Machine Learning and Compressed Sensing in Image Reconstruction

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Message from the Guest Editors

Dear Colleagues,

The development of fast and accurate reconstruction algorithms plays a central role in modern imaging systems. Examples include x-ray tomography, ultrasound imaging, photoacoustic imaging, super-resolution imaging, and magnetic resonance imaging. Compressed sensing and machine learning are successful tools for various imaging applications. In compressed sensing, iterative algorithms based on prior information have been applied for image reconstruction. Such algorithms can be time-consuming as the forward and adjoint problems have to be computed repeatedly. Recently, a new class of algorithms based on machine learning, especially deep learning, for compressed sensing and other image reconstruction tasks appeared. With deep learning, image reconstruction can be performed efficiently using artificial neural networks, whose weights are based on training data. This Special Issue focuses on the latest research and development of compressed sensing and machine learning for image reconstruction.

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Special Issue

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Message from the Editor-in-Chief

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