



## Indrani Bhattacharya

Research Engineer, Rad/Integrative Biomedical Imaging Informatics at Stanford

### Bio

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#### BIO

Indrani Bhattacharya, Ph.D. is an Academic Staff (Research) in the Department of Radiology at Stanford University School of Medicine. Her current research focuses on developing accurate and generalizable machine learning methods for cancer detection and aggressiveness characterization using radiology images.

Dr. Bhattacharya received her Ph.D. and M.S. in Electrical Engineering from Rensselaer Polytechnic Institute (RPI), NY. Her research interests are in machine learning, computer vision, and multimodal data fusion applied to interdisciplinary real-world problems in precision medicine and human-centered computing. Her doctoral as well as postdoctoral research have been highly interdisciplinary, at the intersection of machine learning with social science and medicine respectively. Her doctoral research focused on the development of multi-sensor fusion and multimodal machine learning algorithms for estimating and analyzing human behavior in group interactions. Her postdoctoral research focused on developing multimodal machine learning algorithms leveraging complementary radiology, pathology and clinical data for prostate cancer detection.

Dr. Bhattacharya completed her Bachelor's in Electrical Engineering from Jadavpur University, India and worked as a Project Engineer in Indian Oil Corporation Limited before transitioning to her graduate education.

#### CURRENT ROLE AT STANFORD

Academic Staff -- Research, working on developing Artificial Intelligence methods that integrate complementary multimodal data for disease detection and aggressiveness characterization.

#### HONORS AND AWARDS

- Rising Stars in EECS, U. C. Berkeley (Nov. 2020)
- MICCAI NIH Award, MICCAI (Oct. 2020)
- Founders' Award of Excellence, Rensselaer Polytechnic Institute (Oct. 2018)

#### EDUCATION AND CERTIFICATIONS

- Bachelor of Engineering, Jadavpur University, India , Electrical Engineering (2011)
- Master of Science, Rensselaer Polytechnic Institute , Electrical Engineering (2016)
- Doctor of Philosophy, Rensselaer Polytechnic Institute , Electrical Engineering (2019)

#### LINKS

- Google Scholar: <https://scholar.google.com/citations?user=e814pTkAAAAJ&hl=en>
- Personal Webpage: <https://sites.google.com/site/indranibhattacharya021188/home>

