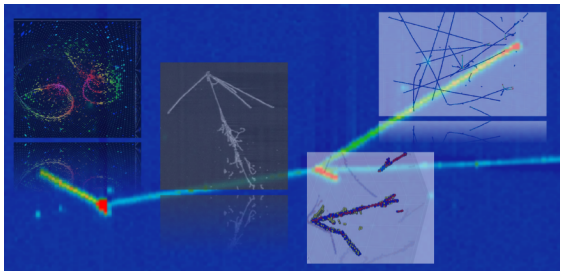

Contribution ID: **7** Type: **Individual Talk**

Accelerating event reconstruction in neutrino telescopes using sparse convolutional neural networks

Tuesday, August 22, 2023 10:55 AM (25 minutes)

Convolutional neural networks (CNNs) have seen extensive applications in scientific data analysis, including in neutrino telescopes. However, the data from these experiments present numerous challenges to CNNs, such as non-regular geometry, sparsity, and high dimensionality. In this talk, I will present sparse submanifold convolutions (SSCNNs) as a solution to these issues and show that the SSCNN event reconstruction performance is comparable to or better than traditional and machine learning algorithms. I will also discuss our current efforts to implement this type of network into the IceCube Neutrino Observatory.

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Session Classification: Session 1