Call for Papers

IEEE Journal of Selected Topics in Signal Processing

Special Issue on <u>Deep Learning for High Dimensional Sensing</u>

Sensing is the first step to perceive and understand the environment. We are living in a high-dimensional world and thus high-dimensional sensing (HDS) and signal processing play pivotal roles in many fields such as robotics and surveillance. The recent explosive growth of artificial intelligence has provided new opportunities and tools for computational and learning based sensor design. In many emerging real applications such as advanced driver assistance systems / automated driving systems, large-scale, high-dimensional and diverse types of data need to be captured and processed with high accuracy and in a real-time manner. To address these challenges, it is highly desirable to develop new sensing techniques with high performance to capture high-dimensional data employing recent advances in deep learning (DL).

This special issue is devoted to DL for HDS, with the goals to highlight new research accomplishments and developments, open issues and promising new directions, related to system design, theory, algorithms and applications. This special issue will include high-quality novel contributions in this emerging field including but not limited to:

- HDS systems (hyperspectral, multispectral, video, X-ray, MRI, ultrasound, SAR, Tomography, Terahertz and Radar, LIDAR, acoustic and speech).
- Large field-of-view sensing and super resolution.
- Non-line-of-sight imaging.
- Deep learning based reconstruction algorithm development for HDS.
- Theoretical analysis and interpretability of deep learning methods for HDS systems.
- Deep/reinforcement learning for HDS system design.
- Object classification, detection, segmentation and/or recognition for HDS systems.
- Deep learning for information fusion from diverse HDS systems.

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<u>Milestone dates:</u>
- Manuscript submission due: ~~15 October 2021~~ Deadline Extended: 31 October 2021
- First review completed: 30-November-2021
- Revised manuscript due: 15-January-2022
- Second review completed: 28-February-2022
- Final manuscript due: 15-April-2022
- Publication date: June 2022