*. *Medical Image Analysis*, Elsevier, 33:114–21, Oct 2016.
- [25] Bo Wang, Marcel Prastawa, Andrei Irimia, Avishek Saha, Wei Liu, S.Y. Matthew Goh, Paul M Vespa, John D Van Horn, and Guido Gerig. *Modeling 4d pathological changes by leveraging normative models*. *Computer Vision and Image Understanding CVIU*, 151:3–13, Oct 2016.
- [26] Sun Hyung Kim, Ilwoo Lyu, Vladimir S Fonov, Clement Vachet, Heather C Hazlett, Rachel G Smith, Joseph Piven, Stephen R Dager, Robert C McKinstry, John R Pruett Jr, Alan C Evans, Louis D Collins, Kelly N Botteron, Robert T Schultz, Guido Gerig, Martin A Styner, and "The IBIS Network". *Development of cortical shape in the human brain from 6 to 24 months of age via a novel measure of shape complexity*. *Neuroimage*, 135:163–76, Jul. 2016.
- [27] C. C. Conlin, J. L. Zhang, F. Rousset, C. Vachet, Y. Zhao, K. A. Morton, K. Carlston, G. Gerig, and V. S. Lee. *Performance of an efficient image-registration algorithm in processing MR renography data*. *J Magn Reson Imaging*, 43(2):391–397, Feb 2016.
- [28] Sonia Marie Aurore Pujol, William Wells, Carlo Pierpaoli, Caroline Brun, James Gee, Guang Cheng, Baba Vemuri, Olivier Commowick, Sylvain Prima, Aymeric Stamm, Maged Goubran, Ali Khan, Peter Neher, Klaus Maier-Hein, Yundi Shi, Antonio Tristan-Vega, Carl-Fredrik Westin, Gopalkrishna Veni, Ross Whitaker, Martin

- Styner, Sylvain Gouttard, Isaiah Norton and Laurent Chauvin, Hatsuho Mamata, Guido Gerig, Arya Nabavi, Alexandra Golby, and Ron Kikinis. The dti challenge: Towards standardized evaluation of diffusion tensor imaging tractography for neurosurgery. Journal of Neuroimaging, 25(6):875–82, Nov 2015. doi: 10.1111/jon.12283. Epub 2015 Aug 11.*
- [29] Andrew Salzwedel, Karen Grewen, Clement Vachet, Guido Gerig, Weili Lin, and Wei Gao. *Prenatal drug exposure affects neonatal brain functional connectivity. Journal of Neuroscience, 35(14):5860–5869, April 2015. PMID: 25855194, PMCID: PMC4388938.*
- [30] Jason J. Wolff, Guido Gerig, John D. Lewis, Takahiro Soda, Martin A. Styner, Clement Vachet, Kelly N. Botteron, Jed T. Elison, Stephen R. Dager, Annette M. Estes, Heather C. Hazlett, Robert T. Schultz, Lonnie Zwaigenbaum, and Joseph Piven for the IBIS Network. *Altered corpus callosum morphology associated with autism over the first two years of life. BRAIN, 138(7):2046–58, March 2015. doi: 10.1093/brain/awv118.*
- [31] Jeffrey S Anderson, Scott M Treiman, Michael A Ferguson and Jared A Nielsen, Jamie O Edgin, Li Dai, Guido Gerig, and Julie R Korenberg. *Violence: Heightened brain attentional network response is selectively muted in down syndrome. Journal of Neurodevelopmental Disorders, (7):1, 2015. PMID: 26131023, PMC4486123.*
- [32] John R. Pruett Jr., Sridhar Kandala, Sarah Hoertel, Abraham Z. Snyder, Jed T. Elison, Tomoyuki Nishino, Eric Feczko, Nico U.F. Dosenbach, Binyam Nardos, Jonathan D. Power, Babatunde Adeyemo, Kelly N. Botteron, Robert C. McKinstry, Alan C. Evans, Heather C. Hazlett, Stephen R. Dager, Sarah Paterson, Robert T. Schultz, D. Louis Collins, Vladimir S. Fonov, Martin Styner, Guido Gerig, Samir Das, Penelope Kostopoulos, John N. Constantino, Annette M. Estes, The IBIS Network, Steven E. Petersen, Bradley L. Schlaggar, and Joseph Piven. *Accurate age classification of 6 and 12 month-old infants based on resting-state functional connectivity magnetic resonance imaging data. Developmental Cognitive Neuroscience, 12:123–133, 2015.*
- [33] Helena J.V. Rutherford, Guido Gerig, Sylvain Gouttard, Marc N. Potenza, and Linda C. Mayes. *Investigating maternal brain structure and its relationship to substance use and motivational systems. Yale Journal of Biology and Medicine, 2015. PMID: 26339203, PMCID: PMC4553640.*
- [34] Stanley Durrleman, Marcel Prastawa, Nicolas Charon, Julie R Korenberg, Sarang Joshi, Guido Gerig, and Alain Trouvé. *Morphometry of anatomical shape complexes with dense deformations and sparse parameters. Neuroimage, 101:35–49, Nov 2014.*
- [35] Karen Grewen, Margaret Burchinal, Clément Vachet, Sylvain Gouttard, John H Gilmore, Weili Lin, Josephine Johns, Mala Elam, and Guido Gerig. *Prenatal Cocaine Effects on Brain Structure in Early Infancy. NeuroImage, 101, Nov 2014.*
- [36] J. D. Lewis, A. C. Evans, J. R. Pruett, K. Botteron, L. Zwaigenbaum, A. Estes, G. Gerig, L. Collins, P. Kostopoulos, R. McKinstry, S. Dager, S. Paterson,

- R. Schultz, M. Styner, H. Hazlett, J. Piven, and the IBIS network. *Network inefficiencies in autism spectrum disorder at 24 months*. Translational Psychiatry, May 2014. doi: 10.1038/tp.2014.24.
- [37] Ipek Oguz, Mahshid Farzinfar, Joy Matsui, Francois Budin, Zhexing Liu, Guido Gerig, Hans J Johnson, and Martin Andreas Styner. *Dtiprep: Quality control of diffusion-weighted images*. Frontiers in Neuroinformatics, 2014. doi: 10.3389/fninf.2014.00004.
- [38] Elhabian SY, Gur Y, Vachet C, Piven J, Styner MA, Leppert IR, Pike B, and Gerig G. *Subject-motion correction in hardi acquisitions: Choices and consequences*. Frontiers in Neurology: Brain Imaging Methods, 5(240), 2014. doi: 10.3389/fneur.2014.00240.
- [39] Audrey Rose Verde, Francois Budin, Jean-Baptiste Berger, Aditya Gupta, Mahshid Farzinfar, Adrien Kaiser, Mihye Ahn, Hans J Johnson, Joy Matsui, Heather C. Hazlett, Anuja Sharma, Casey Goodlett, Yundi Shi, Sylvain Gouttard, Clément Vachet, Joseph Piven, Hongtu Zhu, Guido Gerig, and Martin Andreas Styner. *Unc-utah namic framework for dti fiber tract analysis*. Frontiers in Neuroinformatics, 2014. doi: 10.3389/fninf.2013.00051.
- [40] Jiahui Wang, Clément Vachet, Ashley Rumple, Sylvain Gouttard, Clémentine Ouziel, Emilie Perrot, Guangwei Du, Xuemei Huang, Guido Gerig, and Martin A. Styner. *Multi-atlas segmentation of subcortical brain structures via the autoseg software pipeline*. Frontiers in Neuroinformatics, 2014. doi: 10.3389/fninf.2014.00007.
- [41] C. Cascio, M. Gribbin, S. Gouttard, R. G. Smith, M. Jomier, S. Field, M. Graves, H. C. Hazlett, K. Muller, G. Gerig, and J. Piven. *Fractional anisotropy distributions in 2- to 6-year-old children with autism*. J Intellect Disabil Res, Sep 2013.
- [42] Jeffrey S. Anderson, Jared A. Nielsen, Michael A. Ferguson, Melissa C. Burbach, Elizabeth T. Cox, Li Dai, Guido Gerig, Jamie O. Edgin, and Julie R. Korenberg. *Abnormal brain synchrony in down syndrome*. NeuroImage: Clinical, 2(0):703 – 715, July 2013.
- [43] J. T. Ellison, S. J. Paterson, J. J. Wolff, J. S. Reznick, N. J. Sasson, H. Gu, K. N. Botteron, S. R. Dager, A. M. Estes, A. C. Evans, G. Gerig, H. C. Hazlett, R. T. Schultz, M. Styner, L. Zwaigenbaum, and J. Piven. *White Matter Microstructure and Atypical Visual Orienting in 7-Month-Olds at Risk for Autism*. Am J Psychiatry, Mar 2013.
- [44] J. T. Ellison, J. J. Wolff, D. C. Heimer, S. J. Paterson, H. Gu, H. C. Hazlett, M. Styner, G. Gerig, and J. Piven. *Frontolimbic neural circuitry at 6 months predicts individual differences in joint attention at 9 months*. Dev Sci, 16(2):186–197, Mar 2013.
- [45] N. Sadeghi, M. Prastawa, P. T. Fletcher, J. Wolff, J. H. Gilmore, and G. Gerig. *Regional characterization of longitudinal DT-MRI to study white matter maturation of the early developing brain*. Neuroimage, 68:236–247, Mar 2013.

- [46] S. H. Kim, V. S. Fonov, C. Dietrich, C. Vachet, H. C. Hazlett, R. G. Smith, M. M. Graves, J. Piven, J. H. Gilmore, S. R. Dager, R. C. McKinstry, S. Paterson, A. C. Evans, D. L. Collins, G. Gerig, M. A. Styner, J. Piven, H. C. Hazlett, C. Chappell, S. R. Dager, A. Estes, K. Botteron, R. C. McKinstry, J. Constantino, L. Flake, R. Schultz, S. Paterson, L. Zwaigenbaum, A. Evans, L. Collins, B. Pike, V. S. Fonov, R. Aleong, S. Das, G. Gerig, M. A. Styner, H. Gu, P. Sullivan, and F. Wright. Adaptive prior probability and spatial temporal intensity change estimation for segmentation of the one-year-old human brain. *J. Neurosci. Methods*, 212(1):43–55, Jan 2013.
- [47] R. K. McClure, M. Styner, E. Maltbie, J. A. Lieberman, S. Gouttard, G. Gerig, X. Shi, and H. Zhu. Localized differences in caudate and hippocampal shape are associated with schizophrenia but not antipsychotic type. *Psychiatry Res*, 211(1):1–10, Jan 2013.
- [48] S. J. Short, J. T. Ellison, B. D. Goldman, M. Styner, H. Gu, M. Connelly, E. Maltbie, S. Woolson, W. Lin, G. Gerig, J. S. Reznick, and J. H. Gilmore. Associations between white matter microstructure and infants’ working memory. *Neuroimage*, 64:156–166, Jan 2013.
- [49] S. Durrleman, X. Pennec, A. Trounev, J. Braga, G. Gerig, and N. Ayache. Toward a comprehensive framework for the spatiotemporal statistical analysis of longitudinal shape data. *International Journal of Computer Vision (IJCV)*, 103(1):22–59, 2013.
- [50] Mahshid Farzinfar, Ipek Oguz, Rachel G. Smith, Audrey R. Verde, Cheryl Dietrich, Aditya Gupta, Maria L. Escolar, Joseph Piven, Sonia Pujol, Clément Vachet, Sylvain Gouttard, Guido Gerig, Stephen Dager, Robert C. McKinstry, Sarah Paterson, Alan C. Evans, and Martin A. Styner. Diffusion imaging quality control via entropy of principal direction distribution. *NeuroImage*, 82(0):1 – 12, 2013.
- [51] M. K. Dougherty, H. Gu, J. Bizzell, S. Ramsey, G. Gerig, D. O. Perkins, and A. Belger. Differences in subcortical structures in young adolescents at familial risk for schizophrenia: a preliminary study. *Psychiatry Res*, 204(2-3):68–74, Nov 2012.
- [52] A. E. Lyall, S. Woolson, H. M. Wolfe, B. D. Goldman, J. S. Reznick, R. M. Hamer, W. Lin, M. Styner, G. Gerig, and J. H. Gilmore. Prenatal isolated mild ventriculomegaly is associated with persistent ventricle enlargement at ages 1 and 2. *Early Hum. Dev.*, 88(8):691–698, Aug 2012.
- [53] X. Geng, S. Gouttard, A. Sharma, H. Gu, M. Styner, W. Lin, G. Gerig, and J. H. Gilmore. Quantitative tract-based white matter development from birth to age 2years. *Neuroimage*, 61(3):542–557, Jul 2012.
- [54] H. C. Hazlett, H. Gu, R. C. McKinstry, D. W. Shaw, K. N. Botteron, S. R. Dager, M. Styner, C. Vachet, G. Gerig, S. J. Paterson, R. T. Schultz, A. M. Estes, A. C. Evans, J. Piven, J. Piven, H. C. Hazlett, C. Chappell, S. R. Dager, A. M. Estes, D. Shaw, K. N. Botteron, R. C. McKinstry, J. Constantino, J. Pruett, R. T. Schultz, S. J. Paterson, L. Zwaigenbaum, A. C. Evans, D. L. Collins, G. B. Pike, V. Fonov, P. Kostopoulos, S. Das, G. Gerig, M. Styner, H. Gu, P. Sullivan, and F. Wright. Brain volume findings in 6-month-old infants at high familial risk for autism. *Am J Psychiatry*, 169(6):601–608, Jun 2012.

- [55] J. J. Wolff, H. Gu, G. Gerig, J. T. Ellison, M. Styner, S. Gouttard, K. N. Botteron, S. R. Dager, G. Dawson, A. M. Estes, A. C. Evans, H. C. Hazlett, P. Kostopoulos, R. C. McKinstry, S. J. Paterson, R. T. Schultz, L. Zwaigenbaum, J. Piven, J. Piven, H. C. Hazlett, C. Chappell, S. R. Dager, A. M. Estes, D. Shaw, K. N. Botteron, R. C. McKinstry, J. Constantino, J. Pruett, R. T. Schultz, S. J. Paterson, L. Zwaigenbaum, A. C. Evans, D. L. Collins, G. B. Pike, P. Kostopoulos, S. Das, G. Gerig, M. Styner, H. Gu, P. Sullivan, and F. Wright. Differences in white matter fiber tract development present from 6 to 24 months in infants with autism. *Am J Psychiatry*, 169(6):589–600, Jun 2012.
- [56] A. Irimia, M. C. Chambers, C. M. Torgerson, M. Filippou, D. A. Hovda, J. R. Alger, G. Gerig, A. W. Toga, P. M. Vespa, R. Kikinis, and J. D. Van Horn. Patient-tailored connectomics visualization for the assessment of white matter atrophy in traumatic brain injury. *Front Neurol*, 3:10, 2012.
- [57] A. Irimia, B. Wang, S.R. Aylward, M.W. Prastawa, D.F. Pace, G. Gerig, D.A. Hovda, R.Kikinis, P.M. Vespa, and J.D. Van Horn. Neuroimaging of structural pathology and connectomics in traumatic brain injury: Toward personalized outcome prediction. *NeuroImage: Clinical*, 1(1):1–17, 2012.
- [58] A. Irimia, M. C. Chambers, J. R. Alger, M. Filippou, M. W. Prastawa, B. Wang, D. A. Hovda, G. Gerig, A. W. Toga, R. Kikinis, P. M. Vespa, and J. D. Van Horn. Comparison of acute and chronic traumatic brain injury using semi-automatic multi-modal segmentation of MR volumes. *J. Neurotrauma*, 28(11):2287–2306, Nov 2011.
- [59] R. C. Knickmeyer, C. Kang, S. Woolson, J. K. Smith, R. M. Hamer, W. Lin, G. Gerig, M. Styner, and J. H. Gilmore. Twin-singleton differences in neonatal brain structure. *Twin Res Hum Genet*, 14(3):268–276, Jun 2011.
- [60] H. Zhu, L. Kong, R. Li, M. Styner, G. Gerig, W. Lin, and J. H. Gilmore. FADTTS: functional analysis of diffusion tensor tract statistics. *Neuroimage*, 56(3):1412–1425, Jun 2011.
- [61] H. C. Hazlett, M. D. Poe, G. Gerig, M. Styner, C. Chappell, R. G. Smith, C. Vachet, and J. Piven. Early brain overgrowth in autism associated with an increase in cortical surface area before age 2 years. *Arch. Gen. Psychiatry*, 68(5):467–476, May 2011.
- [62] Y. Wang, A. Gupta, Z. Liu, H. Zhang, M. L. Escolar, J. H. Gilmore, S. Gouttard, P. Fillard, E. Maltbie, G. Gerig, and M. Styner. DTI registration in atlas based fiber analysis of infantile Krabbe disease. *Neuroimage*, 55(4):1577–1586, Apr 2011.
- [63] F. Shi, D. Shen, P. T. Yap, Y. Fan, J. Z. Cheng, H. An, L. L. Wald, G. Gerig, J. H. Gilmore, and W. Lin. CENTS: cortical enhanced neonatal tissue segmentation. *Hum Brain Mapp*, 32(3):382–396, Mar 2011.
- [64] G. Gerig, I. Oguz, S. Gouttard, J. Lee, H. An, W. Lin, M. McMurray, K. Grewen, J. Johns, and M. A. Styner. Synergy of image analysis for animal and human neuroimaging supports translational research on drug abuse. *Front Psychiatry*, 2:53, 2011.

