



# Raghav Kansal

*EXPAND Mentor*

## JetNet Library for Machine Learning and Particle Physics

Javier Duarte (Winter, 2021-22)

### What you will do

This project is about developing further a Python package to facilitate and encourage research in machine learning (ML) and high energy physics (HEP). ML is becoming an important tool in particle physics, where we encounter an extremely large amount of data and need help from artificial intelligence to cope with it. However, since development in this area is still just starting out, the datasets and tools needed for research are not easily accessible or standardized, thus increasing the barrier to entry especially for those outside of HEP. We propose to create a library, which we call JetNet, to solve this problem by creating a standard, convenient set of datasets, interfaces, evaluation metrics, and general tools for ML and HEP. This will involve data processing in Python, developing well-written code, and learning about machine learning and high energy physics.

### Skills you will acquire

- Python programming
- Data processing/analysis
- Introduction to high energy physics
- Introduction to machine learning/AI