



ACM Transactions on Sensor Networks

Special Issue on Systems for Energy-Efficient Buildings, Cities, and Transportation

Guest Editors:

- **Dan Wang**, The Hong Kong Polytechnic University, dan.wang@polyu.edu.hk
- **Andrew Sonta**, EPFL, email: andrew.sonta@epfl.ch

Advances in the effective integration of networked sensors, building controls, and physical infrastructure are transforming our society, allowing the formation of unprecedented built environments and interlocking physical, social, cyber challenges. Moreover, built environments, including buildings and critical urban infrastructure, account for over half of society's energy consumption and are the mainstay of our nation's economy, security and health. As a result, there is a broad recognition that systems optimizing explicitly for the built environment are particularly important in improving our society, and represent the foundation for emerging "smart cities".

This special issue aims to bring together researchers and practitioners working in this area to develop and optimize such smart infrastructure systems that are driven by networked sensing, computing, and control functions.

Topics

Relevant topics for this special issue include, but not limited to the following:

- AI/ML, large foundation models, and data analytics for the built environments
- Design and operation of low-carbon and sustainable systems in built environment
- Applications in smart and connected communities
- Modeling, simulation, optimization, and control of heating, cooling, lighting, ventilation, water usage, and other resource flows in built environments
- Reliable and scalable occupant information inference in built environments
- Emerging standards for data collection, energy control, or interoperability of disparate devices or systems
- Building automation system metadata models and inference techniques
- Improved user interfaces to built infrastructure
- Human in the loop sensing and control for efficient building energy systems
- Sensor systems and applications impacting the health, wellness, safety, or comfort of humans in built environments
- Enhancing energy efficiency, energy reliability, durability, and comfort via Cyber-Physical Systems and Internet of Things
- Sensing, modeling, and predicting for urban infrastructure and transportation
- Integration of smart grids with built environments
- Distributed generation, alternative energy, renewable sources, and energy storage in buildings
- Long-lived and energy-harvesting sensor systems
- Security, privacy, safety, and reliability in the context of built environment
- Smart building and city technologies and initiatives in developing countries
- Vehicle, mobility, and traffic-related technologies
- Scalable indoor localization, contextual computing, and city-scale wireless communications

Important Dates

- Submissions deadline: February 28, 2025
- First round review notification: April 15, 2025
- Revision submission deadline: May 15, 2025
- Acceptance notification: June 15, 2025
- Tentative publication: November 2025

Submission Information

Please submit through: <https://mc.manuscriptcentral.com/tosn>

In the author section, when you start a new submission, please select: SI: Systems for Energy-Efficient Buildings, Cities, and Transportation

For questions and further information, please contact Dan Wang, dan.wang@polyu.edu.hk, Andrew Sonta, andrew.sonta@epfl.ch