



Call for Papers for the Special Issue on “Wireless Non-contact Sensing of Life Activities for Biomedical Applications”

The IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology (J-ERM), sponsored by IEEE MTT-S, AP-S, and EMBS societies and Sensors Council, will publish a special Issue devoted to “Wireless Non-contact Sensing of Life Activities for Biomedical Applications”.

Short-range RF/microwave sensors are capable of remotely detecting physiological movements and tracking the locations of human subjects. In recent years, they have been attracting a lot of attentions for noncontact sensing of respiration, heartbeat, and blood pressure due to the importance of vital signs. Potential biomedical applications span from long-term outpatient care to instant diagnosis during events such as COVID-19 pandemic. They have also enabled several interactive human-machine interfaces, such as gesture recognition, presence/occupancy tracking and human counting. Touchless Human Computer Interaction (HCI) have been developed, as human hands are natural tools for silent and remote interaction with the physical world. Over the past few years, a new class of human sensing systems has spawned that leverage WiFi signals to perform human sensing. The fundamental principle that enables WiFi-based human sensing is that human physical and physiological motions cause the wireless channel metrics such as channel state information, received signal strength, signal polarization, and angle-of-arrival to change. By learning the patterns of change for a given movement, a WiFi-based human sensing system can recognize that movement. Meanwhile, advances in machine learning, parallelization and the speed of graphics processing units (GPUs), combined with the availability of open, easily accessible implementations, have brought deep neural networks (DNNs) to the forefront of research, offering significant performance gains in the classification of micro-Doppler and range-Doppler signatures. In response to the rapid advancements in this field, the 2021 International Microwave Symposium (IMS) features a full-day workshop “Modern radar for IoT/biomedical applications”, which is dedicated to RF/microwave sensing of human life activities.

This special issue is designed as an expanded forum of the IMS workshop. To broaden the scopes, submissions to this special issue do not need to be associated with the workshop speakers. All potential authors are also invited to submit original research papers and review papers on the state-of-the-art RF/microwave biomedical remote sensing. Every paper will be reviewed in the same manner as all other submissions to this journal. Information of the journal can be found at <http://ieee-jerm.org>.

The focuses of the journal are on unifying the sciences and applications of medicine and biology related to utilizing electromagnetics, radio frequency signals and microwaves/millimeter-waves. If you are unsure whether your paper is suitable for J-ERM, please write to the editors at jermIMS21@gmail.com.

Please note that:

1. Papers should be submitted through the journal’s web page <http://ieee-jerm.org> leading to ScholarOne Manuscript Central.



2. In the menu for “Manuscript Type”, please select “Wireless Non-contact Sensing of Life Activities for Biomedical Applications Special Issue”.
3. Manuscript is limited to 6 pages maximum without counting the first (Visual Summary/Take-Home Messages) page, citation pages, and bio-sketch pages. The first page should include a figure for Visual Summary and Take-Home messages in bullet-points.
4. If the submission is an expansion from an IMS2021 conference paper, the conference paper should be included with the submission as well.
5. The guideline and template for manuscript preparation can be found on the J-ERM webpage.

The due date for the paper submission is **September 30, 2021**. Peer review will start immediately once a paper is received. The journal is in electronic format so the accepted paper will appear in IEEE Xplore within a few days after acceptance.

If you have any question, please contact us at jermIMS21@gmail.com.

Guest Editors:

Dr. Changzhi Li, Texas Tech University, USA

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