

IFAC MIM 2022, June 22 - 24, 2022, Nantes, France

10th IFAC conference MIM 2022 invited session on:

***Emerging Modeling Methods and Algorithms in Health Management with
Uncertainties (code XXX)***

Session Co-Chairs:

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Dr. Li Luo, Professor, Department of Industrial Engineering and Engineering Management, Business School, Sichuan University (CN)

Dr. Xiuju Fu, Senior Research Scientist, Institute of High Performance Computing (IHPC), Agency for Science, Technology and Research (A*STAR) (SG)

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Background:

In recent years, human beings have been increasingly threatened by multiple potential risks that came from the COVID-19 pandemic, emerging contaminants (e.g., antibiotic resistance genes and microplastics), increasing chronic diseases (e.g., diabetes and lung cancer), conventional disasters (e.g., earthquakes, tsunami and wildfire), and even the mismanagement of solid waste/medical waste in urban cities. The enhancement of human health management has emerged as a hot research topic of global interest. Uncertainties in many sources, such as field data and information, materials in supply chain networks, and human behaviors, have been broadly accompanying projects and studies related to human health management. The challenge facing the global community is to become more effective and resilient in addressing health management with such uncertainties and imperfect information.

Objective:

The objective of this session is to gather emerging modeling methods and intelligent algorithms (e.g., data-driven modeling, robust/stochastic optimization, machine learning, adaptive control, and other state-of-art methods) which are well-grounded in the practical foundation and use them to address specific challenging problems that the human health management is facing. Models, tools, and algorithms in the Operations Research and Management Science field that investigate optimized decisions, system complexity, and uncertainty measurements related to health management are particularly welcomed. This invited session will be mainly focused on emerging technologies for the improvement of health management under uncertainties, which would be of interest to both academic researchers and practitioners. We invite dedicated authors to contribute theoretical and/or applied research ideas

in areas including but not limited to the following topics:

- Optimal decision-making under uncertainty and imperfect information.
- Machine learning-based forecasting/prediction models/algorithms with field data.
- Game theory-based methods and/or applications for better health management.
- Data fusion technologies in health management with uncertainties.
- Heuristic or metaheuristic algorithms for complicated problems in health management.
- Emerging supply-chain management that focuses on human health and welfares.
- Empirically-grounded analytical modeling methods.
- Effective mitigation/prevention strategies that reduce resources required.
- Simulation software and new tools that are efficient and user-friendly for practitioners.
- Multidisciplinary topics inspired by practical applications.
- Practical experience and successful case in health management with uncertainties.

Keywords:

Optimization methods and simulation tools; Risk Management; Decision support system

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Submission:

For author guidelines, please refer to www.ifac-control.org. All papers must be submitted electronically at <https://ifac.paperecept.net/>. All papers must be prepared in a two-column format in accordance with the IFAC manuscript style. Please use the official IFAC instructions and template to prepare your contribution as a full-length draft paper and submit it online by **March 15, 2022**. Submission details are available on the symposium website. All submissions must be written in English. All papers that conform to submission guidelines will be peer-reviewed by IPC members. The corresponding author submits the paper online (pdf format) as an **invited session paper**. Submission as an invited paper requires **the submission code XXX**. Several international journals (e.g., IJPR) are associated with the IFAC MIM 2022 for the publication of special issues.

Important dates:

Deadline for submissions: **December 25, 2021**

Notification of acceptance: February 15, 2022

Start of registration: February 15, 2022

Final paper submission: **March 15, 2022**

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