

CURRICULUM VITAE

Personal information

Name	Ola Friman
Gender	Male
Date of birth	December 18, 1975
Place of birth	Växjö, Sweden
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Academic degrees

Sep 2003	PhD in Biomedical Engineering, Linköping Institute of Technology, Sweden
Oct 1999	MSc in Electrical Engineering, Lund Institute of Technology, Sweden

Career

Sep 2003 – Jan 2004	Post-doc Department of Biomedical Engineering, Linköping University, Sweden.
Jan 2004 – Sep 2005	Research Fellow & Instructor Surgical Planning Laboratory, Harvard Medical School, Boston, USA.
Dec 2004 – Sep 2005	Image processing consultant Massachusetts Institute of Technology, Boston, USA.
Sep 2005 – Apr 2007	Scientist Institute of Automation, University of Bremen, Germany.
Apr 2007 – Present	Head of Image Processing Fraunhofer MEVIS Institute for Medical Image Computing, Bremen, Germany

Research fields

Medical image processing, medical imaging, multidimensional signal processing, signal detection, statistics, optimization

Scientific awards

Sep 2008	Winner of the MICCAI'08 Grand Challenge – Coronary Artery Tracking
Jun 2007	Best demonstration award at the 10 th IEEE International Conference on Rehabilitation Robotics
Nov 2006	Best paper and presentation award at the 28 th Colloquium of Automation in Salzhäusen, Germany
Aug 2005	Swedish Druid-Order bi-annual award. Awarded for outstanding research beneficial to humanity
Mar 2002	The Markussen award for outstanding research
Oct 2001	The Golden Mouse award for most prominent research project in Sweden 2001

Academic activities

Teaching

Lecturer in Medical Imaging, Medical Image Analysis and Neural Networks and Learning systems courses for Master of Science students. Supervisor of ~15 Master's Theses.

Ad-hoc reviewer for the following journals

NeuroImage, Human Brain Mapping, Magnetic Resonance in Medicine, IEEE Signal Processing Letters, IEEE Transactions on Medical Imaging, IEEE Transactions on Neural Networks, IEEE Transactions on Biomedical Circuits and Systems, Journal of Biomedical Informatics, Journal of Magnetic Resonance Imaging, Computer Methods and Programs in Biomedicine.

Reviewer for the following conferences

Scandinavian Conference on Image Analysis 2001 (SCIA'01), International Conference on Pattern Recognition 2002 (ICPR'02), International Conference on Medical Image Computing and Computer Aided Intervention 2004, 2005, 2007 (MICCAI'04, MICCAI'05, MICCAI'07 & MICCAI'08), IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis 2007 (MMBIA'07).

Invited presentations

Template-Based Multiple Hypothesis Tracking of Vessels, University of Magdeburg, Germany, 2009. *Adaptive Multivariate Analysis*, IPAM Summer School on Mathematics in Brain Imaging, UCLA, Los Angeles, USA, 2008. *Subspace Models for Functional MRI Data Analysis*, IEEE Symposium on Biomedical Imaging, Washington DC, USA, 2004. *Imaging Brain Function*, Medical Technology Seminar, Stockholm, Sweden, 2002. *Adaptive Signal Processing for Brain Activity Detection*, Swedish Society for Learning Systems, Stockholm, Sweden, 2001

Publications

PhD thesis

Adaptive Analysis of Functional MRI Data

Linköping University, Sweden, Dissertation No. 836, ISBN 91-7373-699-6. 2003

Articles in scientific journals:

