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Amir Tahmasebi

Curriculum Vitae

Education

2005–present **Ph.D. (Computer Science)**, *School of Computing, Queen's University*, Canada.

title Automatic Classification of Variability in Human Brain Anatomy Across Subjects

Research Focus Morphological variability in human brain, pairwise/groupwise nonlinear registration of MR images, structural segmentation, morphological classification of human brain, anatomical atlas construction, anatomical probabilistic maps, statistical group analysis of fMRI data

supervisors Dr. Purang Abolmaesumi (School of Computing), Dr. Ingrid S. Johnsrude (Department of Psychology)

2003–2005 **M.Sc. (Computer Science)**, *School of Computing, Queen's University*, Canada.

title A Haptic-based Ultrasound Examination/Training System

Research Focus Medical training simulators, multi-modality image visualization and rendering, haptic rendering, robotics

supervisors Dr. Purang Abolmaesumi (School of Computing), Dr. Keyvan Hashtrudi-Zaad (Department of ECE)

1997–2001 **B.Sc. (Electrical Engineering)**, *Electrical and Electronics Engineering Department, Sharif University of Technology*, Iran.

title Fingerprint Enhancement and Fore/Background Segmentation

Research Focus Image enhancement, image segmentation, feature extraction, morphological filtering

supervisor Dr. Shohreh Kasaei (Department of Computer Engineering)

Research and Work Experience

Medical Image Analysis Lab. (MedIA), School of Computing, Queen's University, Canada
Cognitive Neuroscience of Communication and Hearing Lab. (CONCH), Department of Psychology, Queen's University, Canada

2005–present **Research Assistant**.

◇ Development of customizable cytoarchitectonic probabilistic maps without a template.
◇ Design of an automatic segmentation tool for the extraction of the first Heschl's gyrus in human auditory cortex from MR images.
◇ Design of an automatic morphological classifier of the human brain variability.
◇ Development of a validation framework for probabilistic maps of the brain anatomy.
◇ Expertise in functional and structural MR data analysis.

Society of Graduate and Professional Students (SGPS), Queen's University, Canada

2008–2009 **Systems Manager**.
◇ Setup and maintenance of a file server.
◇ Setup and maintenance of a mail server.

Robotics and Machine Vision Lab., ECE Department, Queen's University, Canada

2003–2005 **Research Assistant**.
◇ Design and development of a haptic-based ultrasound training/examintation simulator for radiology residents.
◇ Identification and analysis of dynamic Parameters for a PHANToM Haptic Device.

IT Centre, International University of Chabahar, Iran

2002–2003 **Project Manager**.
◇ Design, and supervision over implementation of an infrastructure for a smart student card system.

Electronic Research Centre, Sharif University of Technology, Iran

2001–2002 **Research Assistant**.
◇ Design and implementation of a novel technique for fingerprint image enhancement.

Teaching Assistantship Experience

School of Computing, Queen's University, Canada

2003–2008 **Teaching Assistant**.
◇ Computer Graphics, Computer Architecture, Algorithm I, Digital Image Processing.

Electrical and Electronics Engineering Department, Sharif University of Technology, Iran

2000–2002 **Teaching Assistant**.
◇ Electrical Circuits, Electrical Engineering Mathematics, Digital Image Processing.

Summer 2002 **Instructor**.
◇ MATLAB Tutorial, Image Processing Toolbox.

Publications

Refereed Journal Papers

1 **A.M. Tahmasebi, P. Abolmaesumi, Z. Zheng, K. Munhall, and I.S. Johnsrude**, *Reducing Inter-subject Anatomical Variation: Effect of Normalization in Analysis of Functional Activity in Auditory Cortex and the Superior Temporal Region*, in Press, NeuroImage, May 2009.

2 **J. Calder, A.M. Tahmasebi, and A. Mansouri**, *A Variational Approach to Bone Segmentation in CT Images*, submitted to IEEE Trans. Image Processing, May 2009.

3 **A.M. Tahmasebi, P. Abolmaesumi, and K. Hashtrudi-Zaad**, *A Framework for the Design of a Novel Haptic-based Medical Diagnostic Simulator*, IEEE Trans. Information Technology in Biomedicine, Vol. 12, No. 5, pp. 658-666, 2008.

4 **B. Taati, A.M. Tahmasebi, and K. Hashtrudi-Zaad**, *Experimental Identification and Analysis of the Dynamics of a Phantom Premium 1.5A Haptic Device*, Presence: Teleoperators and Virtual Environments, Vol. 17, No. 4, pp. 327-343, 2008.

