Tensor rank and CP Decompositions via Proximal Algorithms with Applications

Carmeliza Navasca, University of Alabama at Birmingham

First, I will review some tensor basics and tensor decompositions. Specifically, I will discuss the canonical polyadic (CP) decomposition and its challenges. Then, I will discuss some new sparse optimization based tensor models via proximal algorithms for tensor rank approximation and tensor decomposition. In addition, I will also include numerical examples in surveillance video analysis and matrix/tensor completion as well as model order reduction.