SOUMYANIL BANERJEE

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EDUCATION

Wayne State University, Detroit, MI, USA Aug 2018 – present
PhD student in Computer Science (GPA: 3.96/4.0)
Advisor: Dr Ming Dong
Project: Deep Learning on graphs and applications in Medical Imaging.

University of Michigan, Ann Arbor, MI, USA Aug 2014 – Dec 2015
M.S in Electrical and Computer Engineering (GPA: 3.441/4.0)
Specialization: Signal & Image Processing and Machine Learning

West Bengal University of Technology, Kolkata, India Aug 2008 – July 2012
B.Tech in Electronics and Communications Engineering (GPA: 8.8/10.0)

WORK EXPERIENCE

University of Massachusetts Medical School, Worcester, MA, USA July 2016 – July 2018
Research Associate, Department of Radiology
Advisor: Dr Michael King
Project: Point Spread Function (PSF) Modeling for SPECT Image Reconstruction.

Delphinus Medical Technologies, Plymouth, MI, USA June 2015 – Aug 2015
Ultrasound Medical Imaging Intern
Advisor: John Seamans
Project: Advanced Statistical Lesion Analysis from Reconstructed Ultrasound Image Data.

Cognizant Technology Solutions, Kolkata, India Dec 2012 – Aug 2013
Engineer Trainee in Information Technology Infrastructure Services.

RESEARCH INTEREST

Deep Learning, Medical Image Processing, Machine Learning, Deep Learning on Graphs, Computer Vision.

TECHNICAL SKILLS

Programming Languages: Python, MATLAB, LaTeX, C/C++.
Frameworks: PyTorch, PyTorch Geometric, Tensorflow, Keras.
OS: Linux, Windows.

PEER-REVIEWED JOURNAL PUBLICATIONS (IF – Impact Factor)

[1] **Deep Relational Reasoning for the Prediction of Language Impairment and Postoperative Seizure Outcome Using Preoperative DWI Connectome Data of Children with Focal Epilepsy - Banerjee, S.**, Dong, M., Lee, M.H., O'Hara, N., Juhasz, C., Asano, E., Jeong, J.W., *IEEE transactions on medical imaging* (**IF: 6.685**), 2020. (Under Review).

[2] **Simulations of a multipinhole SPECT collimator for clinical dopamine transporter (DAT) imaging** - Könik, A., De Beenhouwer, J., Mukherjee, J.M., Kalluri, K., **Banerjee, S.**, Zeraatkar, N., Fromme, T. and King, M.A., *IEEE transactions on radiation and plasma medical sciences*, *2*(5), pp.444-451, 2018.

SELECTED PEER-REVIEWED CONFERENCE PUBLICATIONS

[1] **Prediction of Language Impairments in Children Using Deep Relational Reasoning with DWI Data (Oral) - Banerjee, S**., Dong, M., Lee, M.H., O'Hara, N., Asano, E. and Jeong, J.W., *IEEE 17th International Symposium on Biomedical Imaging (ISBI)* (pp. 1680-1684), 2020.

[2] **Point spread function modeling for pinhole SPECT imaging which accounts for aperture size and orientation** (SNMMI Conference) **(Oral) - Banerjee, S.**, Auer, B., Zeraatkar, N., Konik, A., Kalluri, K., Zubal, G., Furenlid, L. and King, M., *Journal of Nuclear Medicine*, 59(supplement 1), pp.360-360, 2018.

[3] **Preliminary investigation of a Monte Carlo-based system matrix approach for quantitative clinical brain 123 I SPECT imaging** - Auer, B., Zeraatkar, N., **Banerjee, S.**, Goding, J.C., Furenlid, L.R. and King, M.A., *IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* (pp. 1-2), 2018.

[4] **Preliminary investigation to improve point spread function modeling for a multi-pinhole SPECT camera** - **Banerjee, S.**, Konik, A., Mukherjee, J.M., Kalluri, K.S., Goding, J.C., Caucci, L., Zubal, G.I., Furenlid, L.R. and King, M.A., *IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-2), 2017.

[5] **Preliminary investigation of axial and angular sampling in multi-pinhole AdaptiSPECT-C with XCAT phantoms** - Zeraatkar, N., Kalluri, K.S., Könik, A., Mukherjee, J.M., Dey, J., Goding, J.C., He, Y., Fromme, T.J., Auer, B., **Banerjee, S.**, Mok, G., et. al. *IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-3), 2017.

[6] **Preliminary investigation of multiplexed pinholes with circular apertures and elliptical ports for I-123 DAT imaging** - Könik, A., Fromme, T., De Beenhouwer, J., He, Y., **Banerjee, S.**, Kalluri, K., Furenlid, L.R. and King, M.A., *IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-3), 2017.

[7] **Stepwise linear regression modeling of the point spread functions of a multi-pinhole SPECT camera for I-123 DaTscan imaging** - Mukherjee, J.M., **Banerjee, S.**, Konik, A., Kallur, K.S., Furenlid, L.R. and King, M.A., *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD)* (pp. 1-3), 2016.

[8] **Optimization of pinhole aperture size of a combined MPH/fanbeam SPECT system for I-123 DAT imaging** - Könik, A., Mukherjee, J.M., **Banerjee, S.**, De Beenhouwer, J., Zubal, G.I. and King, M.A., *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD)* (pp. 1-2), 2016.

PROFESSIONAL ACTIVITIES

Journal Reviewer: Smart Health (2020) - ELSEVIER.

Conference Reviewer: Information Reuse and Integration for Data Science (IEEE IRI 2020), Connected Health: Applications, Systems and Engineering Technologies (IEEE/ACM CHASE 2020).

Technical Program Committee: IEEE IRI 2020, IEEE/ACM CHASE 2020.

PROFESSIONAL MEMBERSHIPS

IEEE Graduate Student Member (Membership #: 92479789)

AWARDS & HONORS

- Conference Travel Award (2020) – IEEE ISBI.
- Graduate Student Professional Travel Award (2020) – Wayne State University.
- Thomas C. Rumble University Graduate Fellowship (2018-2019), Wayne State University.
- University of Michigan Small Company Internship Award (Jun – Aug 2015).

INVITED TALKS & PRESENTATIONS

Point Spread Function (PSF) Modeling for SPECT Image Reconstruction

- Massachusetts General Hospital, MA, USA (2018).
- University of Arizona, AZ, USA (2017).

TEACHING EXPERIENCE

- Fall 2018: (CSC 6860) - Guest Lecturer, **Digital Image Processing & Analysis**, Wayne State University.

REFERENCES

- **Dr Ming Dong**, Department of Computer Science, Wayne State University, MI, USA.
  mdong@wayne.edu

- **Dr Justin Jeong**, Department of Pediatrics, Neurology, and Translational Neuroscience Program, Wayne State University School of Medicine & Translational Imaging Laboratory, Children's Hospital of Michigan, MI, USA.
  jjeong@med.wayne.edu