Casey Goodlett

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Education

University of Utah

- Ph.D. Computing - Graphics. *Expected May 2009.*

University of North Carolina at Chapel Hill

- M.S. Computer Science. Spring 2007.

Clemson University

- B.S. Computer Science, Summa Cum Laude with Honors, December 2003.
- Minor in Mathematical Sciences

Experience

Graduate Research Assistant August '07-present
University of Utah School of Computing - SCI Institute
Graduate Research Assistant August '04-July '07
University of North Carolina - Chapel Hill Department of Computer Science

- Statistical analysis of Diffusion Tensor MRI (DTI): DTI registration, tensor estimation, and group statistics
- Developing prototype research tools in C++, ITK, VTK, MATLAB
- Maintain CVS repository and assist with ensuring software quality
- Collaborating on large multi-site NIH roadmap project NA-MIC (`http://www.na-mic.org`)

Systems Programmer I December '03-July '04
Undergraduate Research Assistant August '03-December '03
Clemson University Center for Advanced Engineering of Fibers and Films

- Contributed to C++ finite element (FEM) package for modeling viscoelastic fluids
- Contributed to visualization, linear system solution routines, and implementation of constitutive equations
- Improvement of MATLAB package for filter simulation

Intern - Software Development Summer '02 '03, Spring '03 (part-time)
ITI TranscenData

- Developed cross-platform installer using InstallAnywhere
- Developed cross-platform testing process for CAD/PLM integration software
- Contributed to CAD/PLM integration using Python, XML, and Java

Publications

Journal Publications

- **Casey B Goodlett**, P Thomas Fletcher, John H Gilmore, Guido Gerig. *Group Analysis of DTI Fiber Tract Statistics with Application to Neurodevelopment.* NeuroImage (2008), *In press.* doi:10.1016/j.neuroimage.2008.10.060
- Fan Zhang, Edwin Hancock, **Casey Goodlett**, Guido Gerig. *Probabilistic white matter fiber tracking using particle filtering and von MisesFisher sampling.* Medical Image Analysis, vol. 13 (1), 2009.

Peer-Reviewed Conference Publications

- **Casey B Goodlett**, P. Thomas Fletcher, John H Gilmore, Guido Gerig. *Group Statistics of DTI Fiber Bundles Using Spatial Functions of Tensor Measures.* Lecture Notes in Computer Science, Medical Image Computing and Computer-Assisted Intervention, Springer-Verlag LNCS vol. 5241, 2008. pp. 1068-1075.
- **Casey Goodlett**, P. Thomas Fletcher, Weili Lin, Guido Gerig. *Quantification of measurement error in DTI: Theoretical predictions and validation.* Lecture Notes in Computer Science, Medical Image Computing and Computer-Assisted Intervention, Springer-Verlag LNCS v. 4791, 2007. pp. 10-17. *Oral presentation.*
- Fan Zhang, **Casey Goodlett**, Edwin Hancock, Guido Gerig. *Probabilistic Fiber Tracking.* Lecture Notes in Computer Science, Medical Image Computing and Computer-Assisted Intervention 2007, Springer-Verlag LNCS v. 4792, 2007. pp. 144-153.
- **Casey Goodlett**, Brad Davis, Remi Jean, John Gilmore, Guido Gerig. *Improved Correspondence for DTI Population Studies via Unbiased Atlas Building.* Lecture Notes in Computer Science, Medical Image Computing and Computer-Assisted Intervention 2006, Springer-Verlag LNCS vol. 4191, 2006. pp. 260 - 267.

Peer-Reviewed Short Papers and Workshops

- **Casey Goodlett**, P. Thomas Fletcher, Weili Lin, and Guido Gerig. *Noise-induced bias in low-direction diffusion tensor MRI: Replication of Monte-Carlo simulation with in-vivo scans.* ISMRM 2007.
- **Casey Goodlett**, Isabelle Corouge, Matthieu Jomier, and Guido Gerig, *A Quantitative DTI Fiber Tract Analysis Suite*, The Insight Journal, vol. ISC/NA-MIC/ MICCAI Workshop on Open-Source Software, 2005, Online publication: `http://hdl.handle.net/1926/39`. Oral Presentation.

Skills

- Experienced in C++ development of scientific applications using generic programing and design patterns
- Experience with imaging and scientific libraries including the Insight Toolkit (ITK), Visualization Toolkit (VTK), VXL, LAPACK, PETSc, and others
- Statistical modeling and probability
- Rapid prototyping in MATLAB, Python.
- Software engineering tools and techniques including version control and automated unit testing
- Programming Languages: C, C++, Python, MATLAB, and Java