

1163-15-510

Tim Marrinan* (timothy.marrinan@umon.ac.be). *Improved sufficient conditions for identifiable nonnegative matrix factorization.* Preliminary report.

Given a nonnegative matrix, $X \in \mathbb{R}_+^{m \times n}$, and a factorization rank, $r \leq \min\{m, n\}$, nonnegative matrix factorization (NMF) identifies two matrices, $W \in \mathbb{R}_+^{m \times r}$ and $H \in \mathbb{R}_+^{r \times n}$, such that $X = WH$. With appropriate normalization, sufficient conditions exist under which this decomposition is identifiable, that is, unique up to permutation and scaling of the columns of W and the corresponding rows of H . Some of these conditions are easy to check, but are rarely satisfied in practice. Other sufficient conditions are often satisfied in practical applications, but checking whether they are satisfied is NP-hard. In this talk we discuss progress on formulating sufficient conditions for identifiability that sit in the sweet spot between existing conditions, that is, ones that are commonly satisfied in practice and can be checked efficiently for large problems. (Received September 08, 2020)