

## **PROFILE:**

Dr. Abbas Samani received his B.Sc degree from Amirkabir University of Technology and M.Sc. degree from Tehran University in 1987 and 1991 respectively. He received his Ph.D. degree from the University of Waterloo in 1997. Dr. Samani held Post-Doctoral Fellowship and Research Associate positions at Sunnybrook Health Sciences Centre in Toronto until 2003. In 2003, he joined the University of Western Ontario as an Assistant Professor where he holds a joint faculty position in the Departments of Electrical & Computer Engineering and Medical Biophysics at the University of Western Ontario where he is Undergraduate Chair. Dr. Samani is also a core faculty member of the newly established Western's Biomedical Engineering Graduate Program, and is an Associate Scientist of the Imaging Research Laboratories at Robarts Research Institute. His research interests are biological tissue modeling and its applications in medical imaging and intervention, and image analysis.

## **RESEARCH INTERESTS:**

My research expertise includes tissue mechanics and image processing, and I am particularly interested in applications of imaging in Oncology, Minimally Invasive Diagnostic and Therapeutic Techniques, and Cardiology. I have successfully established a productive, collaborative research team with the aim of becoming an international leader in imaging and *ex vivo* measuring linear elastic and hyperelastic properties of soft tissues. My active research also includes developing imaging based minimally invasive diagnostic and therapeutic techniques for cancer and heart disease patients. Current projects include:

- Biomechanics Based Prostate Image Registration and Elastography Technique
- Prostate Elastography Technique for Ultrasound Guided Needle Biopsy
- 3D Ultrasound Breast Elastography
- Novel Breast 3D US Elastography and Biopsy System
- Measurement of the Hyperelastic Properties of *Ex vivo* Breast Tissue Slices
- Measurement of the Tympanic Membrane Viscoelastic Properties
- Lung Brachytherapy System Based on Biomechanics and Neural Networks
- Cardiac Wall Stress Imaging for Physiological Cardiac Tissue Assessment

Evidence of the impact of my group's research includes a number of publications in prominent imaging and biological journals, including a paper (Phys. Med. Biol **52**: 1247-1260, 2007) on measuring the mechanical properties of tumour tissues that was chosen as a Featured Article in the journal of Physics in Medicine and Biology 2007 in addition to papers on novel techniques for prostate elastography aiming at using elastography for guiding prostate biopsy procedures that have been published in MICCAI 2007 and EMBC 2008. More recently, my group's breast real-time US elastography work has led to the development of a very promising imaging system that is currently being patented. Finally, our work conducted in the area of lung brachytherapy

has been very fruitful. So far it has led to 4 papers which are either already published or accepted for publication in leading journals in the field.

## **TEACHING:**

**ECE 2238 A:** Introduction to Electrical Engineering

**Taught in:** Fall 2006

**Medical Biophysics 3330F:** Human and Animal Biophysics

**Taught in:** Fall 2003 - Fall 2008

**Engineering Science 1050:** Introductory Engineering Design and Innovation Studio

**Taught in:** Fall 2003, 2004/2005, 2005/2006, Fall 2006, Fall 2007 and Fall 2008

**Bionedical Engineering 9519B:** Advanced Image Processing and Analysis

**Taught:** since Winter 2004

## **PUBLICATIONS (*Over the past 10 years*):**

**\* The underlined are students under my supervision or students I advised through their advisory committee.**

### **Articles in peer-reviewed journals:**

[1] Sadeghi Naini A., Patel R.V., and **Samani A.**, “Measurement of lung hyperelastic properties using inverse finite element approach” *IEEE –TBME*, **58**(10):2852-9, 2011.

[2] S. R. Mousavi, I. Khalaji, A. Sadeghi Naini, K. Raahemifar, **A. Samani**, “*Statistical finite element method for real-time tissue deformation estimation*”, Computer Methods in Biomechanics and Biomedical Engineering, Taylor & Francis, **DOI:10.1080/10255842.2010.550889**, 2011.