## Publications

### PUBLICATIONS

- **Computational Detection of Extraprostatic Extension of Prostate Cancer on Multiparametric MRI Using Deep Learning.** *Cancers*  
Moroianu, S. L., Bhattacharya, I., Seetharaman, A., Shao, W., Kunder, C. A., Sharma, A., Ghanouni, P., Fan, R. E., Sonn, G. A., Rusu, M.  
2022; 14 (12)
- **Bridging the gap between prostate radiology and pathology through machine learning.** *Medical physics*  
Bhattacharya, I., Lim, D. S., Aung, H. L., Liu, X., Seetharaman, A., Kunder, C. A., Shao, W., Soerensen, S. J., Fan, R. E., Ghanouni, P., To'o, K. J., Brooks, J. D., Sonn, et al  
2022
- **DETAILED ANALYSIS OF MRI CONCORDANCE WITH PROSTATECTOMY HISTOPATHOLOGY USING DEEP LEARNING-BASED DIGITAL PATHOLOGY**  
Hockman, L., Fan, R., Schmidt, B., Bhattacharya, I., Rusu, M., Sonn, G.  
LIPPINCOTT WILLIAMS & WILKINS.2021: E813-E814
- **Deep Learning Improves Speed and Accuracy of Prostate Gland Segmentations on Magnetic Resonance Imaging for Targeted Biopsy** *JOURNAL OF UROLOGY*  
Soerensen, S., Fan, R. E., Seetharaman, A., Chen, L., Shao, W., Bhattacharya, I., Kim, Y., Sood, R., Borre, M., Chung, B., To'o, K. J., Rusu, M., Sonn, et al  
2021; 206 (3): 605-612
- **Deep Learning Improves Speed and Accuracy of Prostate Gland Segmentations on MRI for Targeted Biopsy.** *The Journal of urology*  
Soerensen, S. J., Fan, R. E., Seetharaman, A., Chen, L., Shao, W., Bhattacharya, I., Kim, Y., Sood, R., Borre, M., Chung, B. I., To'o, K. J., Rusu, M., Sonn, et al  
2021: 101097JU00000000000001783
- **Automated Detection of Aggressive and Indolent Prostate Cancer on Magnetic Resonance Imaging.** *Medical physics*  
Seetharaman, A., Bhattacharya, I., Chen, L. C., Kunder, C. A., Shao, W., Soerensen, S. J., Wang, J. B., Teslovich, N. C., Fan, R. E., Ghanouni, P., Brooks, J. D., To'o, K. J., Sonn, et al  
2021
- **Classifying the emotional speech content of participants in group meetings using convolutional long short-term memory networks** *JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA*  
Morgan, M. M., Bhattacharya, I., Radke, R. J., Braasch, J.  
2021; 149 (2): 885-894
- **Clinically significant prostate cancer detection on MRI with self-supervised learning using image context restoration**  
Bolous, A., Seetharaman, A., Bhattacharya, I., Fan, R. E., Soerensen, S., Chen, L., Ghanouni, P., Sonn, G. A., Rusu, M., Mazurowski, M. A., Drukker, K.  
SPIE-INT SOC OPTICAL ENGINEERING.2021
- **ProGNet: Prostate Gland Segmentation on MRI with Deep Learning**  
Soerensen, S., Fan, R., Seetharaman, A., Chen, L., Shao, W., Bhattacharya, I., Borre, M., Chung, B., To'o, K., Sonn, G., Rusu, M., Isgum, Landman, B. A.  
SPIE-INT SOC OPTICAL ENGINEERING.2021
- **Selective identification and localization of indolent and aggressive prostate cancers via CorrSigNIA: an MRI-pathology correlation and deep learning framework.** *Medical image analysis*  
Bhattacharya, I., Seetharaman, A., Kunder, C., Shao, W., Chen, L. C., Soerensen, S. J., Wang, J. B., Teslovich, N. C., Fan, R. E., Ghanouni, P., Brooks, J. D., Sonn, G. A., Rusu, et al  
2021; 75: 102288
- **Weakly Supervised Registration of Prostate MRI and Histopathology Images**  
Shao, W., Bhattacharya, I., Soerensen, S. C., Kunder, C. A., Wang, J. B., Fan, R. E., Ghanouni, P., Brooks, J. D., Sonn, G. A., Rusu, M., DeBruijne, M., Cattin, P. C., Cotin, et al  
SPRINGER INTERNATIONAL PUBLISHING AG.2021: 98-107
- **Intensity Normalization of Prostate MRIs using Conditional Generative Adversarial Networks for Cancer Detection**  
DeSilvio, T., Moroianu, S., Bhattacharya, I., Seetharaman, A., Sonn, G., Rusu, M., Mazurowski, M. A., Drukker, K.  
SPIE-INT SOC OPTICAL ENGINEERING.2021

- **CorrSigNet: Learning CORRelated Prostate Cancer SIGnatures from Radiology and Pathology Images for Improved Computer Aided Diagnosis** *Medical Image Computing and Computer Assisted Intervention*  
Bhattacharya, I., et al  
2020
- **Multiparty Visual Co-Occurrences for Estimating Personality Traits in Group Meetings**  
Zhang, L., Bhattacharya, I., Morgan, M., Foley, M., Riedl, C., Welles, B., Radke, R. J., IEEE Comp Soc  
IEEE COMPUTER SOC.2020: 2074-2083
- **Improved Visual Focus of Attention Estimation and Prosodic Features for Analyzing Group Interactions**  
Zhang, L., Morgan, M., Bhattacharya, I., Foley, M., Braasch, J., Riedl, C., Welles, B., Radke, R. J., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019: 385-394
- **Multimodal Dialog for Browsing Large Visual Catalogs using Exploration-Exploitation Paradigm in a Joint Embedding Space**  
Bhattacharya, I., Chowdhury, A., Raykar, V. C., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019: 187-191
- **The Unobtrusive Group Interaction (UGI) Corpus**  
Bhattacharya, I., Foley, M., Ku, C., Zhang, N., Zhang, T., Mine, C., Li, M., Ji, H., Riedl, C., Welles, B., Radke, R. J., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019: 249-254
- **A Multimodal-Sensor-Enabled Room for Unobtrusive Group Meeting Analysis**  
Bhattacharya, I., Foley, M., Zhang, N., Zhang, T., Ku, C., Mine, C., Ji, H., Riedl, C., Welles, B., Radke, R. J., ACM  
ASSOC COMPUTING MACHINERY.2018: 347-355
- **Privacy-Preserving Understanding of Human Body Orientation for Smart Meetings**  
Bhattacharya, I., Eshed, N., Radke, R. J., IEEE  
IEEE.2017: 284-292
- **Arrays of single pixel time-of-flight sensors for privacy preserving tracking and coarse pose estimation**  
Bhattacharya, I., Radke, R. J., IEEE  
IEEE.2016
- **A palmprint based biometric authentication system using dual tree complex wavelet transform** *MEASUREMENT*  
Chakraborty, S., Bhattacharya, I., Chatterjee, A.  
2013; 46 (10): 4179-4188