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AI and Data Analytics for Energy-Efficient and Healthy Buildings: 2nd Edition

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Message from the Guest Editors

Building designs, operations, and commissioning are being revolutionized, with an increased emphasis on healthier, smarter, and more efficient environments. With the increasing penetration of smart sensors, the increasing electrification of buildings, and overwhelming amounts of data, artificial intelligence (AI) and big data analytics have shown extraordinary potential for improving building performance.

In the context of this Special Issue, paper submissions related to the application of AI and data analytics to the built environment are welcome, especially in the domains of smart buildings, smart urban planning, and smart cities. Topics of interest include, but are not limited to, the following: smart digital technology for energy conservation and healthy buildings; transfer learning for modeling, diagnosis, and optimization in smart buildings; smart urban planning and city resilience; probabilistic modeling and risk-based decision support for building energy systems; data-driven ensemble AI models for energy and infection risk forecasting; and big data analytics for building and facility management, etc.

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Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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