1154-15-2841 **Beheshteh Tolouei Rakhshan*** (btolouei@purdue.edu). *Tensor Train Random Projection.*
Random projection methods reduce the dimension of points in a high dimensional vector space while preserving the distances between the points. In this work, we use the topic of dimension- ality reduction by proposing a map beneting from random projection and a tensor train (TT) decomposition, where we call it tensor train random projection. The map is formed by the inner product of a TT-tensor and the input data, where each core tensor in TT decomposition is drawn from the independent Gaussian random variables. This work is a novel use of tensor decompo- sition method and random projection which requires less memory compared to existing random projection methods. We provide a theoretical analysis of the expected value and variance of the proposed map. We present that our linear map is a good dimension reduction map as it satises in Johnson-Lindenstrauss property, i.e., it has expected value isometry and vanishing variance prop- erties. Also, the proposed map is a data-base friendly map as it uses not-too-much storage. Our results rely on rst bounding the variance of the random projection maps and using these bounds we can obtain the expected isometry property with high probability. (Received September 18, 2019)