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CONTACT INFORMATION	102 Seale Ave, Palo Alto, CA 94301	650-334-7650 tauhid@stanford.edu
RESEARCH INTERESTS	Artificial intelligence, deep learning, treatment optimization, ultrasound elastography, ultrasound poroelastography, analytical and finite element modeling of tumors, reconstruction of mechanical parameters, mechanopathological parameters, drug delivery	
EDUCATION	<p><b>Texas A&amp;M University</b>, College station, TX</p> <p>Ph.D., Electrical Engineering, December, 2018</p> <ul style="list-style-type: none"> <li>• Thesis Topic: <i>Estimation of mechanopathological parameters using ultrasound poroelastography</i></li> <li>• Advisor: Raffaella Righetti, Ph.D.</li> </ul> <p><b>Bangladesh University of Engineering and Technology</b>, Dhaka, Bangladesh</p> <p>M.S., Department of Electrical and Electronic Engineering, July 2014</p> <ul style="list-style-type: none"> <li>• Thesis Topic: <i>Speech enhancement based on statistical modeling of teager energy operated perceptual wavelet packet coefficients and adaptive thresholding function</i></li> <li>• Advisor: Celia Shahnaz, Ph.D.</li> </ul> <p>B.S., Department of Electrical and Electronic Engineering, February 2011</p> <ul style="list-style-type: none"> <li>• Thesis Topic: <i>Ultrasound Strain Imaging in Wavelet Domain</i></li> <li>• Advisor: Md. Kamrul Hasan, Ph.D.</li> </ul>	
RESEARCH EXPERIENCE	<p><b>Postdoctoral Scholar</b> <span style="float: right;">June 2019 to Present</span></p> <p>Department of Radiation Oncology, Stanford University Research topic: Application of deep learning in medical imaging and cancer therapy optimization Supervisor: Lei Xing, Ph.D.</p> <p><b>Postdoctoral Researcher</b> <span style="float: right;">Feb 2019 to May 2019</span></p> <p>Department of Electrical and Computer Engineering, Texas A&amp;M University Research topic: Ultrasound poroelastography Supervisor: Raffaella Righetti, Ph.D.</p> <p><b>Graduate Research Assistant</b> <span style="float: right;">Sep 2016 to December 2018</span></p> <p>Department of Electrical and Computer Engineering, Texas A&amp;M University Research topic: Ultrasound poroelastography Supervisor: Raffaella Righetti, Ph.D.</p> <p><b>Graduate Research Assistant</b> <span style="float: right;">Sep 2014 to Aug 2016</span></p> <p>Department of Biomedical Engineering, Texas A&amp;M University Research topic: Single molecule and structured illumination microscopy Supervisor: Raimund Ober, Ph.D.</p>	
JOURNAL ARTICLES	<ol style="list-style-type: none"> <li>1. <b>Islam, M.T.</b> and Righetti, R., "A spline interpolation based data reconstruction technique for estimation of strain time constant in ultrasound poroelastography", 2019, accepted in <i>Ultrasonic Imaging</i>.</li> <li>2. <b>Islam, M.T.</b>, Tasciotti, E. and Righetti, R. "Non-invasive imaging of normalized solid stress in cancers in vivo", 2019, accepted in <i>IEEE Journal of Translational Engineering in Health and Medicine</i>.</li> </ol>	