- [65] L. Ha, M. Prastawa, G. Gerig, J. H. Gilmore, C. T. Silva, and S. Joshi. *Efficient Probabilistic and Geometric Anatomical Mapping Using Particle Mesh Approximation on GPUs*. *Int J Biomed Imaging*, 2011:572187, 2011.
- [66] L.K. Ha, M.W. Prastawa, G. Gerig, J.H. Gilmore, and C.T. Silva. *Efficient probabilistic and geometric anatomical mapping using particle mesh approximation on gpus*. *International Journal of Biomedical Imaging, Special Issue in Parallel Computation in Medical Imaging Applications*, 2011:16 pages, 2011. Article ID 572187.
- [67] J. H. Gilmore, C. Kang, D. D. Evans, H. M. Wolfe, J. K. Smith, J. A. Lieberman, W. Lin, R. M. Hamer, M. Styner, and G. Gerig. *Prenatal and neonatal brain structure and white matter maturation in children at high risk for schizophrenia*. *Am J Psychiatry*, 167(9):1083–1091, Sep 2010.
- [68] J. H. Gilmore, J. E. Schmitt, R. C. Knickmeyer, J. K. Smith, W. Lin, M. Styner, G. Gerig, and M. C. Neale. *Genetic and environmental contributions to neonatal brain structure: A twin study*. *Hum Brain Mapp*, 31(8):1174–1182, Aug 2010.
- [69] M. El-Sayed, R. G. Steen, M. D. Poe, T. C. Bethea, G. Gerig, J. Lieberman, and L. Sikich. *Brain volumes in psychotic youth with schizophrenia and mood disorders*. *J Psychiatry Neurosci*, 35(4):229–236, Jul 2010.
- [70] K. Gorczowski, M. Styner, J. Y. Jeong, J. S. Marron, J. Piven, H. C. Hazlett, S. M. Pizer, and G. Gerig. *Multi-object analysis of volume, pose, and shape using statistical discrimination*. *IEEE Trans Pattern Anal Mach Intell*, 32(4):652–661, Apr 2010.
- [71] M. W. Mosconi, H. Cody-Hazlett, M. D. Poe, G. Gerig, R. Gimpel-Smith, and J. Piven. *Longitudinal study of amygdala volume and joint attention in 2- to 4-year-old children with autism*. *Arch. Gen. Psychiatry*, 66(5):509–516, May 2009.
- [72] M. Prastawa, E. Bullitt, and G. Gerig. *Simulation of brain tumors in MR images for evaluation of segmentation efficacy*. *Med Image Anal*, 13(2):297–311, Apr 2009.
- [73] C. B. Goodlett, P. T. Fletcher, J. H. Gilmore, and G. Gerig. *Group analysis of DTI fiber tract statistics with application to neurodevelopment*. *Neuroimage*, 45(1 Suppl):S133–142, Mar 2009.
- [74] H. C. Hazlett, M. D. Poe, A. A. Lightbody, G. Gerig, J. R. Macfall, A. K. Ross, J. Provenzale, A. Martin, A. L. Reiss, and J. Piven. *Teasing apart the heterogeneity of autism: Same behavior, different brains in toddlers with fragile X syndrome and autism*. *J Neurodev Disord*, 1(1):81–90, Mar 2009.
- [75] N. Mukherjee, C. Kang, H. M. Wolfe, B. S. Hertzberg, J. K. Smith, W. Lin, G. Gerig, R. M. Hamer, and J. H. Gilmore. *Discordance of prenatal and neonatal brain development in twins*. *Early Hum. Dev.*, 85(3):171–175, Mar 2009.
- [76] F. Zhang, E. R. Hancock, C. Goodlett, and G. Gerig. *Probabilistic white matter fiber tracking using particle filtering and von Mises-Fisher sampling*. *Med Image Anal*, 13(1):5–18, Feb 2009.
- [77] W. Gao, W. Lin, Y. Chen, G. Gerig, J.K. Smith, V. Jewells, and J.H. Gilmore. *Temporal and spatial development of axonal maturation and myelination of white matter*

- in the developing brain.* American Journal of Neuroradiology (AJNR), 30:290–296, 2009.
- [78] F. Shi, P. T. Yap, Y. Fan, J. Z. Cheng, L. L. Wald, G. Gerig, W. Lin, and D. Shen. *Cortical Enhanced Tissue Segmentation of Neonatal Brain MR Images Acquired by a Dedicated Phased Array Coil.* Proc IEEE Comput Soc Conf Comput Vis Pattern Recognit, 2009(5204348):39–45, 2009.
- [79] J. H. Gilmore, L. C. Smith, H. M. Wolfe, B. S. Hertzberg, J. K. Smith, N. C. Chescheir, D. D. Evans, C. Kang, R. M. Hamer, W. Lin, and G. Gerig. *Prenatal mild ventriculomegaly predicts abnormal development of the neonatal brain.* Biol. Psychiatry, 64(12):1069–1076, Dec 2008.
- [80] M. Kubicki, M. Styner, S. Bouix, G. Gerig, D. Markant, K. Smith, R. Kikinis, R.W. McCarley, and M.E. Shenton. *Reduced interhemispheric connectivity in schizophrenia- tractography based segmentation of the corpus callosum.* Schizophrenia Research, 106(2-3):125–131, December 2008.
- [81] R. C. Knickmeyer, S. Gouttard, C. Kang, D. Evans, K. Wilber, J. K. Smith, R. M. Hamer, W. Lin, G. Gerig, and J. H. Gilmore. *A structural MRI study of human brain development from birth to 2 years.* J. Neurosci., 28(47):12176–12182, Nov 2008.
- [82] M. K. Belmonte, J. C. Mazziotta, N. J. Minshew, A. C. Evans, E. Courchesne, S. R. Dager, S. Y. Bookheimer, E. H. Aylward, D. G. Amaral, R. M. Cantor, D. C. Chugani, A. M. Dale, C. Davatzikos, G. Gerig, M. R. Herbert, J. E. Lainhart, D. G. Murphy, J. Piven, A. L. Reiss, R. T. Schultz, T. A. Zeffiro, S. Levi-Pearl, C. Lajonchere, and S. A. Colamarino. *Offering to share: how to put heads together in autism neuroimaging.* J Autism Dev Disord, 38(1):2–13, Jan 2008.
- [83] W. Lin, Q. Zhu, W. Gao, Y. Chen, C.-H. Toh, M. Styner, G. Gerig, J.K. Smith, B. Biswal, and J. Gilmore. *Functional connectivity magnetic resonance imaging reveals cortical functional connectivity in the developing brain.* American Journal of Neuroradiology, 29:1883–1889, Fall 2008.
- [84] J.H. Gilmore, W. Lin, I. Corouge, Y.S. Vetsa, J.K. Smith, C. Kang, H. Gu, R.M. Hamer, J.A. Lieberman, and G. Gerig. *Early postnatal development of corpus callosum and corticospinal white matter assessed with quantitative tractography.* American Journal of Neuroradiology, 28(9):1789–1795, October 2007.
- [85] X. Huang, Y. Z. Lee, M. McKeown, G. Gerig, H. Gu, W. Lin, M. M. Lewis, S. Ford, A. I. Troster, D. R. Weinberger, and M. Styner. *Asymmetrical ventricular enlargement in Parkinson’s disease.* Mov. Disord., 22(11):1657–1660, Aug 2007.
- [86] C. J. Cascio, G. Gerig, and J. Piven. *Diffusion tensor imaging: Application to the study of the developing brain.* J Am Acad Child Adolesc Psychiatry, 46(2):213–223, Feb 2007.
- [87] J. H. Gilmore, W. Lin, M. W. Prastawa, C. B. Looney, Y. S. Vetsa, R. C. Knickmeyer, D. D. Evans, J. K. Smith, R. M. Hamer, J. A. Lieberman, and G. Gerig. *Regional gray matter growth, sexual dimorphism, and cerebral asymmetry in the neonatal brain.* J. Neurosci., 27(6):1255–1260, Feb 2007.



- [88] W. D. Taylor, J. R. MacFall, G. Gerig, and R. R. Krishnan. *Structural integrity of the uncinate fasciculus in geriatric depression: Relationship with age of onset*. *Neuropsychiatr Dis Treat*, 3(5):669–674, 2007.
- [89] C. Cascio, M. Styner, R. G. Smith, M. D. Poe, G. Gerig, H. C. Hazlett, M. Jomier, R. Bammer, and J. Piven. *Reduced relationship to cortical white matter volume revealed by tractography-based segmentation of the corpus callosum in young children with developmental delay*. *Am J Psychiatry*, 163(12):2157–2163, Dec 2006.
- [90] J. H. Gilmore, W. Lin, and G. Gerig. *Fetal and neonatal brain development*. *Am J Psychiatry*, 163(12):2046, Dec 2006.
- [91] I. Corouge, P. T. Fletcher, S. Joshi, S. Gouttard, and G. Gerig. *Fiber tract-oriented statistics for quantitative diffusion tensor MRI analysis*. *Med Image Anal*, 10(5):786–798, Oct 2006.
- [92] P. A. Yushkevich, J. Piven, H. C. Hazlett, R. G. Smith, S. Ho, J. C. Gee, and G. Gerig. *User-guided 3D active contour segmentation of anatomical structures: significantly improved efficiency and reliability*. *Neuroimage*, 31(3):1116–1128, Jul 2006.
- [93] P. Lorenzen, M. Prastawa, B. Davis, G. Gerig, E. Bullitt, and S. Joshi. *Multi-modal image set registration and atlas formation*. *Med Image Anal*, 10(3):440–451, Jun 2006.
- [94] H. C. Hazlett, M. D. Poe, G. Gerig, R. G. Smith, and J. Piven. *Cortical gray and white brain tissue volume in adolescents and adults with autism*. *Biol. Psychiatry*, 59(1):1–6, Jan 2006.
- [95] M. J. Hoptman, J. Volavka, P. Czobor, G. Gerig, M. Chakos, J. Blocher, L. L. Citrome, B. Sheitman, J. P. Lindenmayer, J. A. Lieberman, and R. M. Bilder. *Aggression and quantitative MRI measures of caudate in patients with chronic schizophrenia or schizoaffective disorder*. *J Neuropsychiatry Clin Neurosci*, 18(4):509–515, 2006.
- [96] D. O. Perkins, H. B. Gu, R. B. Zipursky, G. Gerig, and J. A. Lieberman. *TC18C MRI OF BRAIN VOLUMES AT THE PRODROME AND FIRST EPISODE STAGES OF SCHIZOPHRENIA*. *Schizophrenia Research*, 86, 2006.
- [97] P.A. Yushkevich, J. Piven, H.C. Hazlett, R.G. Smith, S. Ho, J.C. Gee, and G. Gerig. *User-guided 3d active contour segmentation of anatomical structures: Significantly improved efficiency and reliability*. *NeuroImage*, 31:1116–1128, 2006. *A NeuroImage Top Cited Paper!*
- [98] H. C. Hazlett, M. Poe, G. Gerig, R. G. Smith, J. Provenzale, A. Ross, J. Gilmore, and J. Piven. *Magnetic resonance imaging and head circumference study of brain size in autism: birth through age 2 years*. *Arch. Gen. Psychiatry*, 62(12):1366–1376, Dec 2005.
- [99] M. J. Hoptman, J. Volavka, E. M. Weiss, P. Czobor, P. R. Szeszko, G. Gerig, M. Chakos, J. Blocher, L. L. Citrome, J. P. Lindenmayer, B. Sheitman, J. A. Lieberman, and R. M. Bilder. *Quantitative MRI measures of orbitofrontal cortex in patients with chronic schizophrenia or schizoaffective disorder*. *Psychiatry Res*, 140(2):133–145, Nov 2005.

- [100] A. Pinkham, D. Penn, B. Wangelin, D. Perkins, G. Gerig, H. Gu, and J. Lieberman. *Facial emotion perception and fusiform gyrus volume in first episode schizophrenia*. *Schizophr. Res.*, 79(2-3):341–343, Nov 2005.
- [101] E. Bullitt, D. Zeng, G. Gerig, S. Aylward, S. Joshi, J. K. Smith, W. Lin, and M. G. Ewend. *Vessel tortuosity and brain tumor malignancy: a blinded study*. *Acad Radiol*, 12(10):1232–1240, Oct 2005.
- [102] M. Prastawa, J. H. Gilmore, W. Lin, and G. Gerig. *Automatic segmentation of MR images of the developing newborn brain*. *Med Image Anal*, 9(5):457–466, Oct 2005.
- [103] L. H. Cevidanes, A. A. Franco, G. Gerig, W. R. Proffit, D. E. Slice, D. H. Enlow, H. M. Lederman, L. Amorim, M. A. Scanavini, and J. W. Vigorito. *Comparison of relative mandibular growth vectors with high-resolution 3-dimensional imaging*. *Am J Orthod Dentofacial Orthop*, 128(1):27–34, Jul 2005.
- [104] L. H. Cevidanes, A. A. Franco, G. Gerig, W. R. Proffit, D. E. Slice, D. H. Enlow, H. K. Yamashita, Y. J. Kim, M. A. Scanavini, and J. W. Vigorito. *Assessment of mandibular growth and response to orthopedic treatment with 3-dimensional magnetic resonance images*. *Am J Orthod Dentofacial Orthop*, 128(1):16–26, Jul 2005.
- [105] M. Styner, J. A. Lieberman, R. K. McClure, D. R. Weinberger, D. W. Jones, and G. Gerig. *Morphometric analysis of lateral ventricles in schizophrenia and healthy controls regarding genetic and disease-specific factors*. *Proc. Natl. Acad. Sci. U.S.A.*, 102(13):4872–4877, Mar 2005.
- [106] M. H. Chakos, S. A. Schobel, H. Gu, G. Gerig, D. Bradford, C. Charles, and J. A. Lieberman. *Duration of illness and treatment effects on hippocampal volume in male patients with schizophrenia*. *Br J Psychiatry*, 186:26–31, Jan 2005.
- [107] E. Bullitt, M. G. Ewend, S. Aylward, W. Lin, G. Gerig, S. Joshi, I. Jung, K. Muller, and J. K. Smith. *Abnormal vessel tortuosity as a marker of treatment response of malignant gliomas: preliminary report*. *Technol. Cancer Res. Treat.*, 3(6):577–584, Dec 2004.
- [108] J. H. Gilmore, G. Zhai, K. Wilber, J. K. Smith, W. Lin, and G. Gerig. *3 Tesla magnetic resonance imaging of the brain in newborns*. *Psychiatry Res*, 132(1):81–85, Nov 2004.
- [109] M. Prastawa, E. Bullitt, S. Ho, and G. Gerig. *A brain tumor segmentation framework based on outlier detection*. *Med Image Anal*, 8(3):275–283, Sep 2004.
- [110] M. Styner, J. A. Lieberman, D. Pantazis, and G. Gerig. *Boundary and medial shape analysis of the hippocampus in schizophrenia*. *Med Image Anal*, 8(3):197–203, Sep 2004.
- [111] S. Joshi, B. Davis, M. Jomier, and G. Gerig. *Unbiased diffeomorphic atlas construction for computational anatomy*. *Neuroimage*, 23 Suppl 1:S151–160, 2004.
- [112] M. Prastawa, E. Bullitt, N. Moon, K. Van Leemput, and G. Gerig. *Automatic brain tumor segmentation by subject specific modification of atlas priors*. *Acad Radiol*, 10(12):1341–1348, Dec 2003.

- [113] G. Zhai, W. Lin, K. P. Wilber, G. Gerig, and J. H. Gilmore. *Comparisons of regional white matter diffusion in healthy neonates and adults performed with a 3.0-T head-only MR imaging unit*. *Radiology*, 229(3):673–681, Dec 2003.
- [114] W. Lin, H. An, Y. Chen, P. Nicholas, G. Zhai, G. Gerig, J. Gilmore, and E. Bullitt. *Practical consideration for 3T imaging*. *Magn Reson Imaging Clin N Am*, 11(4):615–639, Nov 2003.
- [115] M. Styner, G. Gerig, S. Pizer, and S. Joshi. *Automatic and robust computation of 3d medial models incorporating object variability*. *International Journal of Computer Vision - Special UNC-MIDAG issue*, 55(2):107–122, November-December 2003.
- [116] E. Bullitt, G. Gerig, S. M. Pizer, W. Lin, and S. R. Aylward. *Measuring tortuosity of the intracerebral vasculature from MRA images*. *IEEE Trans Med Imaging*, 22(9):1163–1171, Sep 2003.
- [117] S. Joshi, P. Lorenzen, G. Gerig, and E. Bullitt. *Structural and radiometric asymmetry in brain images*. *Med Image Anal*, 7(2):155–170, Jun 2003.
- [118] S.M. Pizer, P.T. Fletcher, A. Thall, M. Styner, G. Gerig, and S. Joshi. *Object models in multiscale intrinsic coordinates via m-reps*. *Image and Vision Computing, Special Issue on Generative Model-based Vision*, 21(1):5–15, January 2003.
- [119] G. Gerig, M. Styner, D. Jones, D. Weinberger, and J. Lieberman. *Ventricular shape of monozygotic twins discordant for schizophrenia reflects vulnerability*. *Schizophrenia Research*, 60:194–195, 2003.
- [120] J. H. Gilmore, G. Zhai, W. Lin, K. Wilber, and G. Gerig. *White matter development in newborns assessed with diffusion tensor imaging*. *Schizophrenia Research*, 60:195–195, 2003.
- [121] Weili Lin, Hongyu An, Yasheng Chen, Peter Nicholas, GuiHua Zhai, Guido Gerig, John Gilmore, and Elizabeth Bullitt. *Practical consideration for 3T imaging*. *Magnetic Resonance Imaging Clinics of North America*, 11:615–639, 2003.
- [122] Stephen M. Pizer, Guido Gerig, Sarang C. Joshi, and Stephen R. Aylward. *Multiscale medial shape-based analysis of image objects*. *Proceedings of the IEEE*, 91(10):1670–1679, 2003.
- [123] M. Styner, G. Gerig, E. Kistner, K. Muller, and J. Lieberman. *Age and treatment related local hippocampal changes in schizophrenia explained by a novel shape analysis method*. *Schizophrenia Research*, 60:208–208, 2003.
- [124] Martin Styner, Guido Gerig, Jeffrey A. Lieberman, D. Jones, and D. Weinberger. *Statistical shape analysis of neuroanatomical structures based on medial models*. *Medical Image Analysis*, 7(3):207–220, 2003.
- [125] M. E. Shenton, G. Gerig, R. W. McCarley, G. Szekely, and R. Kikinis. *Amygdala-hippocampal shape differences in schizophrenia: the application of 3D shape models to volumetric MR data*. *Psychiatry Res*, 115(1-2):15–35, Aug 2002.

