

2nd International Conference and Exhibition on **Industrial Engineering**

November 16-18, 2015 Dubai, UAE

The promise of big data to healthcare

Avigdor Gal

Technion-Israel Institute of Technology, Israel

Service systems play a central role in the health sector. The provisioning of services is realized by a service process that can be broadly captured by a set of activities that are executed by a service provider and designated to both attain a set of organizational goals and add value to customers. Service processes can be classified by the amount of interactions between service providers and customers and the level of demand predictability and capacity flexibility. A service can be multi-stage, in the sense that service provisioning involves a series of interactions of a customer with a provider or specific resources at a provider's end. Further, a process can be scheduled, meaning that the number of customers to arrive is known in advance up to last moment cancellations and no-shows. Then, customers follow a predefined series of activities with every activity having a planned starting time for its execution, duration and a set of involved resources. Multi-stage scheduled processes are encountered for instance in outpatient clinics where various types of treatments are provided as a service to patients. Here, a schedule determines when a patient undergoes a specific examination or treatment. In this talk, we shall illustrate the impact big data has on the healthcare sector by analyzing RTLS-based data from a real-world use-case of scheduling in a large outpatient oncology clinic. We shall demonstrate the usefulness of the proposed methods in detecting operational bottlenecks in the schedule specifically longer-than-planned synchronization delays and diagnosing the root-cause to those problems.

avigal@ie.technion.ac.il

Desalination industry for sustainability focusing on people, prosperity and environment

Ayman Batisha

Scientific Committee on Problems of the Environment, Egypt

Water desalination is one of the few rainfall-independent water sources. Global dynamics and global warming are creating competing pressures on freshwater finite resources which diminishing dramatically. Competition over water is even more acute in the zones of water stress leading sometimes to serious tensions between different groups of users. Climate change is expected to add to more pressures on water resources in arid and semi-arid zones. Water desalination can pave a safe way towards sustainable and peaceful development from every angle: Social, economic, political, cultural and ecological. To improve the sustainability of desalination process in Egypt, we believe four ideas should be focused on both of the environmental impacts and water production cost of desalination should be minimized; the robustness and maturity of emerging promising technologies especially for Membrane technology and in its core are solar powered desalination system; reverse osmosis and forward osmosis should be enhanced and energy efficiency of desalination processes and their reliance on renewable energy sources should be maximized. The proposed research is focused on developing environmentally sound technologies; socially acceptable and economically viable of providing fresh water for human use in Egypt. The aim is a better understanding of the environmental impacts of desalination process leading to better mitigation plans through design and operational scenarios. Also, new membranes should have improved properties including higher flux, less fouling potential, lower ecological footprint and improved mechanical integrity. Water desalination can contribute to economic development, political security, poverty alleviation and regional integration.

abatisha@gmail.com