[3] T. Kaster, I. Sack , and **A. Samani**, “Measurement of the hyperelastic properties of *ex vivo* brain tissue slices”, Journal of Biomechanics, **44**: 1158 –1163, 2011.

[4] A. Sadeghi Naini, G. Pierce, T.Y. Lee, R.V. Patel, and **A. Samani**, “*CT image construction of a totally deflated lung using deformable model extrapolation*”, Medical Physics, Vol. 38, Issue 2, pp. 872-883, AAPM, 2011.

[5] Sadeghi Naini A., Patel R.V., and **Samani A.**, “CT Enhanced Ultrasound Image of a Totally Deflated Lung for Image-guided Minimally Invasive Tumor Ablative Procedures” *IEEE –TBME*, **57**(10):2627-2630, 2010.

- [6] A. Sadeghi Naini, T.Y. Lee, R.V. Patel, and **A. Samani**, “Estimation of lung’s air volume and its variations throughout respiratory CT image sequences”, *IEEE Transaction on Biomedical Engineering*, Vol. 58, Issue 1, pp. 152-158, 2011.
- [7] H.Mehrabian, G. Campbell, and **Samani A.**, “A constrained reconstruction technique of hyperelasticity parameters for breast cancer assessment”, *Phys. Med. Biol.***55**:7489–7508, 2010.
- [8] Hesabgar S.M., Marshall H., Agrawal S.K., **Samani A.** and Ladak H.M., “Measuring the quasi-static Young’s modulus of the eardrum using an indentation technique”. *Hearing Research*, **263**168-176, 2010.
- [9] Sadeghi Naini A., Homayounpour M. Mehdi, **Samani A.**, “A real-time trained system for robust speaker verification using relative space of anchor models”, *Computer Speech & Language*, Elsevier Ltd, 24(4): 545-561, 2010.
- [10] O’Hagan J. and **Samani A.**, “Measurement of the hyperelastic properties of 44 pathological *ex vivo* breast tissue samples” *Phys. Med. Biol.* **54** (2009) 2557–2569, 2009.
- [11] Elgeti T., Laule M., Kaufels N., Schnorr J., Hamm B., **Samani A.**, Braun J. and Sack I., “Cardiac MR Elastography: Comparison with left ventricular pressure measurement”, *Journal of Cardiovascular Magnetic Resonance* **11**:44 1-10, 2009.
- [12] Nanayakkara ND, Chiu B, **Samani A.**, Spence JD, Samarabandu J, Parraga G, and Fenster A, “Nonrigid Registration of Carotid Ultrasound and MR Images using a “Twisting and Bending Model” *Journal of Medical Physics* **36**(2):373-85, 2009.
- [13] Ingolf Sack, Jens Rump, Thomas Elgeti, **Abbas Samani**, Jürgen Braun. “MR elastography of the human heart: Noninvasive assessment of myocardial elasticity changes by shear wave amplitude variations” *Journal of MRM* **61**(3):668-77, 2009.
- [14] N. Nanayakkara, B. Chiu, **A. Samani**, J. Samarabadu, D. Spence and A. Fenster. “A Twisting and Bending Model-based Nonrigid Image Registration Technique for 3D Ultrasound Carotid Images” *IEEE-TMIV* Vol. 27(10):1378-1388, 2008.
- [15] O’Hagan J. and **Samani A.**, “Measurement of the Hyperelastic Properties of Tissue Slices with Tumour Inclusion”. *Phys. Med. Biol* **53**: 7087–7106, 2008.
- [16] C. Linte, M. Wierzbicki, T. M. Peters and **A. Samani**. “Towards a Biomechanics-Based Technique for Assessing Myocardial Contractility: An Inverse Problem Approach” *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. **11**(3), pp. 243-255, 2008.
- [17] **A. Samani** and D.B. Plewes. “An Inverse Problem Solution for Measuring the Elastic Modulus of Intact Breast Tissue Tumours” *Phys. Med. Biol* **52**:1247-1260, 2007.

[18] **A. Samani**, J. Zubovits and D.B. Plewes. “Elastic Moduli of Normal and Pathological Human Breast Tissues: An Inversion-technique-based Investigation of 169 Samples” *Phys. Med. Biol* **52**:1565-1576, 2007.