5 **A.M. Tahmasebi, S. Kasaei**, *A Novel Adaptive Approach to Fingerprint Enhancement Filter Design*, Elsevier Science Journal, Signal Processing: Image Communication, Vol. 17, pp. 849-855, 2002.

6 **A.M. Tahmasebi, B.A. Rezaei, S. Kasaei**, *An Adaptive Approach to Fore/Background Segmentation, Enhancement, and Ridge Extraction from Fingerprint Images*, Sharif Journal of Science and Technology, 2002.

Journal Papers in Progress

1 **A.M. Tahmasebi, P. Abolmaesumi, C. Wild, and I.S. Johnsrude**, *A Novel Automatic Segmentation Technique for Region-of-Interest-based Functional Analysis*, to be submitted.

2 **A.M. Tahmasebi, P. Abolmaesumi, C. Wild, and I.S. Johnsrude**, *Quantification of Inter-subject Variability in Human Brain: A Validation Framework for Probabilistic Maps*, to be submitted.

Refereed Conference Papers

1 **A.M. Tahmasebi, P. Abolmaesumi, S. Vikal, and I.S. Johnsrude**, *An Automatic Model-based Segmentation Technique for the Extraction of the First Heschl's Gyrus in Human Auditory Cortex from MR Images*, accepted in Human Brain Mapping Conference, San Francisco, USA, 2009.

2 **A.M. Tahmasebi, P. Abolmaesumi, X. Geng, P. Morosan, K. Amunts, G. Christensen, and I.S. Johnsrude**, *A New Approach for Creating Customizable Cytoarchitectonic Probabilistic Maps Without a Template*, accepted in Medical Image Computing and Computer Assisted Intervention (MICCAI), London, UK, 2009.

3 **A.M. Tahmasebi, P. Abolmaesumi, C. Wild, and I.S. Johnsrude**, *Quantification of Inter-subject Variability in Human Brain: A Validation Framework for Probabilistic Maps*, Proc. SPIE Medical Imaging, Biomedical Applications in Molecular, Structural, and Functional Imaging, Xiaoping P. Hu; Anne V. Clough, Editors, 726218, Vol. 7262, Orlando, USA, 2009.

4 **A.M. Tahmasebi, P. Abolmaesumi, C. Wild, and I.S. Johnsrude**, *A Novel Automatic Segmentation Method for ROI-based Functional Analysis*, Workshop on Analysis of Functional Medical Images, Medical Image Computing and Computer Assisted Intervention (MICCAI), pp: 89-96, New York City, USA, 2008.

5 **A.M. Tahmasebi, I.S. Johnsrude, C. Wild, M.H. Moghari, and P. Abolmaesumi**, *A Statistical Atlas-Based Technique for Automatic Segmentation of the First Heschl's Gyrus in Human Auditory Cortex from MR Images*, Proc. Engineering in Medicine and Biology Society (EMBS), 30th Annual International Conference of the IEEE, pp. 3920-3923, Vancouver, Canada, 2008.

6 **A.M. Tahmasebi, P. Abolmaesumi, Z. Zheng, K. Munhall, and I.S. Johnsrude**, *Reducing Inter-subject Anatomical Variation: Analysis of the Functional Activity in Auditory Cortex and Superior Temporal Region using HAMMER*, Workshop on Statistical Registration, Medical Image Computing and Computer Assisted Intervention (MICCAI), pp. 31-38, Brisbane, Australia, 2007.

7 **A.M. Tahmasebi, P. Abolmaesumi, and K. Hashtrudi-Zaad**, *A Haptic-based Ultrasound Training/Examination System (HUTES)*, Video Proc. IEEE Intl. Conf. Robotics and Automation (ICRA), pp. 3130-3131, Rome, Italy, 2007.

8 **A.M. Tahmasebi, P. Abolmaesumi, and K. Hashtrudi-Zaad**, *A Haptic-based Ultrasound Examination/Training System*, Medical Image Computing and Computer Assisted Intervention (MICCAI), short paper, Palm Springs, USA, 2005.

9 **A.M. Tahmasebi, P. Abolmaesumi, D. Thompson, and K. Hashtrudi-Zaad**, *Software Structure Design for A Haptic-Based Medical Examination System*, Haptic Audio Visual Environments and their Applications, IREE International Workshop on, pp: 88-93, Ottawa, Canada, 2005.

10 **[Invited paper] A.M. Tahmasebi, B. Taati, F. Mobasser, and K. Hashtrudi-Zaad**, *Dynamic Parameter Identification and Analysis of a Phantom Haptic Device*, IEEE Conf. Control Applications, pp. 1251-1256, Toronto, Canada, 2005.