- [126] Elizabeth Bullitt, Stephen Aylward, Estrada J. Bernard, and Guido Gerig. *Computer-assisted Visualization of Arteriovenous Malformations on the Home Personal Computer*. *Neurosurgery*, 48:576–583, 2001.
- [127] John H Gilmore, Guido Gerig, Barbara Specter, H. Cecil Charles, Joseph S Wilber, Barbara S Hertzberg, and Mark A Kliewer. *Infant cerebral ventricle volume: a comparison of 3-D ultrasound and magnetic resonance imaging*. *Ultrasound in Medicine and Biology*, 27:1143–1146, 2001.
- [128] J Park, G Gerig, MH Chakos, Dirk Vandermeulen, and JA Lieberman. *Structural neuroimaging of psychiatry disease: Reliable and efficient automatic brain tissue segmentation for increased sensitivity*. *Schizophrenia research*, 49(1-2):163–163, 2001.
- [129] Guido Gerig, Daniel Welte, Charles R. G. Guttman, Alan C. F. Colchester, and Gábor Székely. *Exploring the discrimination power of the time domain for segmentation and characterization of active lesions in serial mr data*. *Medical Image Analysis*, 4(1):31–42, 2000.
- [130] Martin Styner, Christian Brechbühler, Gábor Székely, and Guido Gerig. *Parametric estimate of intensity inhomogeneities applied to mri*. *IEEE Trans. Med. Imaging*, 19(3):153–165, 2000.
- [131] Gábor Székely and Guido Gerig. *Model-based segmentation of radiological images*. *KI*, 14(3):18–23, 2000.
- [132] G Gerig and G Szekely. *Visualisation and image processing of medical image data*. *Computer assisted orthopedic surgery*. Hogrefe & Huber, Seattle Toronto Bern Göttingen, pages 1–14, 1999.
- [133] András Kelemen, Gábor Székely, and Guido Gerig. *Elastic model-based segmentation of 3-d neuroradiological data sets*. *IEEE Trans. Med. Imaging*, 18(10):828–839, 1999.
- [134] S. A. Chance, B. McDonald, G. Gerig, J. R. Highley, and T. J. Crow. *A validation of MRI cortical surface rendering of the human post-mortem brain*. *Schizophrenia Research*, 29:87–87, 1998.
- [135] Yoshinobu Sato, Shin Nakajima, Nobuyuki Shiraga, Hideki Atsumi, Shigeyuki Yoshida, Thomas Koller, Guido Gerig, and Ron Kikinis. *Three-dimensional multi-scale line filter for segmentation and visualization of curvilinear structures in medical images*. *Medical Image Analysis*, 2(2):143–168, 1998.
- [136] Gustav von Schulthess, Jürgen Hennig, Guido Gerig, Gabor Szekely, and Cyrill Burger. *Digital image data*. *Functional imaging*, page 115, 1998.
- [137] T. Vehkomäki, G. Gerig, and G. Sekely. *A user-guided tool for efficient segmentation of medical image data*. In Jocelyne Trocca, Eric Grimson, and Ralph Mieljsgres, editors, *Proc. of CVRMed-MRCAS’97 conference, Lecture Notes in Computer Science*, pages 685–694, 1997.
- [138] D. Ekatodramis, G. Székely, E. Martin, and G. Gerig. *A simulation environment for validation and comparison of fmri evaluation procedures*. In *NeuroImage*, volume 3, page 57, 1996.

- [139] Gábor Székely, András Kelemen, Christian Brechbühler, and Guido Gerig. *Segmentation of 2-d and 3-d objects from mri volume data using constrained elastic deformations of flexible fourier contour and surface models*. *Medical Image Analysis*, 1(1):19–34, 1996.
- [140] Christian Brechbühler, Guido Gerig, and Olaf Kübler. *Parametrization of closed surfaces for 3-d shape description*. *Computer Vision and Image Understanding*, 61(2):154–170, 1995.
- [141] M. H. Kuhn, I. C. Carlsen, K. Ottenberg, K. H. Schmidt, K. Neumann, C. Fassnacht, F. A. Gerritsen, A. J. M. Bart, J. Buurman, H. L. T. de Bliet, S. Lobregt, I. Ayerdi, H. Rademaker, M. Desco, P. J. Elliott, K. Goodson, G. Sivewright, R. Riste-Smith, J. Diedrichsen, D. Hentschel, R. Graumann, C. Bertram, T. Hildebrand, R. Kutka, S. Stier, D. Vandermeulen, A. Collignon, J. Michiels, R. Verbeek, P. Suetens, K. J. Zuiderveld, A. Koning, G. Timmens, P. van den Elsen, M. A. Viergever, S. Dellepiane, F. Fontana, G. Vernazza, G. Gerig, G. Székely, T. Koller, T. Vehkomäki, O. Kijbler, K. Niemann, D. Graf, W. Beil, H. Neumann, H. S. Stiehl, J. Porcill, J. Ivins, K. Haris, G. Hatzimihalis, G. Tziritas, S. Orphanoudakis, F. Galvez, C. Benito, F. J. Lafuente, D. Petersen, M. Skaley, R. Kolb, M. Bahner, J. Dick, B. Kardatzki, M. Schmidt, J. Gybels, B. Nuttin, G. Marchal, H. Bosmans, W. Mali, J. M. Ramos, L. J. Polman, M. Hartkamp, R. Bendl, A. Hoess, J. Pross, C. Seyfried, G. Gademann, W. Schlegel, W. Swindell, P. Evans, P. Mayles, A. Nahum, A. Neal, S. Webb, M. Oldham, V. N. Hansen, and M. Knauth. *Multimodality Medical Image Analysis for Diagnosis and Treatment Planning: The COVIRA Project ( COmputer VISION in RAdiology ) Extract from Final Edited Report of AIM Project A2003, Commission of the European Union, DG XIII*. 1995.
- [142] G. Székely, T. Koller, R. Kikinis, and G. Gerig. *Structural description and combined 3-d display for superior analysis of cerebral vascularity from mra*. In L. Beolchi and M.H. Kuhn, editors, *Medical Imaging, volume 19 of Studies in Health Technology and Informatics, pages 183–194*. IOS Press, 1995.
- [143] R KIKINIS, M SHENTON, G GERIG, H HOKAMA, J HAIMSON, B ODONNELL, C WIBLE, R MCCARLEY, and F JOLESZ. *Temporal lobe sulco-gyral pattern anomalies in schizophrenia: an in vivo MR three-dimensional surface rendering study*. *Neuroscience Letters*, 182:7–12, 1994.
- [144] Thierry Pun, Guido Gerig, and Osman Ratib. *Image Analysis and Computer Vision in Medicine*. 1993.
- [145] Guido Gerig, Olaf Kubler, Ron Kikinis, and Ferenc A. Jolesz. *Nonlinear anisotropic filtering of MRI data*. *IEEE Transactions on Medical Imaging*, 11:221–232, 1992.
- [146] Guido Gerig, John Martin, Ron Kikinis, Olaf Kübler, Martha Elizabeth Shenton, and Ferenc A. Jolesz. *Unsupervised tissue type segmentation of 3d dual-echo mr head data*. *Image Vision Comput.*, 10(6):349–360, 1992.
- [147] Ron Kikinis, Martha E. Shenton, Guido Gerig, John Martin, Mark Anderson, David Metcalf, Charles R. G. Guttmann, Robert W. McCarley, Ferenc A. Jolesz, William Lorensen, and Harvey Cline. *Routine quantitative analysis of brain and cerebrospinal*

*fluid spaces with MR imaging.* Journal of Magnetic Resonance Imaging JMRI, 2:619–629, 1992.

- [148] H. E. Cline, W. E. Lorensen, St. P. Souza, F. A. Jolesz, R. Kikinis, G. Gerig, and Th. E. Kennedy. *3D surface rendered MR images of the brain and its vasculature.* Journal of Computer Assisted Tomography, 15:344–351, 1991.
- [149] Guido Gerig, Ron Kikinis, Walter Kuoni, Gustav K. von Schulthess, and Olaf Kuebler. *Semiautomated ROI Analysis in Dynamic MR Studies. Part I: Image Analysis Tools for Automatic Correction of Organ Displacements.* Journal of Computer Assisted Tomography, 15:725–732, 1991.
- [150] Gustav K. von Schulthess, Walter Kuoni, Guido Gerig, Rudolf Wuethrich, Stefan Duewell, and Gabriel Krestin. *Semiautomated ROI Analysis in Dynamic MR Studies. Part II: Application to Renal Function Examination.* Journal of Computer Assisted Tomography, 15:733–741, 1991.

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## Peer-Reviewed Conference and Workshop Papers

- [151] J. Fishbaugh, B. Paniagua, M. Mostapha, M. Styner, V. Murphy, J. Gilmore, and G. Gerig. *Model selection for spatiotemporal modeling of early childhood sub-cortical development.* Proc SPIE Int Soc Opt Eng, 10949, Feb 2019.
- [152] Batool Abbas, James Fishbaugh, Catherine Petchprapa, Riccardo Lattanzi, and Guido Gerig. *Analysis of the kinematic motion of the wrist from 4d magnetic resonance imaging.* In Medical Imaging 2019: Image Processing, San Diego, California, United States, 16-21 February 2019, page 109491E, 2019.
- [153] James Fishbaugh and Guido Gerig. *Acceleration controlled diffeomorphisms for non-parametric image regression.* In 16th IEEE International Symposium on Biomedical Imaging, ISBI 2019, Venice, Italy, April 8-11, 2019, pages 1488–1491, 2019.
- [154] Heejong Kim, Joseph Piven, and Guido Gerig. *Longitudinal structural connectivity in the developing brain with projective non-negative matrix factorization.* In Medical Imaging 2019: Image Processing, San Diego, California, United States, 16-21 February 2019, page 109490Q, 2019.
- [155] Sadhana Ravikumar, Laura E. M. Wisse, Yang Gao, Guido Gerig, and Paul A. Yushkevich. *Facilitating manual segmentation of 3d datasets using contour and intensity guided interpolation.* In 16th IEEE International Symposium on Biomedical Imaging, ISBI 2019, Venice, Italy, April 8-11, 2019, pages 714–718, 2019.
- [156] J. Vicory, L. Pascal, P. Hernandez, J. Fishbaugh, J. Prieto, M. Mostapha, C. Huang, H. Shah, J. Hong, Z. Liu, L. Michoud, J. C. Fillion-Robin, G. Gerig, H. Zhu, S. M. Pizer, M. Styner, and B. Paniagua. *SlicerSALT: Shape AnaLysis Toolbox.* Shape Med Imaging (2018), 11167:65–72, Sep 2018.
- [157] S. Hong, J. Fishbaugh, and G. Gerig. *4D CONTINUOUS MEDIAL REPRESENTATION BY GEODESIC SHAPE REGRESSION.* Proc IEEE Int Symp Biomed Imaging, 2018:1014–1017, Apr 2018.

- [158] Mahmoud Mostapha, Mark D. Shen, Sun Hyung Kim, Meghan R. Swanson, D. Louis Collins, Vladimir Fonov, Guido Gerig, Joseph Piven, and Martin A. Styner. *A novel framework for the local extraction of extra-axial cerebrospinal fluid from mr brain images*. In *Medical Imaging 2018: Image Processing, volume 10574, Mar 2018*.
- [159] James Fishbaugh, Laura Pascal, Luke Fischer, Tung Nguyen, Celso Boen, Joao Goncalves, Guido Gerig, and Beatriz Paniagua. *Estimating shape correspondence for populations of objects with complex topology*. In *2018 IEEE 15th International Symposium on Biomedical Imaging (ISBI 2018), pages 1010–1013, 2018*.
- [160] Yang Gao, Jeff M. Phillips, Yan Zheng, Renqiang Min, P. Thomas Fletcher, and Guido Gerig. *Fully convolutional structured lstm networks for joint 4d medical image segmentation*. In *2018 IEEE 15th International Symposium on Biomedical Imaging (ISBI 2018), pages 1104–1108, 2018*.
- [161] Sungmin Hong, James Fishbaugh, and Guido Gerig. *4d continuous medial representation trajectory estimation for longitudinal shape analysis*. *ShapeMI@MICCAI, pages 125–136, 2018*.
- [162] Mathilde Ravier, Sungmin Hong, Charly Girot, Hiroshi Ishikawa, Jenna Tauber, Gadi Wollstein, Joel Schuman, James Fishbaugh, and Guido Gerig. *Analysis of morphological changes of lamina cribrosa under acute intraocular pressure change*. In *International Conference on Medical Image Computing and Computer-Assisted Intervention, pages 364–371, 2018*.
- [163] Jared Vicory, Laura Pascal, Pablo Hernandez, James Fishbaugh, Juan C. Prieto, Mahmoud Mostapha, Chao Huang, Hina Shah, Jun-Pyo Hong, Zhiyuan Liu, Loic Michoud, Jean-Christophe Fillion-Robin, Guido Gerig, Hongtu Zhu, Stephen M. Pizer, Martin Styner, and Beatriz Paniagua. *Slicersalt: Shape analysis toolbox*. *ShapeMI@MICCAI, pages 65–72, 2018*.
- [164] S. Hong, J. Fishbaugh, M. Rezanejad, K. Siddiqi, H. Johnson, J. Paulsen, E. Y. Kim, and G. Gerig. *Subject-Specific Longitudinal Shape Analysis by Coupling Spatiotemporal Shape Modeling with Medial Analysis*. *Proc SPIE Int Soc Opt Eng, 10133, Apr 2017*.
- [165] James Fishbaugh, Marcel Prastawa, Bo Wang, Patrick Reynolds, Stephen R. Aylward, and Guido Gerig. *Data-driven rank aggregation with application to grand challenges*. In *Medical Image Computing and Computer Assisted Intervention - MICCAI 2017 - 20th International Conference, Quebec City, QC, Canada, September 11-13, 2017, Proceedings, Part II, pages 754–762, 2017*.
- [166] Charly Girot, Hiroshi Ishikawa, James Fishbaugh, Gadi Wollstein, Joel Schuman, and Guido Gerig. *Spatiotemporal analysis of structural changes of the lamina cribrosa*. In *Fetal, Infant and Ophthalmic Medical Image Analysis - International Workshop, FIFI 2017, and 4th International Workshop, OMIA 2017, Held in Conjunction with MICCAI 2017, Québec City, QC, Canada, September 14, 2017, Proceedings, pages 185–193, 2017*.
- [167] Avantika Vardhan, James Fishbaugh, Clement Vachet, and Guido Gerig. *Longitudinal modeling of multi-modal image contrast reveals patterns of early brain growth*.

In Medical Image Computing and Computer Assisted Intervention - MICCAI 2017 - 20th International Conference, Quebec City, QC, Canada, September 11-13, 2017, Proceedings, Part I, pages 75–83, 2017.

- [168] P. A. Yushkevich, Y. Gao, and G. Gerig. *Itk-snap: An interactive tool for semi-automatic segmentation of multi-modality biomedical images*. In 2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pages 3342–3345, Aug 2016.
- [169] Shireen Elhabian, Clement Vachet, Joseph Piven, Martin Styner, and Guido Gerig. *Compressive sensing based  $q$ -space resampling for handling fast bulk motion in hardi acquisitions*. In Proceedings of the 2016 IEEE International Symposium on Biomedical Imaging ISBI, volume 2016, pages 907–910, Apr 2016.
- [170] Yang Gao, Miaomiao Zhang, P. Thomas Fletcher, and Guido Gerig. *Image registration and segmentation in longitudinal mri using temporal appearance modeling*. In Proceedings of the 2016 IEEE International Symposium on Biomedical Imaging ISBI, volume 2016, pages 629–623, Apr 2016.
- [171] P. Muralidharan, J. Fishbaugh, E. Y. Kim, H. J. Johnson, J. S. Paulsen, G. Gerig, and P. T. Fletcher. *Bayesian Covariate Selection in Mixed-Effects Models For Longitudinal Shape Analysis*. Proc IEEE Int Symp Biomed Imaging, 2016:656–659, Apr 2016.
- [172] Marie Cherel, Francois Budin, Marcel Prastawa, Guido Gerig, Kevin Lee, Claudia Buss, Amanda Lyall, Kirsten Zalzarriaga Consing, and Martin Styner. *Automatic tissue segmentation of neonate brain mr images with subject-specific atlases*. In Proc SPIE Int Soc Opt Eng., number 9413. International Society for Optics and Photonics, Feb 2015.
- [173] Sun Hyung, Vladimir Fonov, D. Louis Collins, Guido Gerig, The IBIS Network, and Martin A. Styner. *Shape index distribution based local surface complexity applied to the human cortex*. In Proceedings of SPIEProc SPIE Int Soc Opt Eng., number 9413, Feb 2015. PMID: PMC4449152.
- [174] Shireen Elhabian, Yaniv Gur, Joseph Piven, Martin Styner, Ilana Leppert, G. Bruce Pike, and Guido Gerig. *Motion is inevitable: The impact of motion correction schemes on hardi reconstructions*. In MICCAI 2014 Workshop on Computational Diffusion MRI. MICCAI, Sept 2014.
- [175] Prasanna Muralidharan, James Fishbaugh, Guido Gerig, and P. Thomas Fletcher. *Diffeomorphic shape trajectories for improved longitudinal segmentation and statistics*. In Med Image Comput Comput Assist Interv., LNCS, Proc. MICCAI, pages 49–56. Springer Verlag, Sep 2014. PMID: 25320781, PMID: PMC4486086.
- [176] Neda Sadeghi, P. Thomas Fletcher, John H Gilmore, and Guido Gerig. *Subject-specific prediction using nonlinear population modeling: Application to early brain maturation from dti*. In Med Image Comput Comput Assist Interv., LNCS, pages 33–40. Springer Verlag, Sep 2014. PMID: 25320779, PMID: PMC4486206.



