

Debdoot Sheet

RESEARCH AREAS

- **Physics of medical imaging:** Statistical physics; ultrasonics; optical coherence tomography; multispectral imaging; optical microscopy; ophthalmoscopy.
- **Machine learning:** Transfer, ensemble and deep learning; representation learning; multiscale pattern matching; regression in high-dimensional, large, sparse or approximately labeled data.
- **Image and multidimensional signal processing:** Stochastic models, denoising, bilateral processing, order statistics, shape models, image registration.

EXPERIENCE

JUL. 2014 - PRESENT
Indian Institute of Technology Kharagpur
Assistant Professor
Department of Electrical Engineering

FEB. 2014 - PRESENT
SkinCurate Research Private Limited
Founder

SELECTED PUBLICATIONS

- Joint learning of ultrasonic backscattering statistical physics and signal confidence primal for characterizing atherosclerotic plaques using intravascular ultrasound, *Medical Image Analysis*, vol. 18, no. 1, pp. 103-117, 2014.
- Hunting for necrosis in the shadows of intravascular ultrasound, *Computerized Medical Imaging and Graphics*, vol. 38, no. 2, pp. 104-112, 2014.
- *In situ* histology of mice skin through transfer learning of tissue energy interaction in optical coherence tomography, *J. Biomed. Optics*, vol. 18, no. 9, pp. 090503-1-3, 2013.

GRANT WRITING

- Computational modelling of ultrasonic backscattering statistical physics for in situ tissue characterization. *Sponsor:* Samsung GRO 2013, *Award:* \$100,080.
- Skin lesion diagnosis with in situ imaging and characterization through learning of multispectral signatures for augmentation of clinical insight in effective rural healthcare delivery. *Sponsor:* GE Edison Challenge 2013, *Award:* INR 1,000,000.

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EDUCATION

2010 - 2014 **Doctor of Philosophy**
COMPUTATIONAL MEDICAL IMAGING
Excellent / 'Summa cum laude'
IIT Kharagpur, India

2008 - 2010 **Master of Science**
MEDICAL SCIENCE AND TECH.
IIT Kharagpur, India

2004 - 2008 **Bachelor of Technology**
ELECTRONICS AND COMMUNICATION
West Bengal Univ. Tech., India

AWARDS

2013 **GE Edison Challenge**
GE John F. Welch Tech. Centre, India

2012 **Fraunhofer Applications Award**
Indo-German Grand Science Slam and Fraunhofer Society

2012 **Richard E. Merwin Student Scholarship**
IEEE Computer Society

2011 **Sandwich Model PhD Scholarship**
DAAD

PROFESSIONAL CONTRIBUTIONS

EDITORIAL BOARD IEEE Pulse
IEEE Tech. in Engg. Education

REVIEWER IEEE Trans. Med. Imaging
IEEE Trans. Image Process.
IET Image Process.
Neurocomputing
IEEE Potentials

SCIENTIFIC DISSEMINATION

JOURNALS Medical Image Analysis; J. Biomed. Optics, Comput. Med. Imaging Graph; IEEE Trans. Biomed. Engg.; IEEE Trans. Consumer Electronics.

CONFERENCES IEEE Int. Symp. Biomed. Imaging; SPIE Medical Imaging

OTHERS 6 US patents; 1 EU patent; 1 Indian patent; 1 book; 1 book chapter