[19] **A. Samani** and D.B. Plewes. “A Method to Measure the Hyperelastic Parameters of *Ex vivo* Breast Tissue Samples” *Phys. Med. Biol*, **49**:4395-4405, 2004.

[20] I. Sack, C. MacGowan, **A. Samani**, C. Luginbuhl, W. Oakden and D.B. Plewes. “Observation of non-linear shear wave propagation using Magnetic Resonance Elastography.”, *MRM*, **52**:842–850, 2004.

[21] **A. Samani**, J. Bishop, C. Luginbuhl and D.B. Plewes. “*Measuring the Elastic Modulus of Ex-vivo Small Tissue Samples*”, *Phys. Med. Biol*, vol. **48**: 2183-2198, 2003.

[22] J. Sciarretta, **A. Samani**, J. Bishop and D.B. Plewes. “*MR Validation of Soft Tissue Mimicking Phantom Deformation as Modeled by Nonlinear Finite Element Analysis*”. *Medical Physics*, **29**(1):65-72, 2002.

[23] J. Bishop, **A. Samani**, J. Sciarretta, C. Luginbuhl and D.B. Plewes. “*A Signal/Noise Analysis of Magnetic Resonance Strain Imaging*”. *IEEE Trans. Med. Imag.*, vol. **20**, pp. 1183-1187, 2001.

[24] **A. Samani**, J. Bishop, M.J. Yaffe, and D.B. Plewes. “*Biomechanical 3-D finite element modeling of the human breast using MRI data*”. *IEEE Trans. Med. Imag.*, vol. **20**, no. 4, pp. 271-279, 2001.

[25] **A. Samani**, J. Bishop, and D.B. Plewes, “*A constrained modulus reconstruction technique for breast cancer assessment*”. *IEEE Trans. Med. Imag.*, vol. **20**, no. 9, pp. 877-885, 2001.

[26] D.B. Plewes, J. Bishop, **A. Samani** and J. Sciarretta. *Biomechanical Properties with Magnetic Resonance Elastography*. *Phys. Med. Biol.* **45**:1591-1610, 2000.

[27] J. Bishop, **A. Samani**, J. Sciarretta and D.B. Plewes. “*Two-dimensional MR Elastography: Methodology and Noise Analysis*”. *Phys. Med. Biol.* **45**:2081-2091, 2000.

#### **Paper manuscripts under review in journals:**

[1] A. Sadeghi Naini, R.V. Patel, and **A. Samani**, “*Modeling Deflated Lung’s Tumor Motion for Minimally Invasive Tumor Ablative Procedures*”, *IEEE Transaction on Biomedical Engineering*, 2011.

[2] H. Mehrabian and **A. Samani**, “*Performance Evaluation of Several Hyperelastic Models in Reconstructing the Non-linear Behavior of Soft Tissues*”, *Computer Methods in Biomechanics and Biomedical Engineering*, 2011.

[3] H. Karimi, A. Fenster, and **A. Samani**, “*Novel Ultrasound Elastography Imaging System for Breast Cancer Assessment*”, *Medical Physics*, 2011.