- [177] Avantika Vardhan, Neda Sadeghi, Clement Vathet, Joseph Piven, and Guido Gerig. Joint longitudinal modeling of brain appearance in multimodal mri for the characterization of early brain developmental processes. In *Spatiotemporal Image Analysis for Longitudinal and Time-Series Image Data (STIA'14)*, volume 8682 of LNCS, pages 49–66. MICCAI'14, Springer Verlag, June 2014.
- [178] Shireen Elhabian, Yaniv Gur, Joseph Piven, Martin Styner, and Guido Gerig. A preliminary study on the effect of motion correction on HARDI reconstruction. In *IEEE Proceedings of ISBI 2014*, pages 1055–1058. IEEE, April 2014. PMID: 25356195, PMCID: PMC4209744.
- [179] James Fishbaugh, Marcel Prastawa, Guido Gerig, and Stanley Durrleman. Geodesic regression of image and shape data for improved modeling of 4D trajectories. In *IEEE Proceedings of ISBI 2014*, pages 385–388. IEEE, April 2014. PMID: 25356192, PMCID: PMC4209724.
- [180] Yang Gao, Marcel Prastawa, Martin Styner, Joseph Piven, and Guido Gerig. A joint framework for 4d segmentation and estimation of smooth temporal appearance changes. In *IEEE Proceedings of ISBI 2014*, pages 1291–1294. IEEE, April 2014. PMID: 25356196, PMCID: PMC4209703.
- [181] Anuja Sharma, P. Thomas Fletcher, John H. Gilmore, Maria L. Escolar, Aditya Gupta, Martin Styner, and Guido Gerig. Parametric regression scheme for distributions: Analysis of dti fiber tract diffusion changes in early brain development. In *IEEE Proceedings of ISBI 2014*, pages 559–562. IEEE, April 2014. PMID: 25356194, PMCID: PMC4209698.
- [182] Bo Wang, Wei Liu, Marcel Prastawa, Andrei Irimia, Paul Vespa, John Van Horn, P. Thomas Fletcher, and Guido Gerig. 4D Active Cut: An interactive tool for pathological anatomy modeling. In *IEEE Proceedings of ISBI 2014*, pages 529–532. IEEE, April 2014. PMID: 25356193, PMCID: PMC4209480.
- [183] Avantika Vardhan, Marcel Prastawa, Clément Vachet, Joseph Piven, and Guido Gerig. Characterizing growth patterns in longitudinal mri using image contrast. In *Proc. SPIE 9034, Medical Imaging 2014: Image Processing, 90340D. International Society for Optics and Photonics, 2014*. doi:10.1117/12.2043995, PMID: 25309699, PMCID: PMC4193386.
- [184] Bo Wang, Marcel Prastawa, Avishek Saha, Suyash Awate, Andrei Irimia, Micah Chambers, Paul Vespa, John Van Horn, and Guido Gerig Valerio Pascucci. Modeling 4d changes in pathological anatomy using domain adaptation: analysis of TBI imaging using a tumor database. In *Proceedings MICCAI MBIA workshop, Lecture Notes in Computer Science. Springer Verlag, Sept 2013*.
- [185] J. Fishbaugh, M.W. Prastawa, G. Gerig, and S. Durrleman. Geodesic image regression with a sparse parameterization of diffeomorphisms. In *Proc. Geometric Science of Information (GSI) Workshop, Lecture Notes in Computer Science. Springer Verlag, August 2013. to appear*.
- [186] Mahshid Farzinfar, Yin Li, Audrey R Verde, Ipek Oguz, Guido Gerig, and Martin A Styner. Dti quality control assessment via error estimation from monte carlo simu-

- lations. In *SPIE Medical Imaging*, pages 86692C–86692C. *International Society for Optics and Photonics*, 2013.
- [187] J. Fishbaugh, M.W. Prastawa, G. Gerig, and S. Durrleman. *Geodesic shape regression in the framework of currents*. In *Proceedings of the International Conference on Information Processing in Medical Imaging (IPMI)*, page (to appear), 2013.
- [188] Beatriz Paniagua, Omri Emodi, Jonathan Hill, James Fishbaugh, Luiz A Pimenta, Stephen R Aylward, Enquobahrie Andinet, Guido Gerig, John Gilmore, John A van Aalst, et al. *3d of brain shape and volume after cranial vault remodeling surgery for craniosynostosis correction in infants*. In *SPIE Medical Imaging*, pages 86720V–86720V. *International Society for Optics and Photonics*, 2013.
- [189] N. Sadeghi, M.W. Prastawa, P.T. Fletcher, J.H. Gilmore, and G. Gerig. *Multivariate modeling of longitudinal MRI in early brain development with confidence measures*. In *IEEE Proceedings of ISBI 2013*, page (to appear), 2013.
- [190] A. Sharma, P.T. Fletcher, J.H. Gilmore, M.L. Escobar, A. Gupta, M. Styner, and G. Gerig. *Spatiotemporal modeling of discrete-time distribution-valued data applied to DTI tract evolution in infant neurodevelopment*. In *IEEE Proceedings of ISBI 2013*, page (to appear), 2013.
- [191] A. Vardhan, M.W. Prastawa, J. Piven, and G. Gerig. *Modeling longitudinal MRI changes in populations using a localized, information-theoretic measure of contrast*. In *IEEE Proceedings of ISBI 2013*, page (to appear), 2013.
- [192] Audrey R Verde, Jean-Baptiste Berger, Aditya Gupta, Mahshid Farzinfar, Adrien Kaiser, Vicki W Chanon, Charlotte Boettiger, Hans Johnson, Joy Matsui, Anuja Sharma, et al. *Unc-utah na-mic dti framework: atlas based fiber tract analysis with application to a study of nicotine smoking addiction*. In *SPIE Medical Imaging*, pages 86692D–86692D. *International Society for Optics and Photonics*, 2013.
- [193] B. Wang, M.W. Prastawa, A. Irimia, M.C. Chambers, N. Sadeghi, P.M. Vespa, J.D. van Horn, and G. Gerig. *Analyzing imaging biomarkers for traumatic brain injury using 4D modeling of longitudinal MRI*. In *IEEE Proceedings of ISBI 2013*, page (to appear), 2013.
- [194] M. Datar, P. Muralidharan, A. Kumar, S. Gouttard, J. Piven, G. Gerig, R.T. Whitaker, and P.T. Fletcher. *Mixed-effects shape models for estimating longitudinal changes in anatomy*. In S. Durrleman, P.T. Fletcher, G. Gerig, and M. Niethammer, editors, *Spatio-temporal Image Analysis for Longitudinal and Time-Series Image Data*, volume 7570 of *Lecture Notes in Computer Science*, pages 76–87. *Springer Berlin / Heidelberg*, 2012.
- [195] S. Durrleman, M. Prastawa, J. R. Korenberg, S. Joshi, A. Trouve, and G. Gerig. *Topology preserving atlas construction from shape data without correspondence using sparse parameters*. *Med Image Comput Comput Assist Interv*, 15(Pt 3):223–230, 2012.
- [196] J. Fishbaugh, S. Durrleman, J. Piven, and G. Gerig. *A framework for longitudinal data analysis via shape regression*. In *Proceedings of Medical Imaging 2012: Image Processing*, volume 8314, page 83143K. *SPIE*, 2012.

- [197] J. Fishbaugh, M. Prastawa, S. Durrleman, J. Piven, and G. Gerig. *Analysis of longitudinal shape variability via subject specific growth modeling*. *Med Image Comput Comput Assist Interv*, 15(Pt 1):731–738, 2012.
- [198] S. Gouttard, C.B. Goodlett, M. Kubicki, and G. Gerig. *Measures for validation of dti tractography*. In *Proceedings of Medical Imaging 2012: Image Processing*, volume 8314, page 83140J. SPIE, 2012.
- [199] A. Gupta, M. Escolar, C. Dietrich, J. Gilmore, G. Gerig, and M. Styne. *3D tensor normalization for improved accuracy in DTI registration methods*. In *Proceedings of the 2012 Workshop on Biomedical Image Registration (WBIR 2012)*, pages 170–179, 2012.
- [200] Zhexiong Liu, Mahshid Farzinfar, Laurence M Katz, Hongtu Zhu, Casey B Goodlett, Guido Gerig, Martin Styner, and Bonita L Marks. *Automated voxel-wise brain dti analysis of fitness and aging*. *Open Medical Imaging Journal*, 6:80–88, 2012.
- [201] M.W. Prastawa, S.P. Awate, and G. Gerig. *Building spatiotemporal anatomical models using joint 4-D segmentation, registration, and subject-specific atlas estimation*. In *Proceedings of the 2012 IEEE Mathematical Methods in Biomedical Image Analysis (MMBIA) Conference*, pages 49–56, 2012.
- [202] N. Sadeghi, M.W. Prastawa, P.T. Fletcher, J.H. Gilmore, W. Lin, and G. Gerig. *Statistical growth modeling of longitudinal DT-MRI for regional characterization of early brain development*. In *Proceedings of IEEE ISBI 2012*, pages 1507–1510, 2012.
- [203] A. Sharma, S. Durrleman, J.H. Gilmore, and G. Gerig. *Longitudinal growth modeling of discrete-time functions with application to DTI tract evolution in early neurodevelopment*. In *Proceedings of IEEE ISBI 2012*, pages 1397–1400, 2012.
- [204] C. Vachet, B. Yvernault, K. Bhatt, R.G. Smith, G. Gerig, H.C. Hazlett, and M.A. Styner. *Automatic corpus callosum segmentation using a deformable active fourier contour model*. In *Proceedings of Medical Imaging 2012: Biomedical Applications in Molecular, Structural, and Functional Imaging*, volume 8317, 831707 of SPIE, 2012.
- [205] A. Vardhan, M.W. Prastawa, S. Gouttard, J. Piven, and G. Gerig. *Quantifying regional growth patterns through longitudinal analysis of distances between multimodal MR intensity distributions*. In *Proceedings of IEEE ISBI 2012*, pages 1156–1159, 2012.
- [206] B. Wang, M.W. Prastawa, S.P. Awate, A. Irimia, M.C. Chambers, P.M. Vespa, J.D. Van Horn, and G. Gerig. *Segmentation of serial MRI of TBI patients using personalized atlas construction and topological change estimation*. In *Proceedings of IEEE ISBI 2012*, pages 1152–1155, 2012.
- [207] B. Wang, M.W. Prastawa, A. Irimia, M.C. Chambers, P.M. Vespa, J.D. Van Horn, and G. Gerig. *A patient-specific segmentation framework for longitudinal mr images of traumatic brain injury*. In *Proceedings of Medical Imaging 2012: Image Processing*, volume 8314, page 831402. SPIE, 2012.
- [208] S. Durrleman, M. Prastawa, G. Gerig, and S. Joshi. *Optimal data-driven sparse parameterization of diffeomorphisms for population analysis*. *Inf Process Med Imaging*, 22:123–134, 2011.

- [209] J. Fishbaugh, S. Durrleman, and G. Gerig. *Estimation of smooth growth trajectories with controlled acceleration from time series shape data*. *Med Image Comput Comput Assist Interv*, 14(Pt 2):401–408, 2011.
- [210] S. H. Kim, V. Fonov, J. Piven, J. Gilmore, C. Vachet, G. Gerig, D. L. Collins, and M. Styner. *Spatial Intensity Prior Correction for Tissue Segmentation in the Developing human Brain*. *Proc IEEE Int Symp Biomed Imaging*, pages 2049–2052, 2011.
- [211] Y. Wang, A. Gupta, Z. Liu, H. Zhang, M.L. Escobar, J.H. Gilmore, S. Gouttard, P. Fillard, E. Maltbie, G. Gerig, and M. Styner. *Dti registration in atlas based fiber analysis of infantile krabbe disease*. *Neuroimage*, 55(4):1577–1586, 2011.
- [212] M.W. Prastawa, N. Sadeghi, J.H. Gilmore, W. Lin, and G. Gerig. *A new framework for analyzing white matter maturation in early brain development*. In *Proceedings of the 2010 IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, pages 97–100, April 2010.
- [213] N. Sadeghi, M.W. Prastawa, J.H. Gilmore, W. Lin, and G. Gerig. *Towards analysis of growth trajectory through multi-modal longitudinal mr imaging*. *SPIE Medical Imaging 2010: Image Processing*, 7623, 76232U:(published online), March 2010.
- [214] Z. Liu, C. Goodlett, G. Gerig, and M. Styner. *Evaluation of dti property maps as basis of dti atlas building*. *SPIE Medical Imaging*, 7623, 762325, February 2010.
- [215] Z. Liu, Y. Wang, G. Gerig, S. Gouttard, R. Tao, T. Fletcher, and M.A. Styner. *Quality control of diffusion weighted images*. *SPIE Medical Imaging*, 7628, 76280J, February 2010.
- [216] L. Ha, M. Prastawa, G. Gerig, J. H. Gilmore, C. T. Silva, and S. Joshi. *Image registration driven by combined probabilistic and geometric descriptors*. *Med Image Comput Comput Assist Interv*, 13(Pt 2):602–609, 2010.
- [217] Zhexiong Liu, Casey Goodlett, Guido Gerig, and Martin Styner. *Evaluation of DTI property maps as basis of DTI atlas building*. 7623, 2010.
- [218] C. Marc, C. Vachet, J.E. Blocher, G. Gerig, J.H. Gilmore, and M.A. Styner. *Changes of mr and dti appearance in early human brain development*. In *Proceedings of SPIE Medical Imaging 7623*, 762324, 2010.
- [219] Cassian Marc, Clément Vachet, Guido Gerig, Joseph Blocher, John Gilmore, and Martin Styner. *Changes of MR and DTI appearance in early human brain development*. 7623, 2010.
- [220] M. Datar, J. Cates, P. T. Fletcher, S. Gouttard, G. Gerig, and R. Whitaker. *Particle based shape regression of open surfaces with applications to developmental neuroimaging*. *Med Image Comput Comput Assist Interv*, 12(Pt 2):167–174, 2009.
- [221] S. Durrleman, X. Pennec, A. Trouve, G. Gerig, and N. Ayache. *Spatiotemporal atlas estimation for developmental delay detection in longitudinal datasets*. *Med Image Comput Comput Assist Interv*, 12(Pt 1):297–304, 2009.

- [222] S. Gouttard, M. Prastawa, E. Bullitt, W. Lin, C. Goodlett, and G. Gerig. *Constrained data decomposition and regression for analyzing healthy aging from fiber tract diffusion properties*. *Med Image Comput Comput Assist Interv*, 12(Pt 1):321–328, 2009.
- [223] S. Gouttard, M.W. Prastawa, E. Bullitt, W. Lin, C. Goodlett, and G. Gerig. *Constrained data decomposition and regression for analyzing healthy aging from fiber tract diffusion properties*. *Medical Image Computing and Computer-Assisted Intervention MICCAI 2009*, 5761:321–328, 2009.
- [224] Z. Liu, H. Zhu, B.L. Marks, L.M. Katz, C.B. Goodlett, G. Gerig, and M. Styner. *Voxel-wise group analysis of DTI*. In *Proceedings of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, 2009, pages 807–810, 2009.
- [225] Zhexiong Liu, Hongtu Zhu, Bonita L. Marks, Laurence M. Katz, Casey B. Goodlett, Guido Gerig, and Martin Andreas Styner. *Voxel-Wise Group Analysis of DTI*. In *IEEE International Symposium on Biomedical Imaging*, pages 807–810, 2009.
- [226] F. Shi, P.T. Yap, Y. Fan, J.Z. Cheng, L.L. Wald, G. Gerig, W. Lin, and D. Shen. *Cortical enhanced tissue segmentation of neonatal brain mr images acquired by a dedicated phased array coil*. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pages 39–45, 2009.
- [227] S. Xu, M. Styner, J. Gilmore, J. Piven, and G. Gerig. *Multivariate nonlinear mixed model to analyze longitudinal image data: MRI study of early brain development*. In *Proceedings of IEEE Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA) 2008*, pages 1–8. *IEEE Computer Society*, June 2008.
- [228] S. Xu, M. Styner, J.H. Gilmore, and G. Gerig. *Multivariate longitudinal statistics for neonatal-pediatric brain tissue development*. In *Proceedings of SPIE Medical Imaging 2008*, volume 6914, page (), February 2008.
- [229] A. Fedorov, E. Billet, M.W. Prastawa, G. Gerig, A. Radmanesh, S.K. Warfield, R. Kikinis, and N. Chrisochoides. *Evaluation of brain mri alignment with the robust hausdorff distance measures*. In *Lecture Notes in Computer Science*, volume 5358, pages 594–603. *Springer*, 2008.
- [230] C. B. Goodlett, P. T. Fletcher, J. H. Gilmore, and G. Gerig. *Group statistics of DTI fiber bundles using spatial functions of tensor measures*. *Med Image Comput Comput Assist Interv*, 11(Pt 1):1068–1075, 2008. *Nominated for best paper award*.
- [231] S. Gouttard, M. Styner, M. Prastawa, J. Piven, and G. Gerig. *Assessment of reliability of multi-site neuroimaging via traveling phantom study*. *Med Image Comput Comput Assist Interv*, 11(Pt 2):263–270, 2008.
- [232] M.W. Prastawa and G. Gerig. *Brain lesion segmentation through physical model estimation*. In *Advances in Visual Computing ISVC*, volume 5358 of *Lecture Notes in Computer Science*, pages 562–571, 2008.
- [233] M. Styner, I. Oguz, T. Heimann, and G. Gerig. *Minimum description length with local geometry*. In *Proceedings of the 5th IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI 2008)*, pages 1283–1286, 2008.