3. **Islam, M.T.** and Righetti, R. “A new poroelastography method to assess the solid stress distribution in cancers”, 2019, *IEEE Access*, 7, pp.103404-103415.
4. **Islam, M.T.**, Tasciotti, E. and Righetti, R. “Estimation of vascular permeability in irregularly shaped cancers using ultrasound poroelastography”, 2019, accepted in *IEEE Transactions on Biomedical Engineering*.
5. **Islam, M.T.** and Righetti, R., “Estimation of mechanical parameters in cancers by empirical orthogonal function analysis of poroelastography data”, 2019, *Computers in Biology and Medicine*, p.103343.
6. **Islam, M.T.** and Righetti, R., “A novel finite element model to assess the effect of solid stress inside tumors on elastographic normal strains and fluid pressure”, 2019, *ASME Journal of Engineering and Science in Medical Diagnostics and Therapy*, 2(3), p.031006.
7. **Islam, M.T.** and Righetti, R., “An analytical poroelastic model of a spherical tumor embedded in normal tissue under creep compression”, 2019, *Journal of Biomechanics*, 89, pp.48-56.
8. **Islam, M.T.**, Chaudhry, A. and Righetti, R. “A robust method to estimate the time constant of elastographic parameters”, 2019, *IEEE Transactions on Medical Imaging*, 38(6), pp.1358-1370.
9. Tang S., Sabonghy E., **Islam M.T.**, Shajudeen P. S., Chaudhry, A., Tasciotti E. and Righetti, R. “Assessment of the long bone inter-fragmentary gap size in ultrasound strain elastograms” 2019, *Physics in Medicine & Biology*, 64(2), p.025014.
10. **Islam, M.T.**, Chaudhry, A. and Righetti, R. “An analysis of the error associated to single and double exponential approximations of theoretical poroelastic models”, 2019, *Ultrasonic Imaging*, 41(2), pp.94-114.
11. **Islam, M.T.**, Reddy, J.N. and Righetti, R., 2018. “A model-based approach to investigate the effect of elevated interstitial fluid pressure on elastography”, *Physics in Medicine & Biology*, 63(21), p.215011.
12. **Islam, M.T.** and Righetti, R., 2018. “A novel filter for estimation of fluid pressure and fluid velocity”, *Computers in Biology and Medicine*, 101, pp.90-99..
13. Tang, S., Chaudhry A., Shajudeen P. S., **Islam, M.T.**, Kim N., Cabrera F. J., Reddy J. N., Tasciotti E. and Righetti, R. “A model-based approach to investigate the effect of a long bone fracture on ultrasound strain elastography” 2018. Accepted in *IEEE Transactions on Medical Imaging*.
14. **Islam, M.T.**, Reddy, J.N. and Righetti, R. “An analytical poroelastic model of a non-homogeneous medium under creep compression for ultrasound poroelastography applications - Part I” 2018. *Journal of biomechanical engineering*, 141(6), p.060902.
15. **Islam, M.T.**, Reddy, J.N. and Righetti, R. “An analytical poroelastic model of a non-homogeneous medium under creep compression for ultrasound poroelastography applications - Part II” 2018. *Journal of biomechanical engineering*, 141(6), p.060903.
16. **Islam, M.T.**, Chaudhry, A., Unnikrishnan, G., Reddy, J.N. and Righetti, R., 2018. An analytical model of tumors with higher permeability than surrounding tissues for ultrasound elastography imaging. *Journal of Engineering and Science in Medical Diagnostics and Therapy*, 1(3), p.031006.
17. **Islam, M.T.**, Chaudhry, A., Tang, S., Tasciotti, E. and Righetti, R., 2018. A new method for estimating the effective Poisson’s ratio in ultrasound poroelastography. *IEEE transactions on medical imaging*, 37(5), pp.1178-1191.
18. **Islam, M.T.**, Chaudhry, A., Unnikrishnan, G., Reddy, J.N. and Righetti, R., 2018. An analytical poroelastic model for ultrasound elastography imaging of tumors. *Physics in Medicine & Biology*, 63(2), p.025031.

19. **Islam, M.T.**, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2017. Rayleigh modeling of teager energy operated perceptual wavelet packet coefficients for enhancing noisy speech. *Speech Communication*, 86, pp.64-74.
20. **Islam, M.T.**, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2015. Speech enhancement based on student t modeling of teager energy operated perceptual wavelet packet coefficients and a custom thresholding function. *IEEE/ACM Transactions on Audio, Speech and Language Processing (TASLP)*, 23(11), pp.1800-1811.

JOURNAL ARTICLES  
UNDER REVIEW

1. **Islam, M.T.**, Tasciotti, E. and Righetti, R., “Non-invasive assessment of the spatial and temporal distributions of interstitial fluid pressure, fluid velocity and fluid flow in cancers in vivo”, 2018, under review in *IEEE Access*.  
[Arxiv link: <https://arxiv.org/ftp/arxiv/papers/1809/1809.03663.pdf>]
2. **Islam, M.T.**, Tang, S., Tasciotti, E. and Righetti, R. “Non-invasive imaging of Young’s modulus and Poisson’s ratio in cancers in vivo”, 2018, under review in *Scientific Reports*.  
[Arxiv link: <https://arxiv.org/ftp/arxiv/papers/1809/1809.02929.pdf>]
3. **Islam, M.T.** and Righetti, R., “Investigation of the effects of interstitial fluid pressure and solid stress on shear and principal strains in poroelastography using finite element simulations”, 2019, under review in *Ultrasonic Imaging*.
4. **Islam, M.T.** and Righetti, R., “Assessment of porosity in cancers using ultrasound poroelastography”, 2019, under review in *Journal of Biomechanics*.

