

Abstract Submitted
for the MAS21 Meeting of
The American Physical Society

Design Study in Ultra-High Energy Neutrino Reconstruction Performance by Convolutional Neural Network with In-Ice Radio Array. NOPPADOL PUNSUEBSAY, University of Delaware — Observing radio signals from Askaryan Effect produced by showers of particles when ultra-high energy neutrinos interact in glacial ice is the fundamental concept of existing experiments like Askaryan Radio Array (ARA) at South Pole and Radio Neutrino Observatory Greenland (RNO-G). A convolutional neural network is used to study vertex and neutrino reconstruction by an array of only vertical dipole antennas. The vertical and horizontal dimensions of the array are varied to optimize performance. The neural network uses true travel times and amplitudes of arriving signals obtained by simulation using NuRadioMC module in Python using South Pole ice model as the results could provide valuable experience toward IceCube Gen2 Radio.

Noppadol Punsuebsay
University of Delaware

Date submitted: 05 Nov 2021

Electronic form version 1.4