- [234] T.B. Terriberry, J.N. Damon, S.M. Pizer, S. Joshi, and G. Gerig. *Population-based fitting of medial shape models with correspondence optimization*. In *Proceedings of Information Processing in Medical Imaging (IPMI '07)*, volume 20 of *Lecture Notes in Computer Science*, pages 700–712, July 2007.
- [235] C. Goodlett, P. T. Fletcher, W. Lin, and G. Gerig. *Quantification of measurement error in DTI: theoretical predictions and validation*. *Med Image Comput Comput Assist Interv*, 10(Pt 1):10–17, 2007.
- [236] Casey Goodlett, P. Thomas Fletcher, Weili Lin, and Guido Gerig. *Quantification of measurement error in dti: Theoretical predictions and validation*. In *MICCAI (1)*, pages 10–17, 2007.
- [237] C.B. Goodlett, P.T. Fletcher, W. Lin, and G. Gerig. *Noise-induced bias in low-direction diffusion tensor MRI: Replication of monte-carlo simulation with in-vivo scans*. In *Proceedings of ISMRM 2007*, page tbd, 2007.
- [238] K. Gorczowski, M. Styner, J.Y. Jeong, J.S. Marron, J. Piven, H.C. Hazlett, S.M. Pizer, and G. Gerig. *Statistical shape analysis of multi-object complexes*. In *Proceedings of the 2007 IEEE Conference on Computer Vision and Pattern Recognition*, pages 1–8, 2007.
- [239] Sylvain Gouttard, Martin Styner, Sarang Joshi, Rachel G. Smith, Heather Cody Hazlett, and Guido Gerig. *Subcortical structure segmentation using probabilistic atlas priors*. In *Proc. SPIE, Storage and Retrieval for Image and Video Databases*, volume 6512, 2007.
- [240] D. Nain, M. Styner, M. Niethammer, J.J. Levitt, M.E. Shenton, G. Gerig, A. Bobick, and A. Tannenbaum. *Statistical shape analysis of brain structures using spherical wavelets*. In *Proceedings of the 4th IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI 2007)*, pages 209–212. *IEEE Press*, 2007.
- [241] M. Styner, I. Oguz, S. Xu, D. Pantazis, and G. Gerig. *Statistical group differences in anatomical shape analysis using hotelling t2 metric*. In *Proceedings of the 2007 SPIE Medical Imaging Conference*, volume 6512, 2007.
- [242] M. Styner, S. Xu, M. El-Sayed, and G. Gerig. *Correspondence evaluation in local shape analysis and structural subdivision*. In *Proceedings of ISBI 2007*, pages 1192–1195. *IEEE Press*, 2007.
- [243] H Sun, PA Yushkevich, JN Giedd, G Gerig, and JC Gee. *Corpus callosum morphometry in childhood-onset schizophrenia*. *Proc. Joint Annu. Meeting ISMRM-ESMRMB*, 2007.
- [244] T. B. Terriberry, J. N. Damon, S. M. Pizer, S. C. Joshi, and G. Gerig. *Population-based fitting of medial shape models with correspondence optimization*. *Inf Process Med Imaging*, 20:700–712, 2007.
- [245] F. Zhang, C. Goodlett, E. Hancock, and G. Gerig. *Probabilistic fiber tracking using particle filtering*. *Med Image Comput Comput Assist Interv*, 10(Pt 2):144–152, 2007.

- [246] Fan Zhang, Casey Goodlett, Edwin R. Hancock, and Guido Gerig. Probabilistic fiber tracking using particle filtering and von mises-fisher sampling. In *EMMCVPR*, pages 303–317, 2007.
- [247] G. Gerig, B. Davis, P. Lorenzen, S. Xu, M. Jomier, J. Piven, and S. Joshi. Computational anatomy to assess longitudinal trajectory of brain growth. In *Proceedings of The Third International Symposium on 3D Data Processing, Visualization, and Transmission (3DVT)*, pages 1041–1047, June 2006.
- [248] S. Xu, M. Styner, B. Davis, S. Joshi, and G. Gerig. Group mean differences of voxel and surface objects via nonlinear group averaging. In *Proceedings of IEEE International Symposium on Biomedical Imaging (ISBI)*, pages 758–761, April 2006.
- [249] Guido Gerig, Sarang C. Joshi, P. Thomas Fletcher, Kevin Gorczowski, Shun Xu, Stephen M. Pizer, and Martin Andreas Styner. Statistics of populations of images and its embedded objects: driving applications in neuroimaging. In *ISBI*, pages 1120–1123, 2006.
- [250] C. Goodlett, B. Davis, R. Jean, J. Gilmore, and G. Gerig. Improved correspondence for DTI population studies via unbiased atlas building. *Med Image Comput Comput Assist Interv*, 9(Pt 2):260–267, 2006.
- [251] M. Styner, M. Jomier, and G. Gerig. Closed and open source neuroimage analysis tools and libraries at UNC. In *Proceedings of IEEE International Symposium on Biomedical Imaging (ISBI)*, Special Session: Open Source, pages 702–705, 2006.
- [252] Martin Styner, Kevin Gorczowski, P. Thomas Fletcher, Ja-Yeon Jeong, Stephen M. Pizer, and Guido Gerig. Statistics of pose and shape in multi-object complexes using principal geodesic analysis. In *MIAR*, pages 1–8, 2006.
- [253] Timothy B Terriberry, Guido Gerig, et al. A continuous 3-d medial shape model with branching. In *1st MICCAI Workshop on Mathematical Foundations of Computational Anatomy: Geometrical, Statistical and Registration Methods for Modeling Biological Shape Variability*, pages 80–89, 2006.
- [254] I. Corouge, P. T. Fletcher, S. Joshi, J. H. Gilmore, and G. Gerig. Fiber tract-oriented statistics for quantitative diffusion tensor MRI analysis. *Med Image Comput Comput Assist Interv*, 8(Pt 1):131–139, 2005.
- [255] B. Mortamet, D. Zeng, G. Gerig, M. Prastawa, and E. Bullitt. Effects of healthy aging measured by intracranial compartment volumes using a designed MR brain database. *Med Image Comput Comput Assist Interv*, 8(Pt 1):383–391, 2005.
- [256] M. Prastawa, E. Bullitt, and G. Gerig. Synthetic ground truth for validation of brain tumor MRI segmentation. *Med Image Comput Comput Assist Interv*, 8(Pt 1):26–33, 2005.
- [257] Marcel Prastawa, Elizabeth Bullitt, and Guido Gerig. Synthetic ground truth for validation of brain tumor mri segmentation. In *MICCAI*, pages 26–33, 2005.
- [258] T. B. Terriberry, S. C. Joshi, and G. Gerig. Hypothesis testing with nonlinear shape models. *Inf Process Med Imaging*, 19:15–26, 2005.

- [259] Timothy B. Terriberry, Sarang C. Joshi, and Guido Gerig. Hypothesis testing with nonlinear shape models. In IPMI, pages 15–26, 2005.
- [260] Paul A Yushkevich, Joseph Piven, Heather Cody, Sean Ho, James C Gee, and Guido Gerig. User-guided level set segmentation of anatomical structures with itk-snap. Insight Journal, 1, 2005.
- [261] Elizabeth Bullitt, Inkyung Jung, Keith E. Muller, Guido Gerig, Stephen R. Aylward, Sarang C. Joshi, J. Keith Smith, Weili Lin, and Matthew G. Ewend. Determining malignancy of brain tumors by analysis of vessel shape. In MICCAI (2), pages 645–653, 2004.
- [262] Isabelle Corouge, Guido Gerig, and Sylvain Gouttard. Towards a shape model of white matter fiber bundles using diffusion tensor mri. In ISBI, pages 344–347, 2004.
- [263] Isabelle Corouge, Sylvain Gouttard, and Guido Gerig. A statistical shape model of individual fiber tracts extracted from diffusion tensor mri. In MICCAI (2), pages 671–679, 2004.
- [264] G. Gerig, S. Gouttard, and I. Corouge. Analysis of brain white matter via fiber tract modeling. Conf Proc IEEE Eng Med Biol Soc, 6:4421–4424, 2004.
- [265] Sean Ho and Guido Gerig. Profile scale-spaces for multiscale image match. In MICCAI (1), pages 176–183, 2004.
- [266] Peter Lorenzen, Brad Davis, Guido Gerig, Elizabeth Bullitt, and Sarang C. Joshi. Multi-class posterior atlas formation via unbiased kullback-leibler template estimation. In MICCAI (1), pages 95–102, 2004.
- [267] Marcel Prastawa, John H. Gilmore, Weili Lin, and Guido Gerig. Automatic segmentation of neonatal brain mri. In MICCAI (1), pages 10–17, 2004.
- [268] Martin A. Styner and Guido Gerig. Correction scheme for multiple correlated statistical tests in local shape analysis. 5370:233–240, 2004.
- [269] Elizabeth Bullitt, Guido Gerig, Stephen R. Aylward, Sarang C. Joshi, J. Keith Smith, Matthew G. Ewend, and Weili Lin. Vascular attributes and malignant brain tumors. In MICCAI (1), pages 671–679, 2003.
- [270] Pierre Fillard and Guido Gerig. Analysis tool for diffusion tensor mri. In MICCAI (2), pages 967–968, 2003.
- [271] Pierre Fillard, John H. Gilmore, Joseph Piven, Weili Lin, and Guido Gerig. Quantitative analysis of white matter fiber properties along geodesic paths. In MICCAI (2), pages 16–23, 2003.
- [272] Guido Gerig, Keith E. Muller, Emily O. Kistner, Yueh-Yun Chi, Miranda Chakos, Martin Styner, and Jeffrey A. Lieberman. Age and treatment related local hippocampal changes in schizophrenia explained by a novel shape analysis method. In MICCAI (2), pages 653–660, 2003.
- [273] Guido Gerig, Marcel Prastawa, Weili Lin, and John H. Gilmore. Assessing early brain development in neonates by segmentation of high-resolution 3t mri. In MICCAI (2), pages 979–980, 2003.



- [274] Sean Ho and Guido Gerig. *Scale-space on image profiles about an object boundary*. In *Scale-Space*, pages 564–575, 2003.
- [275] Marcel Prastawa, Elizabeth Bullitt, Sean Ho, and Guido Gerig. *Robust estimation for brain tumor segmentation*. In *MICCAI (2)*, pages 530–537, 2003.
- [276] Martin Styner, Jeffrey A. Lieberman, and Guido Gerig. *Boundary and medial shape analysis of the hippocampus in schizophrenia*. In *MICCAI (2)*, pages 464–471, 2003.
- [277] Y. Sampath K. Vetsa, Martin Styner, Stephen M. Pizer, Jeffrey A. Lieberman, and Guido Gerig. *Caudate shape discrimination in schizophrenia using template-free non-parametric tests*. In *MICCAI (2)*, pages 661–669, 2003.
- [278] G. Gerig, N. Moon, S. Ho, and E. Bullitt. *Model-based segmentation of brain tissue and tumor*. In *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, volume 2, 2002.
- [279] Guido Gerig, Martin Andreas Styner, and Gábor Székely. *Statistical shape models for segmentation and structural analysis*. In *ISBI*, pages 18–21, 2002.
- [280] Sean Ho, Elizabeth Bullitt, and Guido Gerig. *Level-set evolution with region competition: Automatic 3-d segmentation of brain tumors*. In *ICPR (1)*, pages 532–, 2002.
- [281] Nathan Moon, Elizabeth Bullitt, Koen Van Leemput, and Guido Gerig. *Automatic brain and tumor segmentation*. In *MICCAI (1)*, pages 372–379, 2002.
- [282] Nathan Moon, Elizabeth Bullitt, Koen Van Leemput, and Guido Gerig. *Model-based brain and tumor segmentation*. In *ICPR (1)*, pages 528–531, 2002.
- [283] Martin A. Styner, H. C. Charles, Jin Park, and Guido Gerig. *Multisite validation of image analysis methods: assessing intra- and intersite variability*. 4684:278–286, 2002.
- [284] G. Gerig, M. Styner, D. Jones, D. Weinberger, and J. Lieberman. *Shape analysis of brain ventricles using SPHARM*. In *Workshop on Mathematical Methods in Biomedical Image Analysis*, 2001.
- [285] Guido Gerig, Matthieu Jomier, and Miranda Chakos. *Valmet: A new validation tool for assessing and improving 3d object segmentation*. In *MICCAI*, pages 516–523, 2001.
- [286] Guido Gerig, Martin Styner, Martha Elizabeth Shenton, and Jeffrey A. Lieberman. *Shape versus size: Improved understanding of the morphology of brain structures*. In *MICCAI*, pages 24–32, 2001.
- [287] P. Lorenzen, S. Joshi, G. Gerig, and E. Bullitt. *Tumor-induced structural radiometric asymmetry in brain images*. In *Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA)*, pages 163–170, 2001 2001.
- [288] Martin Styner and Guido Gerig. *Medial models incorporating object variability for 3d shape analysis*. In *IPMI*, pages 502–516, 2001.

- [289] Martin Styner and Guido Gerig. *Three-dimensional medial shape representation incorporating object variability*. In CVPR (2), pages 651–656, 2001.
- [290] Daniel Welti, Guido Gerig, Ernst-Wilhelm Radü, Ludwig Kappos, and Gábor Székely. *Spatio-temporal segmentation of active multiple sclerosis lesions in serial mri data*. In IPMI, pages 438–445, 2001.
- [291] Martin Styner and Guido Gerig. *Hybrid boundary-medial shape description for biologically variable shapes*. In Workshop on Mathematical Methods in Biomedical Image Analysis, 2000.
- [292] Martin Berger, G Gerig, U R Meier, and L Van Gool. *Deformable area-based template matching with application to low contrast imagery*. 1999.
- [293] Elizabeth Bullitt, Stephen R. Aylward, Alan Liu, Jeffrey Stone, Suresh K. Mukherji, Chris Coffey, Guido Gerig, and Stephen M. Pizer. *3d graph description of the intracerebral vasculature from segmented mra and tests of accuracy by comparison with x-ray angiograms*. In IPMI, pages 308–321, 1999.
- [294] Martin Styner, Thomas Coradi, and Guido Gerig. *Brain morphometry by distance measurement in a non-euclidean, curvilinear space*. In IPMI, pages 364–369, 1999.
- [295] Martin Berger and Guido Gerig. *Motion measurements in low-contrast x-ray imagery*. In MICCAI, pages 832–841, 1998.
- [296] Dimitrios Ekatodramis, Gábor Székely, and Guido Gerig. *Detecting and inferring brain activation from functional mri by hypothesis-testing based on the likelihood ratio*. In MICCAI, pages 578–589, 1998.
- [297] Guido Gerig, Daniel Welti, Charles R. G. Guttman, Alan C. F. Colchester, and Gábor Székely. *Exploring the discrimination power of the time domain for segmentation and characterization of lesions in serial mr data*. In MICCAI, pages 469–480, 1998.
- [298] Andras Kelemen, G. Székely, and Guido Gerig. *Three-dimensional model-based segmentation of brain MRI*. In IEEE Workshop on Biomedical Image Analysis, 1998.
- [299] Yoshinobu Sato, Shin Nakajima, Hideki Atsumi, Thomas Koller, Guido Gerig, Shigeyuki Yoshida, and Ron Kikinis. *3d multi-scale line filter for segmentation and visualization of curvilinear structures in medical images*. In CVRMed, pages 213–222, 1997.
- [300] Tuomo Vehkomäki, Guido Gerig, and Gábor Székely. *A user-guided tool for efficient segmentation of medical image data*. In CVRMed, pages 685–694, 1997.
- [301] M. Berger, U.R. Meier, T. Hanselmann, G. Gerig, G. Székely, , and U.M. Lütolf. *Patient displacement analysis using the generalized hough transform*. In 4th International Workshop on Electronic Portal Imaging, June 1996.
- [302] Christian Brechbühler, Guido Gerig, and Gábor Székely. *Compensation of spatial inhomogeneity in mri based on a parametric bias estimate*. In VBC, pages 141–146, 1996.