CONFERENCE  
PAPERS AND  
NON-REFEREED  
ARTICLES

1. **Islam, M.T.**, Shaan, M.N., Easha, E.J., Minhaz, A.T., Shahnaz, C. and Fattah, S.A., 2017, November. Enhancement of noisy speech based on decision-directed Wiener approach in perceptual wavelet packet domain. In Region 10 Conference, TENCON 2017-2017 IEEE (pp. 2666-2671). IEEE.
2. **Islam, M.T.**, Chao, J., Ward, S. and Ober, R., “Deconvolution of fluorescence microscopy images using a readout noise-aware expectation-maximization algorithm”, Accepted abstract in SPIE Photonic West, 2017.
3. **Islam, M.T.**, Shahnaz, C. and Fattah, S.A., 2014, August. Speech enhancement based on a modified spectral subtraction method. In Circuits and Systems (MWSCAS), 2014 IEEE 57th International Midwest Symposium on (pp. 1085-1088). IEEE.
4. **Islam, M.T.**, Hussain, A.B., Shahid, K.T., Saha, U. and Shahnaz, C., 2014, May. Speech enhancement based on noise compensated magnitude spectrum. In Informatics, Electronics & Vision (ICIEV), 2014 International Conference on (pp. 1-5). IEEE.
5. **Islam, M.T.** and Shahnaz, C., 2014, April. Speech enhancement based on noise-compensated phase spectrum. In Electrical Engineering and Information Communication Technology (ICEEICT), 2014 International Conference on (pp. 1-5). IEEE.
6. **Islam, M.T.**, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2018. Enhancement of Noisy Speech with Low Speech Distortion Based on Probabilistic Geometric Spectral Subtraction. arXiv preprint arXiv:1802.05125.
7. **Islam, M.T.**, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2018. Modeling of Teager Energy Operated Perceptual Wavelet Packet Coefficients with an Erlang-2 PDF for Real Time Enhancement of Noisy Speech. arXiv preprint arXiv:1802.03472.
8. **Islam, M.T.**, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2018. A Divide and Conquer Strategy for Musical Noise-free Speech Enhancement in Adverse Environments. arXiv preprint arXiv:1802.02665.
9. **Islam, M.T.**, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2018. Enhancement of Noisy Speech Exploiting an Exponential Model Based Threshold and a Custom Thresholding Function in Perceptual Wavelet Packet Domain. arXiv preprint arXiv:1802.05962.

10. **Islam, M.T.**, Asaduzzaman, Shahnaz, C., Zhu, W.P. and Ahmad, M.O., 2018. Speech Enhancement in Adverse Environments Based on Non-stationary Noise-driven Spectral Subtraction and SNR-dependent Phase Compensation. arXiv preprint arXiv:1803.00396.
11. **Islam, M.T.** and Shahnaz, C., 2018. Enhancement of Noisy Speech exploiting a Gaussian Modeling based Threshold and a PDF Dependent Thresholding Function. arXiv preprint arXiv:1803.01841.
12. **Islam, M.T.**, Saha, U., Shahid, K.T., Hussain, A.B. and Shahnaz, C., 2018. Speech Enhancement Based on Non-stationary Noise-driven Geometric Spectral Subtraction and Phase Spectrum Compensation. arXiv preprint arXiv:1803.02870.

PROVISIONAL  
PATENTS AND  
INVENTION  
DISCLOSURES

1. Righetti, R. and Islam, M.T., 2018, "Estimation of interstitial fluid pressure and velocity in cancers".
2. Righetti, R. and Islam, M.T., 2018, "Non-invasive assessment of the spatial and temporal distributions of interstitial fluid pressure, fluid velocity and fluid flow inside cancers".
3. Righetti, R. and Islam, M.T., 2018, "Estimation of interstitial and vascular permeability in cancers".
4. Righetti, R. and Islam, M.T., 2018, "Non-invasive imaging of Young's modulus and Poisson's ratio in cancers".
5. Righetti, R. and Islam, M.T., 2018, "Non-invasive estimation of spatial and temporal distribution of the solid stress in cancers".
6. Righetti, R. and Islam, M.T., 2019, "Imaging the solid stress distribution in cancers".

AWARDS

Student Awards — Texas A&M University  
 • International Education Fee Scholarship (IEFS) Award Summer 2016

PRESENTATIONS

Conference  
 • IEEE 57th International Midwest Symposium on Circuits and Systems (MWSCAS), College Station, Texas August 2014

TEACHING  
EXPERIENCE

Teaching Assistant Fall 2017  
 ECEN 410/764 - Introduction to Medical Imaging  
 Instructor: Raffaella Righetti, Ph.D  
 Department of Electrical and Computer Engineering,  
 Texas A&M University

Lecturer August 2011-December 2012  
 Department of Electrical Engineering  
 Stamford University  
 Bangladesh

SOFTWARE SKILLS

• C, C++, Java, MATLAB, Mathematica.

REFERENCES

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