1161-65-177   **Lara Kassab*** (`lara.kassab@colostate.edu`). *Nonnegative CP Tensor Decomposition for Dynamic Topic Modeling.*

Dynamic topic modeling has been widely used in social and data sciences with the goal of extracting latent themes in the data along with their temporal evolution. Previous work on dynamic topic modeling primarily employ the method of Nonnegative Matrix Factorization (NMF), where slices of the data tensor are each factorized into the product of lower-dimensional nonnegative matrices. With this approach, however, information contained in the temporal dimension of the data is often neglected or underutilized. We propose instead adopting the method of nonnegative CANDE-COMP/PARAPAC (CP) tensor decomposition (NNCPD), where the data tensor is directly decomposed into a minimal sum of outer products of nonnegative vectors, thereby preserving the temporal information. The viability of NNCPD is demonstrated through application to both synthetic and real data, where improved results are obtained compared to those of typical NMF-based methods. This is joint work with Miju Ahn, Nicole Eikmeier, Jamie Haddock, Alona Kryshchenko, Kathryn Leonard, Deanna Needell, R. W. M. A. Madushani, Elena Sizikova, and Chuntian Wang. (Received August 16, 2020)