Special Issue on
Information Fusion and Its Applications for Smart Sensing

CALL FOR PAPERS

Recently, many organisations such as government agencies and research institutes are working toward the fulfillment of interconnected and intelligent smart environments by encompassing a multitude of sensory modalities such as radio frequency, inertial measurement unit, sonar, laser, infrared rays, visible light, etc.

In recent years, research in this subject area is fundamentally important to address arising challenges in information fusion and its applications for smart sensing. For instance, many studies have attempted to acquire better information through sensing data based on signal processing and estimation theory (e.g., wavelet transform, extended/unscented Kalman filter, and Markov Chain Monte Carlo), statistical inference theory (e.g., Bayesian inference, Dempster-Shafer reasoning, and random set theory), the information theory (e.g., the entropy-based method and minimum description length), and the decision theory (e.g., the multi-objective decision, sequential decision, and game theory). Furthermore, a growing number of researchers are focusing on using artificial intelligence (e.g., genetic algorithm, fuzzy logic, neural networks, and figures of merit) to complete information acquisition and fusion. Empowered by these developments, the data of sensing can be used to perform more complex tasks in smart environments, such as intrusion detection, indoor localization and navigation, anonymous environment monitoring, human-machine interactive sensing, and even fine-grained activity and gesture recognition, which can offer intelligent and advanced services to improve the quality of lives.

The aim of this Special Issue is to solicit original research articles from academic and industrial experts discussing their contribution to information fusion and its applications for smart sensing. Studies are expected to build a bridge between the data of sensing and the smart environment, leveraging new information fusion methods based on equation theory, function theory, number theory, random process theory, and optimisation theory. This special issue will allow readers to identify recent advances in information fusion and its applications for smart sensing. Review articles discussing the state of the art are also welcome.

Potential topics include but are not limited to the following:

- Information fusion-based on signal processing and estimation theory (e.g., wavelet transform, extended/unscented Kalman filter, particle filter, Gaussian sum filter, Markov Chain Monte Carlo, expectation-maximization, etc) for smart sensing
- Information fusion-based on the statistical inference theory (e.g., Bayesian inference, Dempster-Shafer reasoning, random set theory, etc) for smart sensing
- Information fusion-based on the information theory (e.g., the entropy-based method, minimum description length, etc) for smart sensing
- Information fusion-based on decision theory (e.g., multi-objective decision, sequential decision, game theory, etc) for smart sensing
- Information fusion-based on artificial intelligence (e.g., fuzzy logic, neural network, genetic algorithm, figure of merit, etc) for smart sensing
- Information fusion-based antenna device and waveform designs for smart sensing
- Protocols and standards for smart sensing

Authors can submit their manuscripts through the Manuscript Tracking System at https://review.hindawi.com/submit?specialIssue=24617.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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