IEEE International Workshop on MACHINE LEARNING FOR SIGNAL PROCESSING, 2021

Real-time vision-based contactless perception for human-centered smart building and human health

Organizers:

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Abstract:

Non-contact detection technologies play critical roles in smart buildings. About 21% of global energy consumption occurs in building sector, and roughly half of which is consumed by heating, ventilation and air conditioning (HVAC) systems in order to provide thermal comfort to their occupants. However, certain amount of HVAC related energy was wasted by overheating and overcooling beyond thermal comfort requirements. Intelligent management of energy and thermal comfort is necessary. Therefore, real-time and accurate measurements of occupant thermal comfort status can give feedback signals for demand control so as to reducing the energy consumption of HVAC systems.

This special section focuses on the application of contactless detection methods in smart buildings and human health, including human behavior detection, person search, human thermal comfort perception, human metabolic rate detection, indoor person positioning, indoor air quality, etc. The technologies above can provide important technical support for building energy optimization and people-oriented smart buildings.

Topics of interest include, but are not limited to

- Vision-based human thermal comfort perception
- Multi-modal human thermal comfort perception
- Contactless and contact detection for human metabolic rate
- Real-time human indoor and outdoor behavior analysis
- Vision-based human skin texture analysis
- Multi-modal indoor personnel positioning
- Real-time video person search and object tracking
- Deep learning-based smart building energy management
- Building signal analysis based on machine learning
- Medical image and signal analysis based on deep learning
- Real-time foggy visibility detection based on image processing
- Multi-modal atmospheric visibility and concentration detection

Important Dates

Paper Submission deadline: June 30, 2021

Paper Submission

- Authors should prepare their manuscript according to the Guide for Authors of MLSP 2021, available at https://2021.ieeemlsp.org/paper-submission/
- Please make sure to choose the appropriate special session (**MLSP2021-HSBHH**)