



Contribution ID: 47

Type: **Plenary**

Learned Representations from Lower-Order Interactions for Efficient Clustering

Tuesday, April 21, 2020 8:30 PM (15 minutes)

Efficient agglomerative clustering is reliant on the ability to exploit useful lower-order information contained within data, yet many real-world datasets do not consist of features which are naturally amenable to metric functions as required by these algorithms. In this work, we present a framework for learning representations which contain such metric structure, allowing for efficient clustering and neighborhood queries of data points. We demonstrate how this framework fits in with both traditional clustering pipelines, and more advanced approaches such as graph neural networks. Finally, we present numerical results on the TrackML particle tracking challenge dataset, where our framework shows favorable results in both physics-based tracking methods, and new end-to-end deep learning approaches with graph neural networks developed in the context of the Exa.TrkX project.

Consider for young scientist forum (Student or postdoc speaker)

No

Second most appropriate track (if necessary)

Enhanced performance of tracking algorithms

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Session Classification: Recording sessions