

Guest Editorial

Urban Sensing: Applications, Technologies, and Systems

I. INTRODUCTION

THE continuing, unprecedented growth in urban population has placed renewed emphasis on aspects such as sustainable development, environmental impact, public health, and mobility. Urban sensing plays a vital role in the ability to monitor and control infrastructure and also to make data-driven urban planning and management. This special issue of the IEEE SENSORS JOURNAL focuses on research connected to urban sensing technologies, the management of sensor devices and data they create in urban environments, as well as ML/AI methods for urban sensing applications.

This issue received a total of 139 submissions, from which 22 high-quality papers were accepted for publication (16% acceptance rate), in adherence to the high quality of the IEEE SENSORS JOURNAL. The following summarizes the contributions that our collection presents.

A primary focus in the special issue was new wireless technologies to be used in sensing of urban environments. There are seven accepted papers in this issue that focus on this. Another key area of research in urban sensing was its intersection with smart cities. There are six papers that deal with different topics in smart cities from pavement crack detection to sensing soil quality within a smart city. A popular topic for urban sensing that appears in this special issue is that of vehicular technologies. Automated vehicles that actively collect sensed data and unmanned aerial vehicles (UAV) such as drones are finding growth in usage in urban environments. A total of six papers in this special issue tackled topics in this budding area. Finally, three papers focused primarily on urban learning systems, specifically those learning systems that have been deployed to increase security and privacy of collected urban sensed data.

The guest editors thank Leigh Ann Kattenhorn, Eileen McGuinness, Shivani Chauhan, and the rest of the editorial office for their countless hours spent on this special issue as well as Marco Jose Da Silva, current Special Issue Editor-in-Chief of IEEE SENSORS JOURNAL for responding to all queries and concerns raised by us as editors to ensure that the special issue was an overwhelming success. Last but not least,

a special thank you to outgoing Editor-in-Chief Sandro Carrara for not only guiding this special issue, but for his many years of service to the IEEE SENSORS JOURNAL. We hope that the readership of the journal enjoys this collection of papers that will help to guide the next-generation of urban sensing research in the field.

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