1. **Friman O**, Carlsson J, Lundberg P, Borga M, Knutsson H. *Detection of Neural Activity in fMRI using Canonical Correlation Analysis*. *Magnetic Resonance in Medicine*, 2001; 45(2):323-330
2. **Friman O**, Borga M, Lundberg P, Knutsson H. *Detecting Neural Activity in fMRI Using Maximum Correlation Modeling*. *NeuroImage*, 2002; 15(2):386-395
3. **Friman O**, Borga M, Lundberg P, Knutsson H. *Exploratory fMRI Analysis by Autocorrelation Maximization*. *NeuroImage*, 2003; 16(2): 454-464
4. **Friman O**, Borga M, Lundberg P, Knutsson H. *Adaptive Analysis of fMRI Data*. *NeuroImage*, 2003; 19(3):837-845
5. **Friman O**, Borga M, Lundberg P, Knutsson H. *Detection and Detrending in fMRI Data Analysis*, *NeuroImage*, 2004; 22(2): 645-655
6. **Friman O**, Westin CF. *Resampling fMRI Time Series*, *NeuroImage*, 2005; 25(3):859-867
7. Vikgren J, **Friman O**, Borga M, Boijesen M, Gustavsson S, Ekberg-Jansson A, Bake B, Tuyen U. *Detection of Mild Emphysema by Computed Tomography Density Measurements*. *Acta Radiologica* 2005; 46(3): 237-245
8. **Friman O**, Farneback G, Westin C-F. *A Bayesian Approach for Stochastic White Matter Tractography*. *IEEE Transactions on Medical Imaging*, 2006, 25(8):965-978
9. Peled S, **Friman O**, Jolesz F, Westin C-F. *Geometrically constrained two-tensor model for crossing tracts in DWI*, *Magnetic Resonance Imaging*, 2006, 24(9):1263-1270
10. Carpenter A, Jones T, Lamprecht M, Clarke C, Han Kang I, **Friman O**, Guertin D, Han Chang J, Lindquist R, Moffat J, Golland P, Sabatin D. *CellProfiler: image analysis software for identifying and quantifying cell phenotypes*, *Genome Biology*, 2006, 7(10):R100
11. **Friman O**, Volosyak I, Gräser A. *Multiple Channel Detection of Steady-State Visual Evoked Potentials for Brain-Computer Interfaces*, *IEEE Transactions on Biomedical Engineering*, 2007, 54(4):742-750
12. Hennemuth A, Seeger A, **Friman O**, Miller S, Oeltze S, Peitgen H-O. *A Comprehensive Approach to the Analysis of Contrast Enhanced Cardiac MR Images*. *IEEE Transactions on Medical Imaging*, 2008, 27(11):1592-610
13. Klein J, **Friman O**, Hadwiger M, Preim B, Ritter F, Vilanova A, Zachmann G, Bartz D. *Visual Computing for Medical Diagnosis and Treatment*. *Journal of Computers & Graphics*, In press
14. Schaap M, Metz C, van Walsum T, van der Giessen A, Weustink A, Mollet N, Bauer C, Bogunović H, Castro C, Deng X, Dikici E, O'Donnell T, Frenay M, **Friman O**, Hernández Hoyos M, Kitslaar P, Krissian K, Kühnel C, Luengo-Oroz M, Orkisz M, Smedby Ö, Styner M, Szymczak A, Tek H, Wang C, Warfield S, Zambal S, Zhang Y, Krestin G, Niessen W. *Standardized Evaluation Methodology and Reference Database for Evaluating Coronary Artery Centerline Extraction Algorithms*. *Medical Image Analysis*, In press
15. **Friman O**, Hindennach M, Peitgen H.-O. *Multiple Hypothesis Template Tracking of Small 3D Vessel Structures*. *Medical Image Analysis*, In revision

Peer-reviewed conference papers:

1. Carlsson J, **Friman O**, Borga M, Lundberg P and Knutsson H. *Novel Applications of Canonical Correlation Analysis in True Spatio-Temporal fMRI Analysis*. Proceedings of the 17th Annual Meeting of the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB'00), Paris, France, September 2000
2. Tylén U, **Friman O**, Borga M, Angelhed JE. *An improved algorithm for computerized detection and quantification of pulmonary emphysema at high resolution computed tomography (HRCT)*. Proceedings of the SPIE Medical Imaging Conference (SPIE'01), San Diego, USA, February 2001
3. **Friman O**, Lundberg P, Cedefamn J, Borga M and Knutsson H. *Increased detection sensitivity in fMRI by adaptive filtering*. Proceedings of the 9th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'01), Glasgow, Scotland, April 2001
4. **Friman O**, Borga M, Lundberg P, Knutsson H. *A Correlation Framework for Functional MRI Data Analysis*. Proceedings of the 12th Scandinavian Conference on Image Analysis (SCIA'01), Bergen, Norway, June 2001
5. Rudner M, Cedefamn J, **Friman O**, Knutsson H, Lundberg P, Söderfeldt B. *Are Levels of Language Processing Reflected in Neural Activation? - An fMRI Study*. Proceedings of the 7th Annual Meeting of the Organization for Human Brain Mapping (HBM'01), Brighton, UK, June 2001
6. Borga M, **Friman O**, Lundberg P and Knutsson H. *A Canonical Correlation Approach to Exploratory Data Analysis in fMRI*. Proceedings of the 10th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'02), Honolulu, Hawai'i, USA, May 2002
7. **Friman O**, Borga M, Lundberg P and Knutsson H. *Hierarchical Temporal Blind Source Separation of fMRI Data*. Proceedings of the 10th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'02), Honolulu, Hawai'i, USA, May 2002
8. **Friman O**, Borga M, Lundberg M, Tylén U, Knutsson H. *Recognizing Emphysema - A Neural Network Approach*. Proceedings of the 16th International Conference on Pattern Recognition (ICPR'02), Québec City, Canada, August 2002
9. Nystrom P, Ragnehed M, **Friman O**, Engstrom M, Lundberg P, Knutsson H and Soderfeldt B. *Localization of Signed and Heard Episodic and Semantic Memory Tasks using fMRI*. Proceedings of the 9th Annual Meeting of the Organization for Human Brain Mapping (HBM'03), New York, USA, June 2003
10. Ragnehed M, **Friman O**, Lundberg P, Söderfeldt B and Knutsson H. *Comparing CCA and SPM99*. Proceedings of the 9th Annual Meeting of the Organization for Human Brain Mapping (HBM'03), New York, USA, June 2003
11. **Friman O**. *Subspace Models for Functional MRI Data Analysis*. Proceedings of the 2004 IEEE International Symposium on Biomedical Imaging (ISBI'04), Washington DC, USA, April 2004
12. Hardoon D, Shawe-Taylor J and **Friman O**. *KCCA for fMRI Analysis*. Proceedings of the 8th Medical Image Understanding and Analysis Meeting (MIUA'04), London, UK, September 2004
13. **Friman O**, Westin CF. *Bias in Resampling-Based Thresholding of Statistical Maps in fMRI*. Proceedings of the 7th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI'04), Rennes-St. Malo, France, September 2004
14. **Friman O**, Morocz I, Westin CF. *Examining the Whiteness of fMRI Noise*. Proceedings of the 13th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'05), Miami, USA, May 2005

