Editorial Preface

Special Issues on COVID-19 Commentary: Rapid Responses, Government Policies, and Impacts

The COVID-19 pandemic has wreaked havoc on public health as well as the fundamental foundations on which our society has been built, including business activities, societal interactions and protocols, governmental policies and rules, and individual rights and behaviors. Some transformations of society caused by the external factors of this pandemic will be far reaching, requiring observation and discussion to better understand how to exert future influence on their nature. This special issue aims to rapidly disseminate ideas and critical viewpoints for perusal by thought leaders, researchers, government practitioners, and concerned citizens to reflect on, and actively participate in, finding solutions, innovations, changes, and the long-term implications and consequences arising from the pandemic response.

Topics covered by 34 commentaries about 13 countries have been published in three issues, in Volumes 1(4), 2(1), and 2(2). The methods, technologies, and theories used in them are listed in Table 1.

The major categories of these commentaries, identified by the ID numbers from Table 1, include:

- Diagnosis or prediction of disease cases, deaths (1, 2, 3, 22, 24, 27, 31)
- Tracking of disease cases and contacts (5, 16, 18, 25)
- Policy impacts and enforcement (4, 9)
- Economic issues and support (15, 17, 33)
- Social and psychological impact (13, 23, 29, 32)
- Work safety (6, 8)
- Innovations (7, 27, 30)
- Communications (messages from Government) (10, 11)
- Trust, equity, fairness, quality (12, 14, 19, 20, 21, 26, 34)

The major methods and approaches reported in these commentaries include:

- **Data Science:** Machine Learning, Deep Learning, AI, Data Mining, Visualizations, Sentiment Analysis, Image/Audio Surveillance
- **Social Science:** Cognitive Predicting Theory of Trust (CPTT), Crowdsourcing, Social Emotional Learning, Social Bonding with Games, Survey Analysis, Case Studies, Collaborative Approaches, Conversational/Voice Interface
- **Infrastructure/Platform:** IoT Sensors, Data Infrastructure, Smart City Infrastructure, Supply Chain, Dashboard Platform, Block Chain, GPS, Mobile Apps

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Table 1. Topics Covered by COVID-19 Commentaries and Methodologies Used

	Topic	Methodology
ID	Vol 1.4	
1	Predict the cumulative number of cases and of deaths due to COVID-19	Auto-Regressive Integrated Moving Average (ARIMA) and Long Short-Term Memory (LSTM)
2	Compare rate of spread of COVID-19 pandemic across different countries over time	Interactive visualization system, knee detection algorithm
3	Predict the number of confirmed COVID-19 cases for the next three weeks	SEIR model and regression model
4	Effect of lockdown and ease of mobility restrictions on virus transmission rates	Bayesian statistics and virus reproduction rates
5	Mobile app to track and sensitize the citizens of India to battle against COVID-19 spread	Bluetooth technology and location-generated social graphs or GPS
6	Digital infrastructure for a safe working environment to protect their employees as they return to work	Bluetooth Low Energy (BLE) enterprise tag
7	Utilization of collaborative and social platforms to foster co-production with citizens during the COVID-19 crisis	Collaborative and social platforms
8	Social bonding capacity of video calls can be increased by using games in remote working	Online face-to-face games
9	Develop a multiscale map of urban mobility and space occupancy under social distancing policy to identify policy compliance factors	Mobile phones, public web cameras, vehicle-mounted cameras, image/video analyses
10	Government messages play a role in dealing with the pandemic and the economic impact	Case studies
	Vol 2.1	
11	Twitter messages by Trump	Sentiment analysis
12	Online xenophobic behaviors	Automatic detection/moderation systems
13	Psychological impact	Sentiment/emotion analysis
14	Health disparity/access issues	Conversational agents
15	Pandemic unemployment assistance claims	Cloud-enhanced interactive voice response system
16	User concerns regarding contact tracing app	Mobile app
17	Geovisualization of emergency funds	Open-source visualization
18	Tracking and monitoring pandemics	Smart City IoT infrastructure
19	Responsible, automated data gathering	Collaborative online table editor
20	Collective erosion of trust: trust in information and health advice	Cognitive Predicting Theory of Trust (CPTT)

(Continued)

Table 1. Continued

	Topic	Methodology
ID	Vol 2.1	
21	Data-driven government policy making is not necessarily immune to politics and human frailty	A resilient and trustworthy health care data infrastructure for policy decision making
22	Demographic characteristics of US counties to predict future COVID-19 mortality	FP-growth pattern mining engine
23	Role of technology and government in promoting social-emotional learning during and after pandemic	Social-emotional learning versus e-learning
24	Projection tool for daily cases, critical cases, and deaths	Gaussian Process Regression Machine Learning model
25	Surveillance for effective diagnosis, monitoring, and treatment of diseases with pandemic potential	Infectious disease medical imaging classification AI model
	Vol 2.2	
26	Self-sovereign identities (SSI) management to provide individuals ownership over their data and the ability to share this with others for undocumented persons	Block chain technology
27	Rapid new product development of medical products	Supply chain
28	Chest x-ray images to screen COVID-19 and pneumonia	Deep learning model
29	Analysis and longitudinal trends of a collection of social signals, such as news topics, social distancing behaviors, community mobility changes, web searches, and other descriptors of the COVID-19 pandemic's effects on the United States	Interactive dashboard platform
30	Crowdsourcing the development of solutions through hackathons and innovation contests	Crowdsourcing/innovations
31	Novel fatality metric, the COVID-19 burden, which normalizes SARS-CoV2 fatalities with respect to historical mortality rates over the same period of time, to better rank the impact of the virus on different countries and regions	Linear regression, visualization
32	Impact on mental and physical issues and concerns, such as increased stress and depression levels and financial difficulties	Large-scale survey analysis
33	Build up small-business cybersecurity resilience	Cybersecurity controls and awareness
34	Significant inequities arising from data-driven decision systems need a framework of surfacing and reasoning about data equity	Socio-legal-technical data sharing and governance system

It is hoped that these three issues of COVID-19 commentaries will fulfill the need for rapid information sharing at a time of an unprecedented public health crisis. Lessons learned and reported on diverse topics will be of interest for readers working in many areas to overcome this pandemic. As witnessed in the variety of topics, the social and cultural impact of the COVID-19 pandemic is prominent and pervasive. These special issues serve as a knowledge base to allow a systematic appraisal of actions and impacts related to the COVID-19 pandemic and to encourage governments to devise innovative programs and policies to address the many challenges arising in the “new normal society” to meet people’s expectations regarding their economic, social, and cultural behaviors and activities.

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