AI Solutions for a Variety of High-Impact Problems in the Healthcare Domain

Tuesday, April 9, 2024
2:00 pm – 3:00 pm
Olin 202

Reception to follow in Olin 204
3:00 pm – 3:30 pm

Dr. Priya Deshpande
Assistant Professor of Electrical and Computer Engineering, Marquette University

ABSTRACT: Our Data-intensive Computing Distributed Systems Lab (DiCDSL) mission is to significantly improve people's lives through our work in Artificial Intelligence (AI). DiCDSL focuses on designing, developing and implementing databases, machine learning, data science and artificial intelligence algorithms for data-intensive applications. The research conducted in our group is applied to various domains, including biomedical and health care informatics, neuroscience, sports, security, and space technology data. In this talk we will focus on applications of AI in the healthcare domain.

GAN for medical data de-identification: Medical images are often not publicly shared due to the complexity of ensuring that images cannot be linked to the original medical patient. If Generative Adversarial Networks (GANs) could be used to generate medical images that cannot be traced back to any singular human patient, this generated dataset could be shared easily without restriction or chance of harm to connected patients. This presentation will focus on experiments with GANs towards this purpose of de-identification.

Generative AI for Aphasia patients: This research explores the development of BERT-based text prediction and question-answer models to assist individuals with aphasia, a language impairment caused by brain injury.

Brain Metastases Identifications using AI: Brain metastases (BMs) represent a significant burden in oncology, with up to 40% of cancer patients developing metastases in the brain. Accurate detection and segmentation of BMs from MRI images are critical for treatment planning, monitoring disease progression, and assessing treatment response. We will talk about an AI framework that detects and segments BMs from MRI imaging data.

BIOGRAPHY: Dr. Priya Deshpande is Assistant Professor at Electrical and Computer Engineering department at Marquette University. She is a senior member of IEEE and her research focuses on unstructured data integrations, natural language processing, and artificial intelligence.

This talk will be presented by Dr. Priya Deshpande, along with members of the DiCDSL lab – Luke Richmond, Shamiha Binta Manir, and Omar Farghaly.