

Call for Papers

ISA Transactions Special Issue on “*Modeling, prediction and control of COVID-19 spreading dynamics*”

<https://www.journals.elsevier.com/isa-transactions/call-for-papers/special-issue-on-modeling-prediction-and-control-of-covid-19>

The Urgent Need:

The COVID-19 pandemic partially paused our societies in a global scale. The WHO situation report published on May 28, 2020 tells that the confirmed cases are 5,593,631 and deaths are 353,334! COVID-19 is a global threat and obviously to tackle the pandemic requires an urgent global effort from not only all countries, but also the scientific communities across all fields and disciplines.

The Scope:

This call invites the sensor instrumentation and control automation community to contribute from different perspectives using multidisciplinary approach to the studies of COVID-19. Modeling, analysis and control insights can be very useful for us to explain and predict the complex COVID-19 spreading dynamics and hence to devise the best mitigation or control strategies to contain the contagion and treat COVID-19 infected patients.

Understanding the spreading dynamics is critical to decision makers and policy makers too. The richness of models for COVID-19, with differing structures, varied epidemiological scenarios, parameters and presentation, and sometimes conflicting projections, is also a challenge for decision-makers. GEP Box once said “All models are wrong but some of them are useful”, thus it is critical for all modelers to address the “usefulness” of any model proposed. In other words, it is necessary to justify the existence of the proposed model among many other existing options. Among three main purposes of “modeling”: prediction, control/monitoring, training/education, we wish to suggest to consider “control” aspect. For example, mitigation measures can be considered as a control measure to flatten the curve. When we turn down from the peak, re-opening policies should be considered as a closed-loop control problem. For example, it is very interesting and useful to study the best relaxing policies for social distancing. This Special Issue welcomes paper submissions considering the above new topics using real world data. Submissions on the following topics are encouraged:

Topics (not limited to)

- Mathematical/epidemiological predictive models
- Mitigation policy design and effectiveness evaluation
- Mitigation policy as a sense-and-control problem
- Re-opening policy design and effectiveness evaluation
- Re-opening policy as a sense-and-control problem
- Modeling and control in COVID-19 related equipment such as 3D prints for ventilators, disinfection robots etc.
- Deep learning applications in COVID-19 spreading dynamics
- Uncertain quantification and statistic inference in COVID-19 spreading dynamics
- Identifiability and controllability studies for data-driven models of the pandemic.

Submission URL: <https://ees.elsevier.com/isatrans/> (select SI COVID-19)

Timeline (subject to change)

Submission deadline: 7/30/2020; Review completed: 8/30/2020; Published online: 10/30/2020

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