

1154-41-1842

Kathryn E Leonard*, kleonard.ci@gmail.com. *Non-negative tensor decompositions for dynamic topic modeling*. Preliminary report.

Success in non-negative matrix factorization for tasks such as gene expression, face modeling, source separation, and dynamic topic modeling, and the ease of using tensors as representations for multivariate data with a time component, prompt a search for non-negative tensor decompositions that capture salient qualities of data and their evolution over time. Non-negative tensor decomposition, though still not as well understood as its matrix cousin, has produced some interesting theoretical results. From an applications perspective, these results are only useful if they produce decompositions that capture important features in the data. We present experimental results for synthetic data that demonstrate promise for these decompositions, and also discuss some remaining challenges for more realistic datasets such as dynamic topic modeling. This is collaborative work from the 2019 Women in the Science of Data and Mathematics workshop group led by Deanna Needell and Jamie Haddock. (Received September 16, 2019)