11 **P. Abolmaesumi, K. Hashtrudi-Zaad, D. Thompson, A.M. Tahmasebi**, *A Haptic-based System for Medical Image Examination*, Proc. Engineering in Medicine and Biology Society (EMBS), 26th Annual International Conference of the IEEE, Vol. 3, pp. 1853-1856, San Francisco, USA, 2004.

Posters (presented orally)

1 **A.M. Tahmasebi, P. Abolmaesumi, C. Wild, I.S. Johnsrude**, *A Novel Segmentation Technique for Automatic Extraction of the First Heschl's Gyrus in Human Auditory Cortex from MR Images*, 7th Annual Imaging Ontario Symposium, Toronto, Canada, 2008.

2 **A.M. Tahmasebi, P. Abolmaesumi and I.S. Johnsrude**, *Automatic Classification of Variability in Human Brain Anatomy Across Subjects*, Institute for Robotics and Intelligent Systems (IRIS)/Precarn Conf., Quebec City, Canada, 2006.

3 **A.M. Tahmasebi, P. Abolmaesumi, and K. Hashtrudi-Zaad**, *A User Study for the Evaluation of a Haptic-based Medical Diagnostic Simulator*, Second Canadian Student Conf. Biomedical Computing (CSCBC), London, Canada, 2006.

4 **A.M. Tahmasebi, P. Abolmaesumi, and K. Hashtrudi-Zaad**, *HUTES: A Haptic-based Ultrasound Training/Examination System*, First Canadian Student Conf. Biomedical Computing (CSCBC), Kingston, Canada, 2006.

5 **A.M. Tahmasebi, P. Abolmaesumi, D. Thompson, K. Hashtrudi-Zaad**, *A Haptic-based Ultrasound Examination/Training System*, 5th Annual Imaging Ontario Symposium, Toronto, Canada, 2006.

6 **A.M. Tahmasebi, P. Abolmaesumi, K. Hashtrudi-Zaad and D. Thompson**, *Medical Ultrasound Remote Diagnostic System for Space Applications*, Institute for Robotics and Intelligent Systems (IRIS)/Precarn Conf., Ottawa, Canada, 2004.

Awards

2009-2011 inclusive	Natural Sciences and Engineering Research Council Industrial R&D Fellowship (NSERC IRDF)
2008-2010 inclusive	Natural Sciences and Engineering Research Council Scholarship (NSERC PGS-D)
2007-2008	Ontario Graduate Scholarship (OGS)
2007	IEEE Conference Travel Award International Conference on Robotics and Automation (ICRA), Roma, Italy
2006	IRIS/Precarn Graduate Scholarship Institute of Robotics and Intelligent Systems (IRIS) Conference, Victoria, BC, Canada
2006	Canadian Student Conference on Biomedical Computing, Honorable mention, Best Poster Award
2005-2008 inclusive	Queen's Discretionary Conference Award
2005	Best Technical Demonstration Award, 2nd place Institute of Robotics and Intelligent Systems (IRIS) Conference, Quebec City, QC, Canada
2004-2005 inclusive	Huntly Macdonald Sinclair Tuition Fellowship
2003-2009 inclusive	Queen's Graduate Award

Computer Skills

Operating Systems	Linux, Windows
High-level languages	C, C++, Visual C++ .Net, Pascal
Algorithm development environments	MATLAB
Advanced Libraries	GHOST SDK, VTK, ITK, Qt
Software Packages	SPM, FSL, Paraview, Brainsuite, MRICron, 3D Slicer

Community Activities and Professional Memberships

Summer 2008	**Volunteer**, *Focus group to help in marketing strategies for recruitment*, Graduate studies and Marketing & Communication, Queen's University, Canada.
Winter 2006	**Session Referee, Board Member**, *Scientific Committee*, First Canadian Students Conference on Biomedical Computing (CSCBC), Queen's University, Canada.
since 2006	**Student Member**, *Institute of Electrical and Electronics Engineers (IEEE) Society*.

2005-2006 **Representative**, *Society of Graduate and Professional Students (SGPS)*,
Queen's University, Canada.

Summer 2004 **Organizer/Presenter**, *Image Registration Seminar Series*,
School of Computing, Queen's University, Canada.

Fall 2003 **Volunteer**, *Organizer of social events*,
International Center (QUIC), Queen's University, Canada.

2000-2001 **Vice-Chair**, *IEEE Student Branch*,
Electrical and Electronics Engineering Dept., Sharif University of Technology, Iran.

1999-2000 **Vice-Chair**, *Industrial affairs committee*,
IMSEE'2000 (International Millennium Seminar on Electrical Engineering),
Electrical and Electronics Engineering Dept., Sharif University of Technology, Iran.

References

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