

# Proposal for Special Session at IEEE CASE 2021

**Goal:** The desire for safety, quality and efficiency is growing rapidly in today's healthcare systems. While the development of information technology (IT) can help address many needs, theory, models and methods in Systems Engineering and Operations Research are lacking, which would offer a new perspective and provide decision support to healthcare operations. In particular, it is important to bridge the gap between predictive models driven by data and the prescriptive analysis driven by models. Healthcare IT and the emerging of big and various data significantly empower model-based and data-driven decision making. However, valuable insights on the fundamental rules that govern many healthcare problems have yet to be generated. Therefore, the main objective of this special session is to present research that focuses on theoretical work and with successful implementations in hospitals or other healthcare systems.

The topics include but are not limited to: Emergency/critical care operations management, Operating Room (OR) management, Clinical pathways, Hospital logistics, Healthcare demand forecasting, Home and outpatient healthcare services design, Healthcare facility location, etc.

**Session Title:** Stochastic Modeling and Optimization in Healthcare Systems in the Era of Big Data

## **Organizers:**

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## **Contributions:**

1. "Data-driven Newsvendor model for hospital bed capacity management," L. Luo, X. Xu and X. Zhong, Sichuan University, China, University of Florida, US.
2. "Using auxiliary outcomes to augment heart failure risk prediction," J. Park, M. Liang and X. Zhong, University of Florida, US, Fred Hutchinson Health Center, US.
3. "Reducing Fall-related Readmission for Elderly Diabetes Patients in Emergency Departments: A Transition Flow Model" W. Zhu, A. DeLonay, M. Smith, P. Carayon, J. Li, University of Wisconsin Madison, US.
4. "Multiple-period optimal nurse scheduling under learning effect" B. Pang, X. Xie, Tsinghua University, China.
5. "A distributionally robust optimization for COVID-19 testing facility territory design" Z. Fan, X. Xie, Tsinghua University, China.
6. "Optimizing physician ranking based on patients' browse behaviors and resource capacities" Xin Pan, Hanqi Wen, Jie Song Peking University, China

7. “Emergency Resource Allocation in the COVID-19” Ziyang Wang, Xinming Han, Jie Song, Peking University, China

**Potential Reviewers:**

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