- [303] András Kelemen, Gábor Székely, H.-W. Reist, and Guido Gerig. *Automatic segmentation of cell nuclei from confocal laser scanning microscopy images*. In VBC, pages 193–202, 1996.
- [304] G. Gerig, G. Székely, G. Israel, and M. Berger. *Detection and characterization of unsharp blobs by curve evolution*. In Y. Bizais et al., editor, *Information Processing in Medical Imaging (IPMI'95), Series on Computational Imaging and Vision*, pages 165–176. Kluwer Academic Publishers, June 1995.
- [305] T. Koller, G. Gerig, and G. Székely. *Object-centered description for analysis and display of the cerebral vascularity*. In H.U. Lemke et al., editor, *CAR'95 Computer Assisted Radiology*, pages 183–188. Springer-Verlag, June 1995.
- [306] T. Vehkomäki, G. Gerig, and G. Székely. *Segmentation of volume data by contour fragment grouping*. In H.U. Lemke et al., editor, *CAR'95 Computer Assisted Radiology*, pages 131–136. Springer-Verlag, June 1995.
- [307] Thomas Koller, Guido Gerig, Gábor Székely, and Daniel Dettwiler. *Multiscale detection of curvilinear structures in 2d and 3d image data*. In ICCV, pages 864–869, 1995.
- [308] Gábor Székely, András Kelemen, Christian Brechbühler, and Guido Gerig. *Segmentation of 3d objects from mri volume data using constrained elastic deformations of flexible fourier surface models*. In CVRMed, pages 495–505, 1995.
- [309] Gabor Szekely, Thomas Koller, Ron Kikinis, and Guido Gerig. *Structural description and combined 3D display for superior analysis of cerebral vascularity from MRA*. In *Visualization in Biomedical Computing, volume 2359*, pages 272–281, 1994.
- [310] Ross Whitaker and Guido Gerig. *Vector-valued diffusion*. In *Geometry-driven diffusion in computer vision*, pages 93–134. Springer Netherlands, 1994.
- [311] Michael Bahner, Jürgen Dick, Bernd Kardatzki, Hanns Ruder, Matthias Schmidt, Arno Steitz, Carsten Bertram, Dietmar Hentschel, Thomas Hildebrand, Eckart Hundt, et al. *Combining two imaging modalities for neuroradiological diagnosis: 3d representation of cerebral blood vessels*. In *Data Fusion Applications*, pages 1–16. Springer Berlin Heidelberg, 1993.
- [312] Guido Gerig, Thomas Koller, Gábor Székely, Christian Brechbühler, and Olaf Kübler. *Symbolic description of 3-d structures applied to cerebral vessel tree obtained from mr angiography volume data*. In *IPMI*, pages 94–111, 1993.
- [313] Guido Gerig, Gábor Székely, and Thomas Koller. *Line-finding in 2-d and 3-d by multi-valued non-linear diffusion of feature maps*. In *DAGM-Symposium*, pages 289–296, 1993.
- [314] Guido Gerig, Gábor Székely, and Thomas Koller. *Line-finding in 2-D and 3-D by Multi-valued Non-linear Diffusion of Feature Maps*. In *DAGM Symposium Symposium for Pattern Recognition*, pages 289–296, 1993.
- [315] Gábor Székely, Guido Gerig, Thomas Koller, Christian Brechbühler, and Olaf Kübler. *Analysis of mr angiography volume data leading to the structural description of the cerebral vessel tree*. In *CAIP*, pages 687–692, 1993.

- [316] C. Brechbühler, G. Gerig, and O. Kübler. *Surface parametrization and shape description*. In Proc. Visualization in Biomedical Computing VBC'92, Chapel Hill, North-Carolina, volume 1808, pages 80–89, October 1992.
- [317] C. Brechbühler, G. Gerig, and O. Kübler. *Towards representation of 3d shape: Global surface parametrization*. In C. Arcelli et al., editor, Visual Form, Proc. of the IWVF (International Workshop on Visual Form), Capri, pages 79–88. Plenum Press, May 1991.
- [318] Guido Gerig, Christian Brechbühler, Patrick Droz, and Olaf Kübler. *3D Verdichtung zur symbolischen Beschreibung von verflochtenen, räumlichen Strukturen*. In DAGM Symposium Symposium for Pattern Recognition, pages 304–311, 1991.
- [319] Guido Gerig, John Martin, Ron Kikinis, Olaf Kübler, Martha Elizabeth Shenton, and Ferenc A. Jolesz. *Automating Segmentation of Dual-Echo MR Head Data*. 1991.
- [320] Guido Gerig, John Martin, Ron Kikinis, Olaf Kübler, Martha Elizabeth Shenton, and Ferenc A. Jolesz. *Automating segmentation of dual-echo mr head data*. In IPMI, pages 175–187, 1991.
- [321] Ron Kikinis, Ferenc A. Jolesz, Harvey E. Cline, William E. Lorensen, and Guido Gerig. *The Potential Use Of Mri Guidance For Computerized Surgical Procedures*. In Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 1991.
- [322] X. Cheng and Guido Gerig. *Representation and description of complex 3d objects from medical volume data*. In DAGM-Symposium, pages 468–475, 1990.
- [323] G Gerig and R Kikinis. *Segmentation of 3d magnetic resonance data*. Proceedings of the 5th International Conference on Image Analysis and Processing, Positano, Italy, pages 602–609, 1990.
- [324] Guido Gerig, Ron Kikinis, and Ferenc A Jolesz. *Image processing of routine spin-echo mr images to enhance vascular structures: Comparison with mr angiography*. In 3D Imaging in Medicine, pages 121–132. Springer Berlin Heidelberg, 1990.
- [325] Olaf Kübler and Guido Gerig. *Segmentation and analysis of multidimensional datasets in medicine*. In 3D imaging in medicine, pages 63–81. Springer Berlin Heidelberg, 1990.
- [326] Guido Gerig, Walter Kuoni, Ron Kikinis, and Olaf Kübler. *Medical imaging and computer vision: An integrated approach for diagnosis and planning*. In DAGM-Symposium, pages 425–432, 1989.
- [327] G Gerig. *Combining laplacian-pyramid zero-crossings: From theory to applications to image segmentation*. In Image Analysis and Processing II, pages 345–352. Springer US, 1988.
- [328] Guido Gerig. *Erkennung globaler bildstrukturen durch gruppierung und regelbasierte kombination von strukturprimitiven*. In DAGM-Symposium, pages 128–134, 1988.

- [329] Daniel Morgue and Guido Gerig. *Recognition of nonrigid objects using the generalized hough transform*. In DAGM-Symposium, pages 151–157, 1988.
- [330] G Gerig. *Linking image-space and accumulator-space: A new approach for object-recognition*. In First International Conference on Computer Vision ICCV, pages 112–117. The Computer Science Society of IEEE, 1987.
- [331] Frank Ade, Guido Gerig, Markus Ilg, and Fernand Klein. *Verstehen von landkarten*. In DAGM-Symposium, pages 6–11, 1986.
- [332] Eliane Egeli, Guido Gerig, Fernand Klein, and Olaf Kubler. *A hardware and software optimized program system for interactive image processing*. In Proc. SPIE 435, 27th Annual Technical Symposium, pages 134–138. International Society for Optics and Photonics, 1984.
- [333] G Gerig and K Seidel. *Structural description of a landsat tm scene for improved region-based classification*. Proc. of IGARSS'84 Symposium, Strasbourg, 27(30):101–105, 1984.

---

## Others

- [334] Neda Sadeghi, Guido Gerig, and John H. Gilmore. *Modeling brain growth and development*. In Brain Mapping: An Encyclopedic Reference: Volume 1: Acquisition Methods, Methods and Modeling, volume 1, pages 429–436. Feb 2015.
- [335] Shireen Elhabian, Yaniv Gur, Joseph Piven, Martin Styner, Ilana Leppert, G. Bruce Pike, and Guido Gerig. *Subject-motion correction in HARDI acquisitions: Choices and consequences*. In Proceedings ISMRM 2014. ISMRM, June 2014. abstract.
- [336] Florian Rousset, Clément Vachet, Christopher Conlin, Marta Heilbrun, Jeff L. Zhang, Vivian S. Lee, , and Guido Gerig. *Semi-automated application for kidney motion correction and filtration analysis in MR renography*. In Proceedings ISMRM 2014. ISMRM, June 2014. abstract.
- [337] Neda Sadeghi, John H Gilmore, Weili Lin, , and Guido Gerig. *Normative modeling of early brain maturation from longitudinal DTI reveals twin-singleton differences*. In Proceedings ISMRM 2014. ISMRM, June 2014. abstract.
- [338] Clément Vachet, Heather C. Hazlett, Joseph Piven, and Guido Gerig. *4D modeling of infant brain growth in Down's syndrome and controls from longitudinal MRI*. In Proceedings ISMRM 2014. ISMRM, June 2014. abstract.
- [339] Neda Sadeghi, Clément Vachet, Marcel Prastawa, Julie Korenberg, and Guido Gerig. *Analysis of diffusion tensor imaging for subjects with down syndrome*. In Proc. OHBM. Organization of Human Brain Mapping OHBM, June 2013.
- [340] Avantika Vardhan, Joseph Piven, Marcel Prastawa, and Guido Gerig. *A longitudinal structural MRI study of change in regional contrast in Autism Spectrum Disorder*. In Proc. OHBM. Organization of Human Brain Mapping OHBM, June 2013.

- [341] Tomas Paus, Guido Gerig, Sarah Durston, and Jay N. Giedd. *Imaging the growing brain*. <http://www.child-encyclopedia.com/en-ca/child-brain/according-to-experts.html>, 2011.
- [342] N. Sadeghi, M.W. Prastawa, P.T. Fletcher, J.H. Gilmore, W. Lin, and G. Gerig. *Statistical growth modeling of longitudinal DT-MRI for regional characterization of early brain development*. In *Proceedings of the Medical Image Computing and Computer Assisted Intervention (MICCAI) 2011 Workshop on Image Analysis of Human Brain Development*, pages 1507–1510, 2011.
- [343] D. Rueckert, D. Hawkes, G. Gerig, and G. Z. Yang. *Editorial*. *Med Image Anal*, 14(5):631–632, Oct 2010.
- [344] Sylvain Gouttard, Anuja Sharma, and Guido Gerig. *Fiber challenge-sci utah solution*. MICCAI workshop on Diffusion Modelling and the Fiber Cup (DMF2009), London, United Kingdom, 2009.
- [345] T Mansi, JM Peyrat, M Sermesant, H Delingette, J Blanc, Y Boudjemline, N Ayache, F Billet, V Gorbunova, S Durrleman, G Gerig, et al. *Handbook of research on computational grid technologies for life sciences, biomedicine, and healthcare*. 2009.
- [346] J.H. Gilmore, L. Smith, C. Kang, R. Hamer, H. Wolfe, B. Hertzberg, J.K. Smith, N. Chescheir, W. Lin, and G. Gerig. *Neonatal brain structure in children with prenatal isolated mild ventriculomegaly*. In *Proceedings American Conference of Neuropharmacology (ACNP) 2007*, 2007. abstract.
- [347] R.C. Knickmeyer, Y.S.K. Vetsa, S. Gouttard, W. Lin, D. Evans, K. Wilber, K.J. Smith, C. Kang, R.M. Hamer, G. Gerig, and J.H. Gilmore. *A structural mri study of human brain development from birth to age 2*. Poster presentation, 2007.
- [348] Martin Styner, Ipek Oguz, Shun Xu, Christian Brechb, Dimitrios Pantazis, James J Levitt, Martha E Shenton, and Guido Gerig. *Framework for the Statistical Shape Analysis of Brain Structures using SPHARM-PDM Release 1.00*. October 2006.
- [349] Ipek Oguz, Guido Gerig, Sebastien Barre, and Martin Styner. *KWMeshVisu: A Mesh Visualization Tool for Shape Analysis Release 1.00*. July 2006.
- [350] Stephen R. Aylward, Luis Ibanez, Michael Bell, Parag Chandra, Ashes Ganguly, Sungwook Park, Graham Gash, and Guido Gerig. *Insight: The National Library of Medicine’s Visible Human Toolkit*. 2006.
- [351] M. Styner, I. Oguz, S. Xu, C. Brechbuhler, D. Pantazis, J. J. Levitt, M. E. Shenton, and G. Gerig. *Framework for the Statistical Shape Analysis of Brain Structures using SPHARM-PDM*. *Insight J*, (1071):242–250, 2006.
- [352] James S. Duncan and Guido Gerig, editors. *Medical Image Computing and Computer-Assisted Intervention - MICCAI 2005*, 8th International Conference, Palm Springs, CA, USA, October 26-29, 2005, Proceedings, Part I, volume 3749 of *Lecture Notes in Computer Science*. Springer, 2005.
- [353] G Gerig, I Corouge, C Vachet, KR Krishnan, and JR MacFall. *Quantitative analysis of diffusion properties of white matter fiber tracts: a validation study*. 13th Proceedings of the International Society for Magnetic Resonance in Medicine ISMRM, 2005.

- [354] Casey Goodlett, Isabelle Corouge, Matthieu Jomier, Guido Gerig, et al. *A quantitative dti fiber tract analysis suite*. The Insight Journal, 2005.
- [355] Sean Ho, Heather Cody, and Guido Gerig. *SNAP: A Software Package for User-Guided Geodesic Snake Segmentation*. 2003.
- [356] Yoshinobu Sato and Guido Gerig. *MICCAI: medical image computing and computer-assisted intervention 1*. Academic Radiology, 10:1339–1340, 2003.
- [357] Martin Styner, Ipek Oguz, Shun Xu, Christian Brechbuhler, James J Levitt, Martha E Shenton, and Guido Gerig. *Framework for the Statistical Shape Analysis of Brain Structures using SPHARM-PDM*. 2003.
- [358] F. Jolesz, R. Kikinis, H. Cline, and G. Lorensen, W. an Gerig. *3-d view of the brain from mri: Computerized image processing*. In *Hospimedica*, volume VII, pages 20–26. October 1990.

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ABSTRACTS (ONLY BACK TO 2001)

*Fishbaugh, James; Hong, Sungmin; Ishikawa, Hiroshi; Ravier, Mathilde ; Wollstein, Gadi; Schuman, Joel S. and Gerig, Guido, "Stability Analysis of Lamina Cribrosa Structure in Repeated Optical Coherence Tomography Scans", accepted ARVO 2018 (The Association for Research in Vision and Ophthalmology), to appear April 2018.*

*Hong, Sungmin; Ravier, Mathilde; Ishikawa, Hiroshi; Girot, Charly; Tauber, Jenna; Wollstein, Gadi; Schuman, Joel S.; Fishbaugh, James; Gerig, Guido, "Groupwise 3D Nonlinear Registration of OCT Image Series for Analyzing Dynamic Lamina Cribrosa Change", accepted ARVO 2018 (The Association for Research in Vision and Ophthalmology), to appear April 2018.*

*Ach, Thomas; Hong, Sungmin; Heintzmann, Rainer,; Hillenkamp, Jost ; Sloan, Kenneth R.; Dey, Neel S.; Gerig, Guido; Smith, Theodore; Curcio, Christine; Bermond, Katharina, "High-resolution and multispectral imaging of autofluorescent retinal pigment epithelium (RPE) granules", presented ARVO 2017 (The Association for Research in Vision and Ophthalmology).*

*Dey, Neel; Hong, Sungmin; Tong, Yuehong; Mohammed, Taariq; Heintzmann, Rainer; Hammer, Martin, 6; Gerig, Guido; Curcio, Christine; Ach, Thomas; Ablonczy, Zsolt; Smith, Theodore, "Consistent Automatic Spectral Signature Recovery of Human retinal pigment epithelium (RPE) Lipofuscin Components and Drusen in Donors with Age-related Macular Degeneration (AMD) using Multi-Excitation Hyperspectral Autofluorescence (AF) Imaging.", presented ARVO 2017 (The Association for Research in Vision and Ophthalmology).*

*Taariq Mohammed, Yuehong Tong, Julia Agee, Neel Dey, Sungmin Hong, Rainer Heintzmann, Martin Hammer, Guido Gerig, Christine Curcio, Thomas Ach, Zsolt Ablonczy, R. Theodore Smith, "Improved spectral recovery and tissue localization of Drusen and Retinal Pigment Epithelial autofluorescence (AF) signatures in Donor Eyes using Multi Excitation Hyperspectral AF Imaging", presented ARVO 2017 (The Association for Research in Vision and Ophthalmology).*

*Elison J.T., Wolff J.J., Heimer D.C., Paterson S.J., Gu H., Hazlett H.C., Styner M., Gerig G., Piven J. "Frontolimbic neural circuitry at 6 months predicts individual differences in joint attention at 9 months." Presented at Society for Research in Child Development (SRCD), Seattle, WA, April 2013.*

*Paterson S., Estes A., Winder B.M., Gilman C., Gu H., Zwaigenbaum L., and IBIS Network. "Patterns of temperament development in infants who develop ASD." Abstract, IM-FAR, May 2013, San Sebastian Spain.*

*Heather Cody Hazlett, Hongbin Gu, Martin Styner, Louis Collins, Guido Gerig, Sarah Pa-*



terson, Kelly Botteron, Steve Dager, Robert T. Schultz, Alan Evans, and Joseph Piven, MD1 for the IBIS Network\*, *Preliminary Findings from a Longitudinal Examination of Brain Volume from 6 to 24 Months in Infants at High Familial Risk for Autism*, Abstract, IMFAR, May 2013, San Sebastian Spain.

Hazlett HC, Gerig G, Gu H, Paterson S, Styner M, Botteron K and Piven J, for the IBIS Network\*. "Brain morphology in 6 month old infants at high risk for autism." Presented at the Society for Research in Child Development (SRCD). March 2011.

Hazlett HC, Gerig G, Gu H, Paterson S, Styner M, Botteron K and Piven J, for the IBIS Network\*. "Comparisons of brain size between high risk infants and controls at 6 and 12 months of age." Presented at the International Meeting for Autism Research (IMFAR). May 2011.

