The IEEE Long Island (LI) Signal Processing Society (SPS) in collaboration with North Jersey Social Implications of Technology Society Presents the Following Technical Lecture:

Maximizing Learning with Minimal Labels: Innovations in Medical Image Analysis with Sparse Labels

Friday the 25th of August 2023 at 6:00 PM EST

Abstract:

Accurate image segmentation holds significance for vital clinical applications such as diagnosis and surgery planning. While deep neural networks have excelled in achieving superior segmentation outcomes via fully supervised learning, their reliance on substantial annotated training data is a challenge. Procuring extensive labeled datasets for medical images is labor-intensive and costly due to the need for clinical expertise in annotations. Thus, an opportunity for improvement is evident. Hence, the critical need to devise strategies for attaining medical images with scant annotations while harnessing untapped potential within unlabeled data during training. We harness the power of self-supervised representation learning and semi-supervised learning in this regard and perform extensive experiments on images from multiple modalities: Computer Tomograhpy (CT) scan, Magnetic Resonance Imaging (MRI) scan, Histopathology studies, etc. Our recent research showcases that even with minimal annotations estimate of x<10%, we achieve comparable or superior performance compared to fully supervised approaches.

Logistics:

Free Registration:
https://events.vtools.ieee.org/m/369575

Technical Lecturer:

Mr. Hritam Basak is a Ph.D. candidate in the Computer Science Department at State University of New York (SUNY) University at Stony Brook. His concentration is in computer vision, deep learning, and medical image analysis. Mr. Basak's research focuses on learning paradigms for leveraging unlabeled data. Prior to his doctoral studies, Mr. Basak worked as a Data Scientist at Tata Digital and Microsoft in India. He earned a Bachelor of Engineering (Hons.) in Electrical Engineering from Jadavpur University, India, where Mr. Basak's concentration was Signal and Image Processing. This exciting experience led to Mr. Basak's passionate interest into computer programming. Mr. Basak enjoys cycling, playing badminton, and immersing himself in classical music. He loves traveling and welcomes the opportunity to connect with new people. Please feel free to reach out and say hello to Mr. Basak!

When: the 25th of August 2023
@ 6:00 pm to 7:00 pm (GMT-5:00) US Eastern
Where: Virtual Meeting

Technical Lecture Coordinators (signal@ieee.li)**:**
Mr. Mesecher, Vice Chair, SPS, IEEE LI Section
Dr. Donaldson, Chair, SPS, IEEE LI Section