



Contribution ID: 63

Type: **not specified**

## Variational AutoEncoders (VAEs) for water Cherenkov detectors

*Friday, 23 August 2019 16:03 (18 minutes)*

A Variational AutoEncoder (VAE) is a generative method used to approximate the probability distribution of processes in very high dimensional spaces. We apply VAEs for generative modelling of Water Cherenkov detectors which are used to perform precision measurements on neutrinos. In this talk, I will discuss the steps and challenges in applying VAEs to simulated neutrino events in the proposed Intermediate Water Cherenkov Detector (IWCD). Initial results from the project show promise in the application of VAEs for synthetic data generation and unsupervised learning from labelled and unlabelled datasets.

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**Session Classification:** Data Science and Quantum Computing Workshop

**Track Classification:** Data Science and Quantum Computing Workshop