Guido Gerig, Emmanuel Bitaud, Sylvain Gouttard, Karen Grewen, *Prenatal cocaine effects on neonatal white matter development*, Society for Neuroscience 2010

Sylvain Gouttard, Guido Gerig, Emmanuel Bitaud, John Gilmore, Karen Grewen, *Prenatal cocaine effects on infant brain development*, Society for Neuroscience 2010

Knickmeyer, Gilmore, Hamer, Gerig et al., *Effects of early testosterone exposure on neonatal brain structure as assessed by MRI*, ICNE 2010,

Gilmore, John H.; Smith, Lauren; Kang, Chaeryon; Hamer, Robert; Wolfe, Honor; Hertzberg, Barbara; Smith, J. Keith; Chescheir, Nancy; Lin, Weili; Gerig, Guido. *Neonatal brain structure in children with prenatal isolated mild ventriculomegaly* Proceedings ACNP 2007 American Conference of Neuropharmacology), Dec. 2007, Boca Raton, FL

R.C. Knickmeyer, Y.S.K. Vetsa, S. Gouttard, W. Lin, D. Evans, K. Wilber, K.J. Smith, C. Kang, R. M. Hamer, G. Gerig, J.H. Gilmore, *A Structural MRI Study of Human Brain Development from Birth to Age 2*, Proceedings ACNP 2007 (American Conference of Neuropharmacology), Dec. 2007, Boca Raton, FL

Rebecca C. Knickmeyer, Y. Sampath K. Vetsa, Weili Lin, Dianne Evans, Kathy Wilber, Keith J. Smith, Guido Gerig, John H. Gilmore *A Structural MRI Study of Human Brain Development from Birth to Age 2*, accepted abstract /oral presentation SOBP 2007 (Society of Biological Psychiatry)

John H. Gilmore, Isabelle Corouge, Weili Lin, Guido Gerig *Early Development of White Matter Tracts in the Normal Neonate Assessed with High resolution DTI and Quantitative Tractography*, accepted abstract ICOS 2007

A. Belger, G. Gerig, J. Blocher, H. Gu, D. O. Perkins, J. H. Gilmore *Altered Brain Growth And Structure In Children And Adolescents At Genetic Risk For Schizophrenia*, accepted oral presentation/abstract ICOS 2007 (Int. Conf. of Schizophrenia Research)

Gilmore John, Vesta Yethiraja, Lin Weili, Gerig Guido, *Neonatal DTI*, 61th Annual Con-

vention: *Society of Biological Psychiatry*, May 2006

Gilmore John, Looney Christopher, Vesta Yethiraja, Smith J. Keith, Lin Weili, Lieberman Jeffery, Gerig Guido, *Early Postnatal Brain Structure and Development in Humans: Sexual Dimorphism and Cerebral Asymmetry are Present at Birth*, American Congress of Pharmacology ACNP, Dec. 2005, selected for HOT TOPICS presentation

Gerig Guido, Gilmore John H, Jomier Matthieu, Joshi Sarang, Piven Joseph, *Computational anatomy to assess growth pattern of early brain development in healthy and disease populations*, American Congress of Pharmacology ACNP, Dec. 2005

Hazlett, H.C., Poe, M., Smith, R.G., Gerig, G., and Piven, J., *Update on a longitudinal MRI study of young children with autism*, Int. Meeting for Autism Research IMFAR, 2005

Guido Gerig , Isabelle Corouge, Clément Vachet, Ranga Krishnan and James MacFall, *Quantitative Analysis of Diffusion Properties of White Matter Fiber Tracts: A Validation Study*, International Society of Magnetic Resonance ISMRM, May 2005 (peer reviewed long abstract)

Guido Gerig, Weili Lin, Sampath Vetsa, John Gilmore, *Assessing White Matter Growth Trajectory of Early Neonatal Development by 3T MR-DTI*, International Society of Magnetic Resonance ISMRM, May 2005 (peer reviewed long abstract)

G. Gerig and John H. Gilmore, *Early Brain Development Assessed by new Quantitative Analysis of structural MRI and DTI*, Society of Biological Psychiatry SOBP, Invited Symposium, May 2005

G. Gerig, S Joshi, H Gu, D Perkins, RG Steen, R Hamer, JA Lieberman, *Automatic pipeline for quantitative brain tissue segmentation and parcellation: Experience with a large longitudinal schizophrenia MRI study*, Int. Cong. of Schizophrenia ICOS, March 2005

M. El-Sayed, L. Sikich, C. Charles, G. Gerig, M. Styner, S. Joshi, J. Lieberman, *Morphometric MRI study in childhood and adolescent psychoses*, 51st Annual Meeting of the AACAP (American Academy of Child & Adult Psychiatry), Washington, 2004.

G. Gerig and John Gilmore, *Neonatal Brain Development Assessed by new Quantitative Analysis of High-field 3Tesla MRI and DTI*, American College of Neuropharmacology ACNP, Invited Symposium, Dec. 2004

ME Shenton, G Gerig, JS Kwon, C Deutsch, M Kubicki, RW McCarley "Midline-Bacum Septi Pellucidi Abnormalities, Hippocampal Shape Abnormalities, and Diffusion Tensor Corpus Callosum Asymmetry Abnormalities in Schizophrenia", Collegium Internationale Neuro-Psychopharmacologicum XXIVth CINP, June 23 2004

Guido Gerig, Pierre Fillard, Marcellinus Prastawa, Weili Lin, John H. Gilmore, "Neonatal Brain Development Assessed by new Quantitative Analysis of High-field 3Tesla MRI and DTI", Society of Biological Psychiatry SOBP, April 29 - May 1, 2004

Mohamed Elsayed, Linmarie Sikich, Cecil Charles, Sarang Joshi, Guido Gerig, Jeffrey A. Lieberman, "Volumetric MRI Study in Childhood and Adolescent Psychosis", Society of Biological Psychiatry SOBP, April 29 - May 1, 2004

Guido Gerig, Pierre Fillard, Marcel Prastawa, Weili Lin and John Gilmore, "New quantitative analysis of high-field 3T MRI/DTI to assess neonatal brain development", ACNP 2003, December 2003, Abstract

M Styner, G. Gerig, E Kistner, K Muller, JA Lieberman, "Age and treatment related local hippocampal changes in schizophrenia explained by a novel shape analysis method", Schizophrenia Research, Vol. 60, No. 1, Elsevier, March 15, 2003, p. 208, Abstract

G Gerig, M Styner, DW Jones, DR Weinberger, JA Lieberman, "Ventricular shape of monozygotic twins discordant for schizophrenia reflects vulnerability", Schizophrenia Research, Vol. 60, No. 1, Elsevier, March 15, 2003, p. 194, Abstract

JH Gilmore, G Zhai, W Lin, K Wilber, G Gerig, "White Matter Development in Newborns Assessed with Diffusion Tensor Imaging", Schizophrenia Research, Vol. 60, No. 1, Elsevier, March 15, 2003, p. 195, Abstract

G Gerig, M Styner, M Chakos, JA Lieberman, Hippocampal Shape Alterations in Schizophrenia: Results of a new Methodology, 11th Biennial Winter Workshop on Schizophrenia, Feb. 26, 2002, Abstract.

M Styner, G Gerig, DW Jones, DR Weinberger, JA Lieberman, Lateralized Differences in ventricular Shape in monozygotic Twins discordant for Schizophrenia, 11th Biennial Winter Workshop on Schizophrenia, Feb. 26, 2002, Abstract.

M. Styner, D.W. Jones, D Weinberger, JA Lieberman, G Gerig, "Shape analysis of ventricular structures in mono- and dizygotic twin study", Schizophrenia Research, Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p. 167, Abstract

J Park, G Gerig, M Chakos, \*D Vandermeulen, JA Lieberman, "Neuroimaging of Psychiatry Disease: Reliable and efficient automatic brain tissue segmentation for increased sensitivity", Schizophrenia Res., Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p.163, Abstract

S. Schobel, Miranda Chakos, Guido Gerig, Henry Bridges, Hongbin Gu, Cecil Charles, Jeffrey Lieberman, "Duration and Severity of Illness and Hippocampal Volume in Schizophrenia as Assessed by 3-D Manual Segmentation", Schizophrenia Research, Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p. 165, Abstract

H Bridges, M Chakos, G Gerig, S Schobel, C Charles, H Gu, J Lieberman, "Association of Duration and Severity of Illness and Superior Temporal Gyrus Volume as Assessed by 3-D Manual Segmentation Measurements in Male Schizophrenic Patients", Schizophrenia Research, Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p. 151, Abstract

*G Gerig, M Jomier, M Chakos, JA Lieberman, "Segmentation of hippocampal shape: Improved reliability by 2D and 3D visualization of segmented objects and of intra-/inter-rater variability", Schizophrenia Research, Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p. 154, Abstract*

*M Chakos, S Schobel, G Gerig, Cecil Charles, HB Gu, D Bradford, J Lieberman, "Clinical correlates of Structural Brain Abnormalities in Male Schizophrenic Patients", Schizophrenia Research, Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p. 152, Abstract*

*J.H. Gilmore, G. Gerig, B. Specter, C. Charles, J.S. Wilbur, B.S. Hertzberg, M.A. Kliver, "Neonatal Cerebral Ventricle volume: A comparison of 3D ultrasound and MRI", Schizophrenia Research, Vol. 49, Nos. 1-2, Elsevier, April 28, 2001, p. 152, Abstract*

*Abstracts before 2001 not listed*

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## INVITED TALKS

*April 23, 2019, Boston Harvard Medical School, **invited seminar**, “Studies of Neurodevelopment and Neurodegeneration from Longitudinal Imaging: Challenges and Opportunities”*

*Dec. 21, 2018, Hyderabad, India, ICVGIP, **invited plenary talk**, “Longitudinal Image Analysis to Study Trajectories of Growth and Disease: Challenges and Opportunities”*

*Dec. 22, 2018, Hyderabad, India, Hyderabad AI Symposium, **keynote lecture**, “Machine Learning for Health”*

*May 28, 2018, INRIA Sophia Antipolis, Nice, France, “Medical Imaging at NYU”*

*Nov. 6, 2017, Suzhou University, Shanghai, 4th Int. Workshop on Medical Imaging MIPAV, **invited lecture**, “Studying Growth and Disease Trajectories from Longitudinal Imaging: Challenges and Opportunities”*

*Nov. 1, 2017, NYU Shanghai Seminar Series on Data Science and AI, Shanghai, **invited lecture**, “Medical Image Analysis: Extracting Information from Image Data”*

*Oct. 10, 2017, NIH HD Biomarkers Workshop, Washington D.C., “Longitudinal shape trajectories to assess changes of subcortical structures in Huntington’s Disease”*

*June 26, 2017, NYU Center for Data Science, **invited lecture**, “Medical Image Analysis: Extracting Information from Image Data”*

*March 3, 2017, TU Munich, Germany, **invited lecture**, “Longitudinal Imaging: Challenges and Opportunities to study Growth and Disease Trajectories”*

*Dec. 19, 2016, IIT Guwahati, Assam, India, ICVGIP 2016 conference, **invited lecture**, “Role of Normative Atlases for Subject-specific Analysis of Pathology and Age-related Changes”*

*Dec. 7, 2016, NYU Event Connecting the Dots: Engineering meets Biomedical Research, “Collaborative Research at the Tandon VIDA Center”*

*Dec. 1, 2016, RSNA 2016 Course Lecture with hand-on instructions, Chicago, “Learn Image Segmentation Basics with Hands-on Introduction to ITK-SNAP”*

*Oct. 21, 2016, Workshop on Spectral and Shape Analysis in Medical Imaging (SESAMI), MICCAI Satellite Workshop, **invited lecture**, “Longitudinal Analysis of Shape and Appearance to Study Group and Subject-Specific Growth and Disease Processes”*

*Oct. 07, 2016, Annual ASCENT Symposium, NYU Tandon **invited lecture**, “Role, Rights and Opportunities of a Postdoc”*

*July 17 26, 2016, National University Singapore, Neuroimaging Workshop **invited lecture**, “Longitudinal Neuroimaging: Analysis of Shape and Appearance to Study Group and Subject-Specific Growth and Disease Processes”*

*June 14, 2016, MEVIS, Bremen, Germany **invited lecture**, “Modeling 4D Pathological Changes by Leveraging Normative Models”*

April 14, 2016, IEEE ISBI Conference **poster presentation**, “COMPRESSIVE SENSING BASED Q-SPACE RESAMPLING FOR HANDLING FAST BULK MOTION IN HARDI ACQUISITIONS ”

Jan. 4, 2016, Institut du Cerveau et de la Moelle épinière – ICM, Paris, France, **invited plenary lecture**, “Longitudinal Neuroimaging: Adding time dimension to assess brain changes”

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Dec. 9, 2015, NYU Tandon School of Engineering, Faculty meets Faculty Luncheon, “Medical Image Computing: Opportunities for Collaborative Research”

Dec. 11, 2015, NYU Center for Brain Health - Department of Psychiatry, “Medical Image Computing: Opportunities for Collaborative Research”

Dec. 1, 2015, Radiological Society of North America (RSNA) Hands-on course, “Learn Image Segmentation Basics with Hands-on Introduction to ITK-SNAP”

Nov. 19, 2015, ACE-IBIS annual meeting, New York, “Prisma Switch: Scanner Comparison”

Oct. 26, 2015, NYU Tisch School of Arts, Dept. of Photography and Imaging, “Open-source and open-platform software developments in imaging research”

Sept. 21, 2015, Nathan Kline Institute, The Center for Biomedical Imaging and Neuro-modulation, “Cross-Sectional versus Longitudinal Imaging: Improved Insight into Group- and Subject-Specific Growth and Disease Processes”

April. 16, 2015, IEEE ISBI Conference, Brooklyn, “4D Processing and Analysis of Longitudinal Infant Imaging Reveals Spatiotemporal Pattern of Early Brain Growth”

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Dec. 15, 2014, ICVGIP Conference, IISC Bangalore, India, **invited plenary lecture**,

Dec. 15, 2014, MedImage Conference, IISC Bangalore, India, **invited plenary lecture**, “Longitudinal medical image analysis: From snapshots in time to spatiotemporal models”

Nov. 19, 2014, ACE-IBIS annual meeting, Denver, “Patterns of early Brain Growth via longitudinal MRI Contrast Modeling“,

Nov. 19, 2014, ACE-IBIS annual meeting, Denver, “Individual Predictive Modelling of Early Brain Maturation“,

Oct. 19, 2014, MIDAG 40th anniversary research presentations, UNC Chapel Hill, NC, **invited presentation**, “Shapes come to life - spatiotemporal image analysis”,

Sept. 18, 2014, MICCAI 2014 Workshop on Computational Diffusion MRI (CDMRI), Boston, **Paper presentation**, “Motion is Inevitable: The Impact of Motion Correction Schemes on HARDI Reconstructions”,

July 30, 2014, Medical Imaging Summer School (MISS), Favignana, Italy, **invited plenary lecture II**, “Quantification of Object Dynamics by Spatiotemporal Shape Analysis”

July 30, 2014, Medical Imaging Summer School (MISS), Favignana, Italy, **invited plenary lecture I**, “Shaping up: Introduction into Shape Analysis”

July 1st, 2014, 32nd Annual Neurotrauma Symposium, San Francisco, Special Session on Advances in Multimodal Imaging of TBI, **invited plenary lecture**, “Computational Con-

*siderations in TBI Neuroimaging Data Analysis”*

*June 24, 2014, International Symposium “From Medical Images to Computational Medicine”, Collège de France, Paris, France, **invited keynote lecture**, “Spatiotemporal Analysis of Brain Development and Disease Progression”*

*June 12, 2014, SHAPE 2014 Symposium on Statistical Shape Models & Applications, Delemont, Switzerland, **invited keynote lecture**, “Spatio-Temporal Shape Modeling and Analysis”*

*May 13, 2014, ISMRM’14 Conference, Milan, Italy, Poster Presentation: “Subject-Motion Correction in HARDI Acquisitions: Choices and Consequences”*

*May 1, 2014, IEEE ISBI Conference, Beijing, Oral Podium Presentation: “A Preliminary Study on the Effect of Motion Correction on HARDI Reconstruction”*

*April 30, 2014, IEEE ISBI Conference, Beijing, Oral Podium Presentation: “Parametric Regression Scheme for Distributions: Analysis of DTI Fiber Tract Diffusion Changes in Early Brain Development”*

*April 30, 2014, IEEE ISBI Conference, Beijing, Poster Presentation: “Geodesic Regression of Image and Shape Data for Improved Modeling of 4D Trajectories”*

*April 14, 2014, Montreal Neurological Institute MNI, The Feindel Brain Imaging Lecture Series at the BIC, **invited keynote lecture**, “Modeling of early-infant brain growth using longitudinal data from diffusion tensor imaging”*

*April 2, 2014, Montreal Neurological Institute MNI, Neurology Seminar, “Individual Predictive Modelling”*

*April 4, 2014, McGill, Center for Intelligent Machines CIM, “Modeling brain injury and trajectory of brain changes from longitudinal multimodal imaging”*

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*Nov. 27, 2013, Montreal Neurological Institute MNI, Neurology Seminar “4D Segmentation”*

*Nov. 20, 2013, Montreal Neurological Institute MNI, Neurology Seminar, “4D shape segmentation and analysis”*

*Nov. 18, 2013, U-Penn, Philadelphia, Dept. of Radiology, **invited seminar lecture**: “Subject-Specific Analysis of Neurodevelopmental and Neurodegeneration Trajectories by Spatiotemporal Modeling of Longitudinal Brain Imaging”*

*Nov. 15, 2013, McGill, Montreal, **invited keynote lecture**, CREATE Program in Medical Image Analysis (CREATE-MIA), “4D Dynamics and Statistics by Spatio-Temporal 3D Image and Shape Analysis”*

*Nov. 10, 2013, Montreal Neurological Institute MNI, **invited keynote Killam Neurology Lecture**, “Modeling Brain Injury and Trajectory of Brain Changes from Longitudinal Multimodal Imaging”*

*Oct. 23, 2013, Montreal Neurological Institute MNI, Neurology Seminar “Modeling brain injury and trajectory of brain changes from longitudinal multimodal imaging”*

*Oct. 17, 2013, Chicago, Autism Centers of Excellence (ACE-IBIS) annual meeting, “Modeling of early brain development from longitudinal diffusion MRI for assessment of growth*

trajectories”

Oct. 17, 2013, Chicago, Autism Centers of Excellence (ACE-IBIS) annual meeting, “Modeling multi-modal contrast changes from longitudinal infant MRI”

Sept. 21, 2013, Nagoya, Japan, MMBC (Mathematical Methods for Brain Connectivity) Workshop at MICCAI 2014, **invited keynote lecture**, “Modeling of Early Brain Development from Longitudinal Diffusion MRI for Assessment of Growth Trajectories”

Sept. 21, 2013, Nagoya, Japan, MBIA (Multimodal Brain Image Analysis) Workshop at MICCAI 2014, paper presentation “Modeling 4D changes in pathological anatomy using domain adaptation: analysis of TBI imaging using a tumor database”

June 26, 2013, CARS Heidelberg workshop - DTI in TBI, **invited plenary lecture**, “Modeling brain injury and trajectory of brain changes from longitudinal multimodal imaging”

June 11, 2013, University of Lugano, Switzerland, **invited seminar presentation**, “4D Shape Modeling for Spatiotemporal Analysis”

May 12, 2013, University of Tokyo, International Workshop on Medical Imaging and Computer-assisted Intervention MICI, **Invited plenary lecture**: “What’s Normal? Accounting for Population Variability in Building Normative Databases of Image Data”

April 20, 2013, Salt Lake City, International Society for Magnetic Resonance in Medicine ISMRM’13 Conference, **invited plenary presentation**: “What’s Normal? Accounting for Population Variability”

Mar 22, 2013, Imperial College London, **invited presentation**: “Spatiotemporal Modeling and Analysis for Image Time Series”

Mar 18-21, 2013, The Rank Prize Funds Symposium on Medical Imaging Meets Computer Vision, **invited plenary presentation**, “Spatiotemporal Modeling and Analysis for Image Time Series”, Grasmere, U.K.

