ARIC 2020

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on Advances in Resilient and

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FOREWORD

The advancements in sensor technology and ubiquity of connected devices have enabled the generation of large volume of disparate, dynamic and geographically distributed data both by scientific communities, industries and citizens. With astonishing technological innovations and convergence, there have been major changes in people's daily activities and social interaction. The socio-technological innovations motivate the concept of smart and connected cities. A smart city is forward-looking and progressive and has the potential to provide high-quality life. A resilient city can preserve its activities and bounce back to its previous stage in the face of an emergency while meeting the daily activities and needs of its citizens. It is imperative to improve our understanding of Resilient and Intelligent Cities by leveraging new technologies to tackle the challenges ranging from climate change, public health, traffic congestion, economic growth, social equity, political movements, cultural conflicts, among others.

The discussion about making a city intelligent and resilient is occurring on two parallel planes. The COVID-19 pandemic has highlighted the difference between smart and resilient cities more so than any other hazard events. For instance, the availability of real-time data and analytics, cloud computing and artificial intelligence (AI) have enabled the development of dashboards and platforms to help with decision-making during this pandemic. Nevertheless, these platforms and dashboards have not been useful in addressing the resilience of the impacted communities as evident from the economic stress that every country is facing around the world. The occurrence of other natural hazards like cyclone Amphan in India or flooding in Michigan due to dam failure during COVID-19 has also brought forth the disconnect between society and technology in this discussion about smart and resilient cities. The challenge now is not only to leverage high performance computing or augmented reality to help with decision making, but also the need to plan and design intelligent cities under the framework of resilience so that online and real-time knowledge discovery from dynamic data streams could be used in conjunction with static data sets to help practitioners and researchers with their policy decisions.

The 3nd International Workshop on **Advances on Resilient and Intelligent Cities (ARIC 2020)** builds on the success of the last two workshops. This workshop brings together researchers and practitioners from different disciplines to address the challenges of integrating large-scale computing, geospatial analytics, public health research, infrastructure resilience and urban sciences in building intelligent and resilient cities that can withstand the impacts of future pandemics and extreme events. We hope this workshop will provide a platform for researchers and practitioners to address the challenges of designing and planning intelligent cities under the framework of resilience while leveraging the computational advancements in big data and artificial intelligence.

The technical program this year showcases two keynotes to be presented by **Dr. Sokwoo Rhee** and **Dr. Wilfred Pinfold,** a panel titled *Smart and Resilient Cities – Where to go next?* to be led by Stephen Cauffman (Department of Homeland Security), Dr. Ian McRae (Sherwood Design Engineers), Scott Tousley (Splunk), Dr. William Mobley (Texas A & m University) and Dr. Ronita Bardhan (University of Cambridge). Dr. Rhee is the Associate Director for Cyber-Physical Systems (CPS) Innovation at the National Institute of Standards and Technology (NIST), U.S. Department of Commerce. He is leading smart city and Internet of Things (IoT) innovation programs at NIST, including the Global City Teams Challenge (GCTC) and the Smart Cities and Communities Framework (SCCF) program. Dr. Rhee's keynote presentation will focus on *Smart Cities and Internet of Things.* Dr. Pinfold is the Chief Executive Officer of urban.systems Inc, a company that builds vibrant communities using technology to facilitate civic engagement, deliver services and share resources. Dr. Pinfold' keynote presentation will focus on *Public Private Partnerships: Value Capture in Urban Development.* We will also have 9 presentations discussing the application of smart city initiatives in the context of COVID-19 pandemic, water and green infrastructures, flooding, mobility as well as development of approaches and algorithms to leverage data from IoTs. The ARIC workshop series will continue to provide a leading international forum for researchers, developers and practitioners in the field of computing, urban and geospatial sciences, and data analytics to identify future areas of research and applications.

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