### **Peer-reviewed conference proceedings:**

- [1] Z. Shirzadi, A. Sadeghi Naini, and **A. Samani**, “Lung Tumor Motion Prediction During Lung Brachytherapy Using Finite Element Model”, Presented in the SPIE Symposium on Medical Imaging, February 2012.
- [2] H. Wang, S. R. Mousavi and **A. Samani**, “A Novel Shape Similarity Based Elastography System for Prostate Cancer Assessment”, Presented in the SPIE Symposium on Medical Imaging, February 2012.
- [3] A. Sadeghi Naeini, R. Patel and **A. Samani**, “A totally deflated lung's CT image construction by means of extrapolated deformable registration.” Presented in the SPIE Symposium on Medical Imaging, February 2011.
- [4] A. Sadeghi Naeini, R. Patel and **A. Samani**, “Effects of deflated lung's geometry simplifications on the biomechanical model of its tumor motion: a phantom study.” Presented in the SPIE Symposium on Medical Imaging, February 2011.
- [5] **A. Samani**, S. Shavakh, M. Amooshahi, and S.R. Mousavi, “Breast linear and nonlinear real-time ultrasound elastography”, Accepted for presentation in the 2<sup>nd</sup> International Conference on Computational & Mathematical Biomedical Engineering, 2011.
- [6] A. Sadeghi Naeini, R. Patel and **A. Samani**, “Modeling lung tissue local deformations in a full deflation process”, 9<sup>th</sup> Imaging Network Ontario Symposium, Toronto, Ontario, 2011.
- [7] M. Amooshahi and **A. Samani**, “A fast nonlinear elastography technique: PVA phantom study using the Veronda-Westmann model, Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Vancouver, BC, Canada, 2010.
- [8] S. R. Mousavi and **A. Samani**, “Real-time ultrasound prostate Young's modulus reconstruction technique using a full inversion approach” Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Vancouver, BC, Canada, 2010.
- [9] S. Shavakh, A. Fenster and **A. Samani**, “Real-time ultrasound elastography technique for multifocal breast cancer assessment” Proceedings of the ASME International Mechanical Engineering Congress and Exposition, Vancouver, BC, Canada, 2010.
- [10] A. Sadeghi Naeini, R. Patel and **A. Samani**, “CT image reconstruction of a totally deflated lung predicting its tissue local motions by the means of deformable registration”, 8<sup>th</sup> Imaging Network Ontario Symposium, Toronto, Ontario, 2010.
- [11] A. Sadeghi Naeini, R. Patel and **A. Samani**, “CT image construction of the lung in a totally deflated mode.” 6<sup>th</sup> IEEE International Symposium on Biomedical Imaging: From Nano to Macro, Boston, Massachusetts, U.S.A, June 2009.

- [12] I. Khalaji, K. Rahemifar, and **A. Samani**, "Accelerated statistical shape model-based technique for tissue deformation estimation" Presented orally in the SPIE Symposium on Medical Imaging, February 2009.
- [13] H. Mehrabian and **A. Samani**, "Constrained hyperelastic parameters reconstruction of PVA phantom undergoing large deformation" Presented in the SPIE Symposium on Medical Imaging, February 2009.
- [14] H. Mehrabian and **A. Samani**, "Accurate optical flow field estimation using mechanical properties of soft tissues." Presented in the SPIE Symposium on Medical Imaging, February 2009.
- [15] H. Karimi, A. Fenster and **A. Samani**, "A real-time method for breast cancer diagnosis using optical flow" Presented orally in the SPIE Symposium on Medical Imaging, February 2009.
- [16] I. Khalaji, K. Rahemifar, and **A. Samani**, "Statistical Finite Element Analysis", 30th Annual International IEEE EMBS Conference, Vancouver, Canada, pp. 5577-5580, 2008.
- [17] I. Khalaji, K. Rahemifar, and **Abbas Samani**, "Elastic Modulus Reconstruction Using a Novel Fast Finite Element Model", Presented in the 7th International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Austin, USA, 2008.
- [18] **A. Samani** and Hatem Mehrabian, "An iterative hyperelastic behaviour reconstruction for Breast Cancer Assessment", Medical Imaging SPIE, 6916-49, 2008.
- [19] N. D. Nanayakkara, B. Chiu, **A. Samani**, D. Spence, G. Parraga, J. Samarabandu, and A. Fenster, "Non-Rigid Registration of Carotid Ultrasound and MR Images Using a 'Twisting and Bending' Model," Medical Imaging SPIE, 6914-36, 2008.
- [20] P. Courtis and **A. Samani**, "Detecting Mechanical Abnormalities in Prostate Tissue Using FE-Based Image Registration." MICCAI (2) 2007: 244-251
- [21] J. J. O'Hagan and **A. Samani**, "Measurement of the Hyperelastic Properties of Tissue Mimicking Phantoms." Sixth International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Santa Fe, New Mexico, 2007.
- [22] I. Sack, J. Rump, T. Elgeti, **A. Samani** and J. Braun. "In Vivo Assessment of Elasticity Alterations in the Human Heart During the Cardiac Cycle: Shear Wave Amplitude Variation MR Elastography". Sixth International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Santa Fe, New Mexico, 2007.
- [23] P. R. Courtis and **A. Samani**, "Prostate Ultrasound Elastography Using Finite-Element Image Registration" at the Imaging Network Ontario (INO) 6<sup>th</sup> Annual Imaging Symposium, Toronto, Ontario, Canada, March 28-29, p. 31, 2007.

