

1154-15-1225

**Anna Ma\*** ([anna.ma@uci.edu](mailto:anna.ma@uci.edu)) and **Denali Molitor**. *Randomized Kaczmarz for Tensors*.

When data is large-scale, techniques such as the Randomized Kaczmarz algorithm and Randomized Gauss-Seidel algorithm are advantageous for solving linear systems of the form  $Ax = y$ . In this talk, we discuss an extension of the Randomized Kaczmarz algorithm to the setting where large-scale data takes on the form of a multidimensional array. Traditionally, multi-dimensional data, i.e., data in the form of high dimensional tensors, are often unfolded to be treated as a matrix-vector problem. In this work, we seek to preserve the tensor structure of the input data and provide theoretical guarantees for recovering underlying, unknown tensors from linear measurements using a tensorized version of the Randomized Kaczmarz algorithm. (Received September 14, 2019)