15. **Friman O**, Westin CF. *Uncertainty in White Matter Tractography*. Proceedings of the 8th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI'05), Palm Springs, USA, October 2005
16. **Friman O**. *Brain Signals for Robot Control*. Proceedings of the 27th Colloquium of Automation in Salzhhausen, Germany, November 2005
17. **Friman O**. *Spatial Filtering of Brain Signals for Brain-Computer Interfacing*. Proceedings of the 28th Colloquium of Automation in Salzhhausen, Germany, November 2006
18. **Friman O**, Lüth T, Volosyak I, Gräser A. *Spelling with Steady-State Visual Evoked Potentials*. Proceedings of the 3rd International IEEE EMBS Conference on Neural Engineering, Hawaii, USA, May 2007
19. Lüth T, Ojdanic D, **Friman O**, Prenzel O, Gräser A. *Low Level Control in a Semi-autonomous Rehabilitation Robotic System via a Brain-Computer Interface*. Proceedings of the 10th International Conference on Rehabilitation Robotics (ICORR'07), Noordwijk aan Zee, The Netherlands, June 2007
20. Valbuena D, Cyriacks M, **Friman O**, Volosyak I, Gräser A. *Brain-Computer Interface for high-level control of rehabilitation robotic systems*. Proceedings of the 10th International Conference on Rehabilitation Robotics (ICORR'07), Noordwijk aan Zee, The Netherlands, June 2007
21. Klein J, Bartz D, **Friman O**, Hadwiger M, Preim B, Ritter F, Vilanova A, Zachmann G. *Advanced Algorithms in Medical Computer Graphics*. Proceedings of Eurographics 2008, State-of-the-Art Report (EG-STAR'08), Crete, Greece, April, 2008
22. **Friman O**, Hennemuth A, Peitgen H-O. *A Rician-Gaussian Mixture Model for Segmenting Delayed Enhancement MRI Images*. Proceedings of the 16th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'08), Toronto, Canada, May 2008
23. Hennemuth A, Seeger A, **Friman O**, Miller S, Peitgen H-O. *Automatic Detection and Quantification of Non-Viable Myocardium in Late Enhancement Images*. Proceedings of the 16th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'08), Toronto, Canada, May 2008
24. **Friman O**, Hindennach M, Peitgen H-O. *Template-Based Multiple Hypotheses Tracking of Small Vessels*. Proceedings of the 2008 IEEE International Symposium on Biomedical Imaging (ISBI'08), Paris, France, May 2008
25. Weiler F, Hahn H, Köhn A, **Friman O**, Klein J, Peitgen, H-O. *Dealing with Inaccuracies in Multimodal Neurosurgical Planning - A Preliminary Concept*. Proceedings of the 22nd International Congress and Exhibition of Computer Assisted Radiology and Surgery (CARS'08), Barcelona, Spain, June, 2008
26. **Friman O**, Kühnel C, Peitgen H-O. *Coronary Artery Centerline Extraction Using Multiple Hypothesis Tracking and Minimal Paths*. MICCAI'08 Workshop – 3D Segmentation in the Clinic: A Grand Challenge. The Midas Journal, September 2008
27. **Friman O**, Dahlqvist-Leinhard O, Lundberg P, Borga M. *A General Method for Correction of Intensity Inhomogeneity in Two Point Dixon Imaging*. Proceedings of the 17th Scientific Meeting of the International Society of Magnetic Resonance in Medicine (ISMRM'09), Honolulu, Hawaii, April 2009
28. Hennemuth A., Harloff A, Spehl T, Pavlov N, **Friman O**, Paul D, von Elverfeldt D, Kuehnel C, Hahn H, Hennig J, Markl M. *Optimized visual classification of complicated plaques based on multidimensional image fusion*. Proceedings of the 2nd Workshop on Software Assistants in Medicine, Lecture Notes in Informatics, Lübeck, Germany, October 2009