

## **Proposal for Special Session at IEEE CASE 2022**

### **Goal:**

A healthcare system involves medical care, physical resources, and internal systems needed to get patients from the point of admission to the point of discharge while maintaining quality and patient and provider satisfaction. Different from typical predefined industrial workflow, patient flow is full of uncertainty and sometime chaos. Significant change in patient visit rate over a given time period often causes large variation of patient length of stay. Overcrowding in healthcare providers, in particular emergency departments, is world-wide problem. Improving patient flow and reducing patient waiting time is a critical component in providing better health care service and higher patient satisfaction.

Petri nets have been widely used in service-oriented system modeling and analysis. A lot of research work and results have been reported in the past decades. This special session aims to bring together academic researchers and healthcare practitioners on new models, solutions, methodologies, algorithms, case studies, surveys on topics related to Petri net theory and applications to healthcare systems. Topics to be covered include, but are not limited to, the following:

- Petri nets
- Component-based healthcare modeling
- Inter-organizational workflow in healthcare
- Patient flow modeling and analysis
- Patient waiting time analysis
- Resource requirement analysis
- Identification of service bottlenecks
- Appropriate staffing
- Healthcare system simulation
- Cloud-based healthcare service delivery architecture

**Session Title:** Recent Advances in Petri nets and Applications to Healthcare Systems

### **Organizers:**

Jiacun Wang  
Dept of Computer Science and Software Engineering  
Monmouth University  
W. Long Branch, NJ 07764, USA.  
(e-mail: jwang@monmouth.edu).

Qingtian Zeng  
Department of Computer Science and Technology  
Shandong University of Science and Technology  
Qingdao, Shangdong 266510, China  
(qtzeng@163.com)

**Contributions:**

1. “Collaborative healthcare process model discovery” by Cong Liu/Qingtian Zeng
2. “Emergency department patient waiting time” by Yuansi Hu/Jiacun Wang
3. “Hierarchical modeling of patient flow and tracking of resource requirements” by Jiacun Wang/Yuansi Hu
4. “Reference Paper Title 4” by Name of First/Second Author
5. “Reference Paper Title 5” by Name of First/Second Author
6. “Reference Paper Title 6” by Name of First/Second Author
7. “Reference Paper Title 7” by Name of First/Second Author

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