

Stanford



Md Tauhidul Islam

Instructor, Radiation Oncology - Radiation Physics

 Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Instructor, Radiation Oncology - Radiation Physics

Teaching

COURSES

2023-24

- AI and Data Driven Methods in Biomedical Imaging and Physics: BMP 254 (Aut)

Publications

PUBLICATIONS

- **Deciphering the Feature Representation of Deep Neural Networks for High-Performance AI** *IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE*
Islam, M., Xing, L.
2024; 46 (8): 5273-5287
- **Non-Invasive Imaging of Mechanical Properties of Cancers In Vivo Based on Transformations of the Eshelby's Tensor Using Compression Elastography.** *IEEE transactions on medical imaging*
Majumder, S., Islam, M. T., Taraballi, F., Righetti, R.
2024; 43 (8): 3027-3043
- **Development and interpretation of a pathomics-driven ensemble model for predicting the response to immunotherapy in gastric cancer.** *Journal for immunotherapy of cancer*
Han, Z., Zhang, Z., Yang, X., Li, Z., Sang, S., Islam, M. T., Guo, A. A., Li, Z., Wang, X., Wang, J., Zhang, T., Sun, Z., Yu, et al
2024; 12 (5)
- **Bladder Cancer and Artificial Intelligence: Emerging Applications.** *The Urologic clinics of North America*
Laurie, M. A., Zhou, S. R., Islam, M. T., Shkolyar, E., Xing, L., Liao, J. C.
2024; 51 (1): 63-75
- **Self-supervised deep learning of gene-gene interactions for improved gene expression recovery.** *Briefings in bioinformatics*
Wei, Q., Islam, M. T., Zhou, Y., Xing, L.
2024; 25 (2)
- **Revealing hidden patterns in deep neural network feature space continuum via manifold learning.** *Nature communications*
Islam, M. T., Zhou, Z., Ren, H., Khuzani, M. B., Kapp, D., Zou, J., Tian, L., Liao, J. C., Xing, L.
2023; 14 (1): 8506

- **Biology-aware mutation-based deep learning for outcome prediction of cancer immunotherapy with immune checkpoint inhibitors.** *NPJ precision oncology*
Liu, J., Islam, M. T., Sang, S., Qiu, L., Xing, L.
2023; 7 (1): 117
- **Leveraging cell-cell similarity for high-performance spatial and temporal cellular mappings from gene expression data.** *Patterns (New York, N.Y.)*
Islam, M. T., Xing, L.
2023; 4 (10): 100840
- **Super-resolution biomedical imaging via reference-free statistical implicit neural representation.** *Physics in medicine and biology*
Ye, S., Shen, L., Islam, M. T., Xing, L.
2023
- **Non-invasive tumor microenvironment evaluation and treatment response prediction in gastric cancer using deep learning radiomics.** *Cell reports. Medicine*
Jiang, Y., Zhou, K., Sun, Z., Wang, H., Xie, J., Zhang, T., Sang, S., Islam, M. T., Wang, J. Y., Chen, C., Yuan, Q., Xi, S., Li, et al
2023: 101146
- **Assessment of compression-induced solid stress, fluid pressure and mechanopathological parameters in cancers in vivo using poroelastography.** *Physics in medicine and biology*
Khan, M. H., Islam, M. T., Taraballi, F., Righetti, R.
2023
- **Non-invasive imaging of interstitial fluid transport parameters in solid tumors in vivo.** *Scientific reports*
Majumder, S., Islam, M. T., Righetti, R.
2023; 13 (1): 7132
- **Learning image representations for content-based image retrieval of radiotherapy treatment plans.** *Physics in medicine and biology*
Huang, C., Vasudevan, V., Pastor-Serrano, O., Islam, M. T., Nomura, Y., Dubrowski, P., Wang, J. Y., Schulz, J. B., Yang, Y., Xing, L.
2023
- **Multibranch CNN With MLP-Mixer-Based Feature Exploration for High-Performance Disease Diagnosis** *IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS*
Zhou, Z., Islam, M., Xing, L.
2023
- **Cartography of Genomic Interactions Enables Deep Analysis of Single-Cell Expression Data.** *Nature communications*
Islam, M. T., Xing, L.
2023; 14 (1): 679
- **Image classification using graph neural network and multiscale wavelet superpixels** *PATTERN RECOGNITION LETTERS*
Vasudevan, V., Bassenne, M., Islam, M., Xing, L.
2023; 166: 89-96
- **Bladder Cancer and Artificial Intelligence: Emerging Applications** *Urologic Clinics North America*
Laurie, M., Zhou, S. R., Islam, M., Shkolyar, E., Xing, L., Liao, J. C.
2023
- **Flat lesion detection of white light cystoscopy with deep learning**
Jia, X., Shkolyar, E., Eminaga, O., Laurie, M., Zhou, Z., Lee, T., Islam, M., Meng, M. Q., Liao, J. C., Xing, L.
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- **Sequential modeling for cystoscopic image classification**
Laurie, M., Eminaga, O., Shkolyar, E., Jia, X., Lee, T., Long, J., Islam, M., Lau, H., Xing, L., Liao, J. C.
2023
- **Leveraging data-driven self-consistency for high-fidelity gene expression recovery.** *Nature communications*
Islam, M. T., Wang, J., Ren, H., Li, X., Khuzani, M. B., Sang, S., Yu, L., Shen, L., Zhao, W., Xing, L.
2022; 13 (1): 7142