- [24] N. D. Nanayakkara, B. Chiu, **A. Samani**, D. Spence, J. Samarabandu, and A. Fenster, "A Non-Rigid Registration Technique for 3D Ultrasound Images using a 'Twisting and Bending' Model to Monitor Carotid Plaque Changes," at *the second Canadian Student Conference on Biomedical Computing*, the University of Western Ontario, London, Ontario, Canada, March 16-18, 2007.
- [25] N. D. Nanayakkara, B. Chiu, **A. Samani**, D. Spence, J. Samarabandu, and A. Fenster, "A Non-Rigid Registration of 3D Ultrasound Images using a Twisting and Bending Model to Monitor Carotid Plaque Changes," at the Imaging Network Ontario (INO) 6 th Annual Imaging Symposium, Toronto, Ontario, Canada, March 28-29, 2007.
- [26] H. Marshal, H. Ladak and **A. Samani** , " An Inverse Problem Based Technique for Measuring the Young's Modulus of the Intact Tympanic Membrane", 26th Annual Canadian Biomaterials Society Meeting University of Western Ontario, London, ON, May 25-27, 2007.
- [27] H. Marshal, H. Ladak and **A. Samani**, "A Finite Element Model Based Approach to Determine the Young's Modulus of the Intact Tympanic Membrane", Symposium on Computer Simulation in Medicine (CompMed), Montreal, Canada, May 16-18, 2007,
- [28] P. R. Courtis and **A. Samani**, "Prostate Ultrasound Elastography using Finite-Element based Image Registration", 26th Annual Canadian Biomaterials Society Meeting University of Western Ontario, London, ON, May 25-27, 2007.
- [29] Linte, C.A., Wierzbicki, M., Aladl, U., Peters, T.M. and **Samani, A.**, "Towards a Biomechanics-Based Method for Assessing Myocardial Tissue Function", conference manuscript/proceedings, IEEE EMBC, New York City, NY, USA, August/September, 2006, pp.
- [30] N. D. Nanayakkara, B. Chiu, **A. Samani**, D. Spence, J. Samarabandu, and A. Fenster, "A Non-Rigid Image Registration Technique for 3D Ultrasound Carotid Images Using a 'Twisting and Bending' Model," in proceedings of IEEE International Conference of the Engineering in Medicine and Biology Society (EMBC), New York, USA, August/September, 2006, pp. 2738-2741.
- [31] Linte, C.A., Wierzbicki, M., Aladl, U., Peters, T.M. and **Samani, A.**, "Towards a Biomechanics-Based Method for Assessing the Functionality of Myocardial Tissue", conference abstract, ISMRM Workshop on Cardiovascular Flow and Motion 2006, New York City, NY, USA.
- [32] Linte, C.A., Peters, T.M. and **Samani, A.**, "A Biomechanics-based Method for Assessing Cardiac Tissue Viability", Imaging Network of Ontario (INO) 5 th Annual Imaging Symposium, Toronto, ON, Canada, April 3-4, 2006.
- [33] Registration of 3D Ultrasound Carotid Images using a "Twisting and Bending" Model," at the Imaging Network Ontario (INO) 5<sup>th</sup> Annual Imaging Symposium, Toronto, Ontario, Canada, April 3-4, 2006.

