Trustworthy AI Using Interpretable and Evidential Deep Learning

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Abstract:

Recently, deep learning (DL) algorithms have become one of the most promising methods in biomedical research. Although DL has the strength of outstanding predictive performance by capturing nonlinear and hierarchical representations, most deep learning models lack interpretability, which is critical in biomedical research. Dr. Kang's research team has focused on developing novel deep learning methodologies which are biologically interpretable to discover new domain knowledge and producing reliable predictions for complicated bioinformatics problems. In this talk, I will present several recent research works of interpretable and evidential deep learning for various biomedical data analysis, including omics data, medical image analysis, and introduce new computational challenges and AI-based solutions.

Biography:

Dr. Mingon Kang is an associate professor in the Department of Computer Science at The University of Nevada, Las Vegas. His research interests include Machine Learning, Big Data Analytics, Data Science, and Bioinformatics. Specifically, Dr. Kang has been focusing on developing novel AI/ML models for integrative and interpretable deep learning. He has published +95 research papers in prestigious journals and conferences, including Nature Communications, Briefings in Bioinformatics, Bioinformatics, BMC Bioinformatics, Nature Methods, PNAS, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Intelligent Systems for Molecular Biology (ISMB), and Pacific Symposium on Biocomputing (PSB). His research has been supported from Department of Energy (DoE), NSF, The Centers for Medicare & Medicaid Services (CMS), NASA, Health Resources and Services Administration (HRSA), and Institute for Information & Communication Technology Promotion (IITP), and collaborated with medical research centers such as Indiana University School of Medicine and Cincinnati Children's Hospital. Dr. Kang obtained his Ph.D. and master degrees from The University of Texas at Arlington in 2015 and 2010 respectively.