- **Small-Object Sensitive Segmentation Using Across Feature Map Attention.** *IEEE transactions on pattern analysis and machine intelligence*
Sang, S., Zhou, Y., Islam, M. T., Xing, L.
2022; PP
- **Utilizing differential characteristics of high dimensional data as a mechanism for dimensionality reduction** *PATTERN RECOGNITION LETTERS*
Xing, S. S., Islam, M.
2022; 157: 1-7
- **Implicit neural representation for radiation therapy dose distribution.** *Physics in medicine and biology*
Vasudevan, V., Shen, L., Huang, C., Chuang, C. F., Islam, M. T., Ren, H., Yang, Y., Dong, P., Xing, L.
2022
- **Estimation of Mechanical and Transport Parameters in Cancers Using Short Time Poroelastography** *IEEE JOURNAL OF TRANSLATIONAL ENGINEERING IN HEALTH AND MEDICINE*
Majumder, S., Islam, M., Righetti, R.
2022; 10
- **Human-level comparable control volume mapping with a deep unsupervised-learning model for image-guided radiation therapy.** *Computers in biology and medicine*
Liang, X., Bassenne, M., Hristov, D. H., Islam, M. T., Zhao, W., Jia, M., Zhang, Z., Gensheimer, M., Beadle, B., Le, Q., Xing, L.
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- **Artificial intelligence in image-guided radiotherapy: a review of treatment target localization.** *Quantitative imaging in medicine and surgery*
Zhao, W., Shen, L., Islam, M. T., Qin, W., Zhang, Z., Liang, X., Zhang, G., Xu, S., Li, X.
2021; 11 (12): 4881-4894
- **Geometry and statistics-preserving manifold embedding for nonlinear dimensionality reduction** *PATTERN RECOGNITION LETTERS*
Islam, M., Xing, L.
2021; 151: 155-162
- **Artificial intelligence in image-guided radiotherapy: a review of treatment target localization** *QUANTITATIVE IMAGING IN MEDICINE AND SURGERY*
Zhao, W., Shen, L., Islam, M., Qin, W., Zhang, Z., Liang, X., Zhang, G., Xu, S., Li, X.
2021
- **Non-Invasive Assessment of the Spatial and Temporal Distributions of Interstitial Fluid Pressure, Fluid Velocity and Fluid Flow in Cancers In Vivo** *IEEE ACCESS*
Islam, M., Tang, S., Tasciotti, E., Righetti, R.
2021; 9: 89222-89233
- **Self-Supervised Feature Learning via Exploiting Multi-Modal Data for Retinal Disease Diagnosis** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Li, X., Jia, M., Islam, M., Yu, L., Xing, L.
2020; 39 (12): 4023-33
- **A data-driven dimensionality-reduction algorithm for the exploration of patterns in biomedical data.** *Nature biomedical engineering*
Islam, M. T., Xing, L.
2020
- **Estimation of Vascular Permeability in Irregularly Shaped Cancers Using Ultrasound Poroelastography** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
Islam, M., Tasciotti, E., Righetti, R.
2020; 67 (4): 1083-96
- **Non-invasive imaging of Young's modulus and Poisson's ratio in cancers in vivo.** *Scientific reports*
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- **A Robust Method to Estimate the Time Constant of Elastographic Parameters** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Islam, M., Chaudhry, A., Righetti, R.
2019; 38 (6): 1358-70

- **An analytical poroelastic model of a spherical tumor embedded in normal tissue under creep compression** *JOURNAL OF BIOMECHANICS*
Islam, M., Righetti, R.
2019; 89: 48–56
- **Non-Invasive Imaging of Normalized Solid Stress in Cancers in Vivo** *IEEE JOURNAL OF TRANSLATIONAL ENGINEERING IN HEALTH AND MEDICINE-JTEHM*
Islam, M., Tasciotti, E., Righetti, R.
2019; 7: 4300209
- **A New Poroelastography Method to Assess the Solid Distribution in Cancers** *IEEE ACCESS*
Islam, M., Righetti, R.
2019; 7: 103404–15
- **A Model-Based Approach to Investigate the Effect of a Long Bone Fracture on Ultrasound Strain Elastography** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Tang, S., Sabonghy, E. P., Chaudhry, A., Shajudeen, P., Islam, M., Kim, N., Cabrera, F. J., Reddy, J. N., Tasciotti, E., Righetti, R.
2018; 37 (12): 2704–17
- **A New Method for Estimating the Effective Poisson's Ratio in Ultrasound Poroelastography** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Islam, M., Chaudhry, A., Tang, S., Tasciotti, E., Righetti, R.
2018; 37 (5): 1178–91
- **An analytical poroelastic model for ultrasound elastography imaging of tumors** *PHYSICS IN MEDICINE AND BIOLOGY*
Islam, M., Chaudhry, A., Unnikrishnan, G., Reddy, J. N., Righetti, R.
2018; 63 (2): 025031