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**Title :** Compressive Sensing and its Application in Visual Pattern Recognition

**Abstract:** Compressed Sensing (CS), also known as *compressive sampling*, is an emerging powerful signal processing paradigm that can perform data acquisition and compression simultaneously. It is an effective approach for significantly reducing the number of data measurements in both frequency and spatial coordinates, without altering the image quality and reliability. This, in turn, simplifies the system and decreases the data acquisition and post-processing time. The advantage of CS is that it enables the reconstruction of a sparse or compressible signal from far fewer measurements than required by the Shannon-Nyquist sampling theorem. CS has attracted significant attention recently, and has found broad and successful applications in two- and three-dimensional complex imaging in medical, industrial, and defence sectors. We have recently employed CS for machine learning. In this seminar, we discuss the application of compressed sensing to visual pattern recognition, where CS is used for feature selection and parameter estimation simultaneously. The seminar will also present results from two real world problems: gender recognition and classification of human motion based on radar Doppler spectrograms.