- [34] P. R. Curtis and **A. Samani**. “Biomechanical Registration of Prostate Images Using Statistical Shape Models.” *Medical Imaging SPIE*, 6143 –37, 2006
- [35] C. A. Linte, T. M. Peters and A. Samani. “A method for myocardial contraction force reconstruction for tissue viability assessment.”, *Medical Imaging SPIE*, 6143 –97, 2006
- [36] N. Abolhassani and **A. Samani**, “Non-Rigid Registration Using Free Form Deformation for Prostate Images.” *Annual Meeting of the North American Fuzzy Information Processing Society*, pp. 51-54, 2005.
- [37] Ralph Buchal, Edwin Gibb, F. Michael Bartlett, Sean Hinchberger, Shahzad Barghi, Amarjeet Bassi, Kenneth McIsaac, Jayshri Sabarinathan, **Abbas Samani** and Xeuliang (Andy) Sun. “A New First Year Design Course at the University of Western Ontario.” *The Second CDEN International Conference on Design Education, Innovation, and Practice*, 2005.
- [38] **A. Samani**, I. Sack, D. Plewes, “Constrained Non-linear Elasticity Reconstruction Technique for Breast MRI Elastography”. *Proc. ISMRM*, 11<sup>th</sup> Annual Meeting, p. 773, 2003.
- [39] I. Sack, **A. Samani**, D. Plewes and J. Braun, “Simulation of *in vivo* MR Elastography wave patterns of skeletal muscles using a transverse isotropic elasticity model”. *Proc. ISMRM*, 11<sup>th</sup> Annual Meeting, p. 587, 2003.
- [40] **A. Samani**, C. Luginbuhl and DB Plewes, “*Magnetic Resonance Imaging Elastography Technique for Breast Tissue In-vitro Elasticity Measurement*”. *IEEE International Symposium on Biomedical Imaging*, pp. 931-934, 2002.
- [41] **A. Samani** and DB Plewes, “*In-vitro Breast Tissue Elastic Modulus Measurement Using Uniaxial Indentation Technique*”, *Proc. First International Conference on the Ultrasonic Measurement and Imaging Tissue Elasticity*, 69, 2002.
- [42] **A. Samani** and DB Plewe, “*Constrained Breast Elastography: Phantom Study and Application in In-vitro Breast Tissue Measurement*”, *Proc. First International Conference on the Ultrasonic Measurement and Imaging Tissue Elasticity*, 70, 2002.
- [43] **A. Samani**, J. Bishop, and DB Plewes, “*3D Finite Element Model for Breast MRI Non-rigid Registration*”. *Proc. ISMRM*, 9<sup>th</sup> Annual Meeting, p. 837, 2001.
- [44] **A. Samani**, J. Bishop, and DB Plewes, “*A Constrained Breast Magnetic Resonance Elastography Technique: 3D phantom Study*”. *Proc. ISMRM*, 9<sup>th</sup> Annual Meeting, p. 1640, 2001.
- [45] J. Bishop, **A. Samani**, and DB Plewes, “*A Signal/Noise Analysis of Magnetic Resonance Strain Imaging*”. *Proc. ISMRM*, 9<sup>th</sup> Annual Meeting, p. 1646, 2001.

[46] **A. Samani**, J. Bishop, E. Ramsay and DB Plewes, “*Breast Tissue Deformation Finite Element Modeling for MR/X-ray Mammography Data Fusion*”. Proc. Fifth International Workshop on Digital Mammography, pp. 763-769, 2000.

[47] **A. Samani**, J. Bishop, J. Sciarretta and DB Plewes, “*Automated Three-dimensional Finite Element Mesh Generation Technique for Patient Specific Breast Using MRI Data*”. Proc. ISMRM, 8<sup>th</sup> Annual Meeting, p. 2175, 2000.

[48] **A. Samani**, J. Bishop, J. Sciarretta and DB Plewes, “*Breast Magnetic Resonance Elastography: A New Reconstruction Technique Using MRI Derived Constraints*”. Proc. ISMRM, 8<sup>th</sup> Annual Meeting, p. 2174, 2000.

[49] J. Bishop, **A. Samani**, J. Sciarretta and DB Plewes, “*Use of Constraints to Provide Plane Strain Conditions for MR Elastography*”. Proc. ISMRM, 8<sup>th</sup> Annual Meeting, p. 1735, 2000.

