1154-41-1087 **Wenjing Liao***, School of Mathematics, Georgia Institute of Technology, Atlanta, GA, **Minshuo Chen**, School of Industrial & Systems Engineering, Georgia Institute of Technology, Atlanta, GA, **Haoming Jiang**, School of Industrial & Systems Engineering, Georgia Institute of Technology, Atlanta, GA , and **Tuo Zhao**, School of Industrial & Systems Engineering, Georgia Institute of Technology, Atlanta, GA. *Regression of functions on low-dimensional manifolds by deep ReLU networks.*

Many data in real-world applications lie in a high-dimensional space but are concentrated on or near a low-dimensional manifold. Our goal is to estimate functions on the manifold from finite samples of data. This talk focuses on an efficient approximation theory of deep ReLU networks for functions supported on low-dimensional manifolds. We constructed a ReLU network for such function approximation where the size of the network grows exponentially with respect to the intrinsic dimension of the manifold. When the function is estimated from finite samples, we proved that the mean squared error for the function approximation converges as the training samples increases with a rate depending on the intrinsic dimension of the manifold instead of the ambient dimension of the space. (Received September 13, 2019)