

Tensor Approximation Journal

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Due to a significant increase in course workload, I have not been able to complete much research in the project. That being said, I have been slowly parsing the exponential test case examples in P.K. Hopke et al. (1998). The test cases are generated using the exponential test function. Let $\mathbf{x} = \text{EX}^n(r)$ be an n -dimensional column vector with components

$$\mathbf{x}_i = c \exp\left(\frac{n-i}{n-1}r\right) \quad (1)$$

where c is a constant which normalizes the entries of the column vector.

The two test cases for future examination are

$$PP1 = 100 * \text{EX}^1(0, 2, 5) \otimes \text{EX}^8(0, 2, 5) \otimes \text{EX}^5(0, 2, 5) + 0.025\text{RN}(0, 1) \quad (2)$$

$$PP2 = 100 * \text{EX}^1(0, 2, 4, -4) \otimes \text{EX}^8(0, 2, 4, -4) \otimes \text{EX}^5(-4, 4, 2, 0) + 0.001\text{RN}(0, 1) \quad (3)$$

where $\text{RN}(0, 1)$ represents a pseudorandom array of normally distributed values with a mean value of 0 and standard deviation of 1.

My plan of attack is to change these tensor examples into the standard form in order to see if there is any noticeable relationships between the angles of different dimension which could explain the "difficulty" eluded by the authors of these test cases.