Feb. 27, 2013, NIH NINDS Huntington’s Disease Biomarker and Diagnostic Criteria Workshop, **invited plenary presentation**: “4D Shape Analysis for Modeling Spatiotemporal Change Trajectories in Huntington’s Disease”, Washington DC

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Oct. 12, 2012, **invited presentation**, NYU-Poly, NYC, “Time Matters: Spatiotemporal Modeling and Analysis for Image Time Series”

Aug. 8, 2012, **invited plenary presentation**, Iowa City, annual medical image analysis meeting and workshop, “Time Matters: Spatiotemporal Modeling and Analysis of Longitudinal Imaging Data”

May 22, 2012, Presentation to Traumatic Brain Imaging Clinic UCLA, LA, “Methodologies and Tools for Analysis of TBI Imaging”

Feb. 5, 2012, **invited plenary lecture** (SC1065) at SPIE Medical Imaging conference, San Diego, “Exploring Brain Connectivity in-vivo: from Theory to Practice”

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Dec 12, 2011, **invited Distinguished/Keynote talk**, University of Pennsylvania, “Spatio-Temporal Trajectories of Brain Change from Longitudinal Neuroimaging Studies”

May 20, 2011, Indian Institute of Science IISc, Bangalore, **invited talk**, “Time matters:



*Spatiotemporal Image Analysis for 4D Computational Anatomy*"

May 19, 2011, Siemens Corporate Research and Technologies India, Bangalore, , **invited talk**, "Time matters: Spatiotemporal Image Analysis for 4D Computational Anatomy"

May 18, 2011, Philips Research India, Bangalore, **invited talk**, "Longitudinal imaging studies of early brain development: Towards defining neurostructural phenotypes in disorders and children at risk for mental illness"

May 16, 2011, General Electric GE Medical Systems, Bangalore, **invited talk**, "Spatiotemporal Image Analysis: Towards 4D Computational Anatomy"

May 6th, 2011, Cognitive Neuroscience Laboratory, Duke-NUS Graduate Medical School, National University of Singapore, **invited talk**, "Spatio-Temporal Trajectories of Brain Change from Longitudinal Neuroimaging Studies"

May 4th, 2011, National University of Singapore (NUS), Division of Bioengineering, , Singapore, **invited talk**, "Analysis of early brain growth trajectory from longitudinal neuroimage data"

May 3rd, 2011, Biomedical Imaging Lab, Agency for Science, Technology&Research (A\*STAR). Singapore, **invited talk**, "Time matters: Spatiotemporal Image Analysis for 4D Computational Anatomy"

March 12, 2011, Tokushima University, **invited talk**, "Spatiotemporal Change Trajectories: Towards 4D Computational Anatomy"

March 10, 2011, Osaka University, **invited talk**, "4D Computational Anatomy via Spatiotemporal Analysis of Brain MRI and Physical Modeling of Pathology: Applications in Early Brain Development, Healthy Aging, and Tumor and Lesion Growth"

March 7th, 2011, **invited keynote talk** at 2nd International Symposium on Computational Anatomy, title "Spatiotemporal Change Trajectories: Towards 4D Computational Anatomy"

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Nov 9, 2010, paper presentation, Asilomars, IEEE conference, Monterey, CA, USA, "Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data"

Oct. 10, 2010, **Invited Plenary Talk**, Analysis of early brain growth trajectory from longitudinal neuroimage data, NEUROSPIN, Paris, France (invitation J-F Mangin)

Sept. 25, 2010, Introduction STIA'10, Spatio-temporal Image Analysis, Workshop Organizer MICCAI 2010, Beijing, China

Sept. 20, 2010, "Atlas-Based Classification ABC", Workshop MICCAI'10 "The NAMIC Platform", Beijing, China

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Nov 20, 2009, **Invited presentation**, "Growth trajectory of the early developing brain derived from longitudinal MRI/DTI data", MIND Institute, Albuquerque, NM (invited by Vince Calhoun).

Oct 16, 2009, **Invited Lecture**. NA-MIC Satellite Workshop presentation "Diffusion tensor processing and visualization", Society for Neuroscience SfN, Neuroscience 2009 Meeting, Chicago.

Sept 28, 2009, Presentation "DTI Fiber Cup Challenge" Workshop, titled: "Fiber Challenge, SCI Utah Solution,

Sept 24, 2009, **Invited speaker** for MICCAI'09 Tutorial "Image Analysis for the Developing Brain", titled "Growth trajectory of the early developing brain derived from longitudinal MRI/DTI", London, Imperial College.

June 30th, 2009, **Invited presentation**, "Advanced methodology for quantitative analysis of white matter tracts from MR Diffusion Weighted Imaging", EPFL Lausanne, Switzerland, Advanced Clinical Imaging Technology CIBM

April 21, 2009, **Invited Plenary Course Lecture**, ISMRM 2009 conference: Sunrise Session "Quantitative Neuro-anatomical and functional image assessment", titled: Recent progress on image registration and its applications. Outstanding Teacher Award ISMRM 2009.

March 11, 2009, **Invited presentation**, "Image Analysis In Neuroimaging: Recent Progress", Penn State University-Milton S. Hershey Medical Center, PA

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Dec. 15, 2008, **Invited presentation**: New trends in medical image processing, theme session at Indian Conference on Computer Vision, Graphics and Image Processing ICVGIP, Orissa, India

Dec. 10, 2008, **Invited panel presentation**: White Matter Development in Very Early Ages: Normative Models of Healthy Growth to study Risk Populations and Disease, ACNP 2008, Scottsdale, AZ

Nov. 7, 2008, Mapping Early Brain Development via Neuroimaging, **invited presentation**, UCLA LONI CCB Seminar, Los Angeles, CA

September 10, 2008, Mapping Brain Changes Over Time during Development: Challenges, Limits and Potential, **invited talk** for Workshop on Studying the Early Developing Brain, MICCAI 2008, NYU, New York

Sept. 6, 2008, Computational pipelines for clinical studies, **invited talk** for Tutorial on DTI, MICCAI 2008, NYU, New York

August 28. 2008, Analysis of brain white matter properties via DW MRI: The role of normative atlases, **invited presentation** at 5th Annual World Congress of IBMISPS (Int. Brain Mapping and Intraoperative Surgical Planning Society), Los Angeles, CA

July 14, 2008, Mapping Brain Changes Over Time during Development, Guido Gerig, IPAM (Institute for Pure and Applied Mathematics), UCLA, **invited plenary talk** to Summer School: Mathematics in Brain Imaging

April 17th, 2008, Advanced methodology for quantitative analysis of white matter tracts from MR Diffusion Weighted Imaging, Guido Gerig, **invited presentation**, UNC BRIC GE Seminar Series, Chapel Hill, NC

Feb. 6, 2008: Neuroimaging of the early developing brain: Challenges, limits and potential, **Invited Presentation** at special Seminar on DTI imaging by Nicholas Ayache (with Peter Basser, C-F Westin et al.), INRIA Sophia Antipolis, France

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Dec. 12, 2007, Neuroimaging of the very early age to discover brain changes: Challenges,

limits and potential, **invited presentation** at chaired session, ACNP Conference, Florida

Nov. 15, 2007: Computational NeuroImage Analysis Laboratory, Hanyang University, Seoul, Korea: **Invited Presentation**: Medical Image Analysis: Statistical Shape Analysis

Nov. 14, 2007: Computational NeuroImage Analysis Laboratory, Hanyang University, Seoul, Korea: **Invited Presentation**: Medical Image Analysis: Diffusion Weighted Imaging

Sept. 19, 2007: Coordinate systems for computing DTI statistics in population studies, **Invited Tutorial presentation** MICCAI 2007, Brisbane, Australia

June 6, 2007: MR-DTI: Non-invasive imaging of neuroanatomy of white matter, workshop presentation, Human Brain Mapping HBM conference, Chicago, IL

April 15, 2007, Medical Image Analysis: Advancing Medicine via Computational Science, **invited presentation** CPE Lyon, France

March 17, 2007, MR Imaging of Early Brain Development: Challenges and Insights, INRIA Sophia Antipolis, **invited seminar presentation**

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November 9, 2006, **Invited Keynote Grand Rounds**, Dept. of Radiology U-Penn, "MR Imaging of Early Brain Development: Challenges and Insights"

August 17, 2006, **invited plenary talk** at Int. Workshop on Medical Imaging and Augmented Reality MIAR 2006, Shanghai, "Statistics of Pose and Shape in Multi-object Complexes using Principal Geodesic Analysis"

August 11, 2006, **invited plenary talk** National Institute of Pattern Recognition, Chinese Academy of Science, Beijing, "Brain Connectivity via Diffusion Tensor Imaging: Challenges for Image Processing, Shape Modeling and Scientific Visualization"

June 21, 2006, **Invited seminar talk** presentation ETH Zurich, Computer Science, visual computing lunch, "Brain Connectivity via Diffusion Tensor Imaging: Challenges for Image Processing, Shape Modeling and Scientific Visualization"

June 1, 2006, **Invited Talk**, University of Utah, SCI, "Statistics of populations of 3D images and its embedded objects."

May 20, 2006, **Invited Seminar Talk**, Johns Hopkins University, Biomedical Engineering, "Statistics of populations of 3-D images and its embedded objects"

May 19, 2006, **Invited Talk**, NIH WasCAS meeting. "Mapping the trajectory of the early developing brain: Challenges and Rewards?"

Jan 6, 2006: **Invited Talk**, University of Utah, Salt Lake City (Prof. Chris Johnson): "Neuroimaging: What can we learn about brain development?"

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Nov. 18, 2005: **Invited Seminar Presentation** ECE Department NC State University, "Statistics of images and shapes: From linear to nonlinear metrics"

October 26, 2005: **Invited Seminar Talk** UCLA IPAM, Center for Computational Biology (CCB), "Quantitative analysis of structural MRI and DTI to assess trajectory of early

brain development”

June 2, 2005: **Invited Plenary Presentation** National Institute of Mental Health (NIMH):  
"Early Brain Development Assessed by structural MRI"

May 19-21, 2005: Society of Biological Psychiatry, Atlanta, GA: **Invited Symposium Presentation**, "Early Brain Development Assessed by new Quantitative Analysis of structural MRI and DTI"

April 5, 2005: Int. Cong. of Schizophrenia Res. ICOS, Savannah, GA: **Invited Symposium Presentation**: "Methodology of Pediatric Imaging"

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Dec. 14, 2004, American College of Neuropharmacology ACNP, San Juan, Puerto Rico, **Invited Research Symposium**: "Neonatal Brain Development Assessed by new Quantitative Analysis of High-field 3Tesla MRI and DTI"

Nov. 31, 2004, Radiological Society of North America RSNA: **Invited lecture**, Refresher's Course for Radiologists: "Image Segmentation"

Sept 24, 2004, **Invited Keynote Talk**, Medical Image Understanding and Analysis MIAU, Imperial College, London, Studying neurodevelopment and neurodegeneration: Contributions from UNC Chapel Hill

Sept. 10, 2004, UNC National Symposium "Imaging of the Developing Brain: **Invited Presentation**: "Image Analysis Tools for MRI of Early Development"

July 16, 2004, UCLA IPAM, **invited talk** graduate summer school: Mathematics in Brain Imaging, "Shape Analysis to assess neurodevelopment and neurodegeneration, Challenges for Imaging, Image Analysis and Visualization"

Mar 26, 2004, Brigham and Women's Hospital, Harvard, Boston, **invited seminar presentation**: "Diffusion Tensor Imaging to explore white matter tracts:

Mar 10, 2004, Nathan Kline Institute (NKI), Orangeburg NY, **invited plenary presentation**: "Improved imaging and image analysis to study brain change in mental illness"

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Dec. 3, 2003, Radiological Society of North America RSNA, **Invited Presentation**: "Image Processing: From Basics to Advance"

Nov. 15, 2003 Medical Image Computing and Computer Assisted Intervention MICCAI'03, **Tutorial Presentation**: "Unifying Statistical Classification and Geometric Models"

July 14, 2003: **Invited Seminar Talk**, University Hospital of Geneva, Switzerland: "Image Analysis of Neonatal MRI"

March 30, 2003: International Congress on Schizophrenia Research ICOS2003, Colorado Springs, Poster Presentation: "Age and Treatment related local hippocampal changes in schizophrenia"

San Diego, Feb. 17, 2003, SPIE International Symposium Medical Imaging, **Invited Workshop Talk**: Statistical Characterization of Brain Structures using M-reps

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Puerto Rico, Dec 8, 2002, American College of Neuropharmacology ACPN, **Paper Presentation**: "Structural Imaging in Autism"

Oct. 30: Harvard Medical School, Brigham and Women's Hospital, **Invited Seminar Presentation:** *Segmentation and Shape Characterization in Clinical Brain Studies*

July 8, 2002, International IEEE Conference of Bioinformatics ISBI Washington, **invited plenary presentation**, *Statistical Shape Models for Segmentation and Structural Analysis*"

May 27, 2002, **invited seminar talk**, Swiss Federal Institute of Technology ETH, Department of Electrical Engineering, Switzerland, "Model-based segmentation using atlas prior and intensity and shape model"

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December 13th, 2001, MMBIA 2001, **Invited Keynote Presentation**, *Shape*

Dec 4, 2001, University of Richmond (Math Department, Michael Kerckhove), VA, **Invited Seminar Talk**, *Three-dimensional Shape models for automatic segmentation and structural analysis applied to brain imaging studies.*

September 28, 2001, National Institute of Mental Health NIMH, Mood and Anxiety Disorders Program, **Invited Seminar Talk**, *Model-Based Segmentation and Shape Analysis to Study the Morphology of Subcortical Structures*

August 15th, 2001, UCLA, **invited seminar talk**, Lab of Neuro-Imaging and Brain Mapping Division LONI, "Object Modeling for automatic segmentation and shape analysis to study morphology in neuroimaging applications"

June 14, 2001, **Invited seminar talk** Allan Reiss Lab., Stanford University, Pediatric Psychiatry, "Medical Image Analysis at UNC Chapel Hill"

May 17, 2001, Belgium, Catholic University of Leuven, KUL, ESAT, **Invited seminar presentation**, *3D Shape Modeling in the Presence of Shape Variability: Combining Surface and Medial Shape Representation*

May 16, 2001, Belgium, Catholic University of Leuven, KUL, Medical School, **Invited seminar presentation**, *Model-based segmentation and shape description to study morphology in neuroimaging application*

May 4th, 2001, Montreal Kaleem Siddiqui's lab: **Seminar Presentation:** "Building medial models representing shape populations of subcortical brain structures"

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May 3rd 2001, Montreal Neurological Institute MNI: **invited talk:** "Shape Models for Segmentation and Shape Analysis to study Neuropathology in Mental Illness"

May 1st 2001, Whistler CA, ICOS Conference, **Conference Presentation:** *Ventricle Shape*

Nov 5, 2000, NY, Swiss Eureka in America, **Distinguished/Keynote Lecture:** *Confluence of the Information and Life Sciences - Brain Imaging for the Study of Neurological Diseases*

Talks before Nov. 2000 not listed.