#### **Articles in unrefereed journals and conference proceedings:**

[1] A. Sadeghi Naini, R.V. Patel, and **A. Samani**, “Application of a respiratory CT sequence’s combined histogram to estimate intra-sequence lung’s air volume variations”, 5<sup>th</sup> Canadian Student Conference on Biomedical Computing and Engineering, Waterloo, Ontario, 2010.

[2] S. Shavakh, A. Fenster and **A. Samani**, “A real-time biomechanics analysis method for multifocal breast cancer assessment”, 5<sup>th</sup> Canadian Student Conference on Biomedical Computing and Engineering, Waterloo, Ontario, 2010.

[3] M. Amooshahi and **A. Samani**, “A fast breast nonlinear elastography reconstruction technique using the Veronda-Westman model”, 5<sup>th</sup> Canadian Student Conference on Biomedical Computing and Engineering, Waterloo, Ontario, 2010.

[4] S. R. Mousavi and **A. Samani**, “A Fast Technique of Tissue Biomechanical Analysis for Real-time Prostate Tissue Elasticity Reconstruction”, 5<sup>th</sup> Canadian Student Conference on Biomedical Computing and Engineering, Waterloo, Ontario, 2010.

[5] H. Marshal, H. Ladak and **A. Samani**, “Estimation of the Young’s Modulus of the intact tympanic membrane: A phantom study”, at the second Canadian Student Conference on Biomedical Computing, University of Western , Ontario, London, Ontario, Canada, March 16-18, 2007.

[6] Linte, C.A., Peters, T.M. and **Samani, A.**, “A Method for Myocardial Contraction Force Reconstruction for Assessment of Cardiac Tissue Viability”, Ontario Consortium of Image-Guided Surgery and Therapy (OCITS), Toronto, ON, Canada, 2006.

[7] Linte, C.A., Wierzbicki, M., Aladl, U., Peters, T.M. and **Samani, A.**, “Towards a Biomechanics-Based Method for Assessing Myocardial Tissue Function”, at the first Canadian Student Conference on Biomedical Computing, Queen's University, Kingston, Ontario, Canada, March 17-19, 2006.

[8] N. D. Nanayakkara, B. Chiu, **A. Samani**, D. Spence, J. Samarabandu, and A. Fenster, "A Biomechanical Model based Non-Rigid Image Registration Technique for 3D Ultrasound Carotid Images," at the first Canadian Student Conference on Biomedical Computing, Queen's University, Kingston, Ontario, Canada, March 17-19, 2006.

[9] Linte, C.A., Peters T.M., **Samani, A.**, "A Novel Technique for Assessing Cardiac Tissue Viability", Margaret Moffat Research Day, The University of Western Ontario, 2005.

[10] Nuwan D. Nanayakkara, **AbbasSamani** , Jagath Samarabanduand Aaron Fenster. "A Non-rigid Biomechanical Model based 3D Ultrasound Image Non-Rigid Registration Technique for Monitoring Carotid Plaque Progression/Regression", Margaret P. Moffat Graduate Research Day, 2005.

[11] Linte, C.A., Curtis, PR, **Samani, A.**, "Applications of Tissue Biomechanics in Medical Imaging", Workshop on Numerical Modeling and Simulation in Biomedical Engineering, London, ON, Canada, 2005.

[12] **A. Samani**, C. Luginbuhl and DB Plewes. "*Measuring the Elastic and Hyperelastic Properties of Breast Tissue*", Department of Defense Breast Cancer Research Meeting, P24-17, 2002.

**INVITED LECTURES:** Breast linear and nonlinear real-time ultrasound elastography, 2 nd International Conference on Mathematical and Computational Biomedical Engineering – CMBE2011, March 30 –April 1, 2011, Washington D.C., USA.

Deformable models for real-time biomedical applications, Workshop on Quantitative Cancer Modeling: Mathematical Models, Imaging and Bioinformatics, Centre for Mathematical Medicine, Ontario Institute for Cancer Research, Toronto, Ontario, Aug. 2008.