Proposal for Special Session at IEEE CASE 2022

Goal:

In recent years, due to the unprecedent development in sensing, computing, data analytics algorithms including artificial intelligence, health care is facing a paradigm change on how to best leverage and integrate all existing data resources to support clinical decisions. Related to the theme of CASE 2022, automation plays a big role in smart and interconnected health care. This new paradigm including electronic data systems, imaging, and IoT technology enables remote patient monitoring, telemedicine, and automated care delivery systems. As important elements and enablers of smart health, AI techniques and quantitative methods driven by data from health care plays key roles into clinical decision support for diagnosis and treatment.

This special session aims to include state of the art research in data modeling through various techniques including statistics, machine learning, artificial intelligence, and optimization to support health care decision making. Rigorous quantitative methods and models describing real world practice are welcome. Innovative scientific results from academia and health care industry are strongly encouraged to participate in this session. This session provides a great opportunity to share existing data resources challenges and how to address issues by new data driven technologies.

Session Title: [Data-driven decision making for healthcare]

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Contributions:

1. "A Machine Learning-based Decision Support System for Early Detection and Intervention on Intensive Care Unit Readmission" by Lu He, Haifeng Wang, Mandana Rezaeiahari, Chun-An Chou

2. "An efficient surrogate assisted inference for patient-reported outcome with complex missing mechanism" by Jaeyoung Park, Xiang Zhong

3. "Biologically-informed machine learning to quantify regional heterogeneity of tumor recurrence in glioblastoma" by Hairong Wang, Michael Argenziano, Hyunsoo Yoon, Leland Hu, Peter Canoll, Kristin Swanson, Jing Li

4. "To be updated" by Ashif Iquebal and his student

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5. “To be updated” by Hui Yang and his student

6. “To be updated” by Joe Choe and his student