

**3rd Workshop on Graph
Neural Networks for Neutrino
Telescope Event
Reconstruction (GraphNeT III)**

Report of Contributions

Contribution ID: 4

Type: **not specified**

GraphNeT overview

Tuesday, 2 May 2023 09:15 (30 minutes)

Introduction to the GraphNet package: Vision, status, achievements, plans, roadmap

Presenter: SØGAARD, Andreas

Session Classification: Presentations

Contribution ID: 5

Type: **not specified**

Representation learning using Graph Neural Networks

Tuesday, 2 May 2023 09:45 (45 minutes)

Learning compact and continuous representation spaces for discrete and non-Euclidean objects such as graphs can be useful to study their properties and perform meaningful vector manipulations that can translate back into the data space. In this session, we will look into graph neural network based regularised auto-encoders that can learn embedding spaces, that can also be conditioned on additional physical properties.

Presenter: SELVAN, Raghavendra (DIKU)

Session Classification: Presentations

Contribution ID: 6

Type: **not specified**

IceCube Kaggle Challenge

Tuesday, 2 May 2023 11:00 (30 minutes)

<https://www.kaggle.com/competitions/icecube-neutrinos-in-deep-ice/overview>

Presenter: ELLER, Philipp (TUM)

Session Classification: Presentations

Contribution ID: 7

Type: **not specified**

Galactic plane search with DL in IceCube

Tuesday, 2 May 2023 11:30 (30 minutes)

Presenter: HÜNNEFELD, Mirco

Session Classification: Presentations

Contribution ID: 8

Type: **not specified**

GraphNeT results

Wednesday, 3 May 2023 09:00 (45 minutes)

Overview of physics analyses and studies that have been carried out in the context of GraphNeT, their impact on physics, and possible future directions.

Presenter: ØRSØE, Rasmus

Session Classification: Presentations

Contribution ID: 9

Type: **not specified**

PyG 2.0

Wednesday, 3 May 2023 09:45 (45 minutes)

Presenter: FEY, Matthias (PyG and kumo.ai)

Session Classification: Presentations

Contribution ID: 10

Type: **not specified**

Automatic hyperparameter optimization for Graph Neural Networks

Wednesday, 3 May 2023 11:00 (35 minutes)

Presenter: HENNIG, Lukas

Session Classification: Presentations

Contribution ID: 11

Type: **not specified**

Point-source search in IceCube, integration with GraphNeT

Wednesday, 3 May 2023 11:35 (35 minutes)

Presenter: KONTRIMAS, Tomas

Session Classification: Presentations

Contribution ID: **16**

Type: **not specified**

Setup

Monday, 1 May 2023 15:00 (2 hours)

Work with GraphNeT developers to set up the package in your regular working environment, to ensure that you are ready for the hackathons during the rest of the workshop.

Session Classification: Hackathons

Contribution ID: **18**

Type: **not specified**

Welcome

Tuesday, 2 May 2023 09:00 (15 minutes)

Presenter: SØGAARD, Andreas

Session Classification: Presentations

Contribution ID: **19**

Type: **not specified**

Ideas for IceCube

Wednesday, 3 May 2023 12:10 (20 minutes)

Presenter: PETERSEN, Troels

Session Classification: Presentations

Contribution ID: 20

Type: **not specified**

Roadmap towards v2.0 –mini-workshop

Thursday, 4 May 2023 11:00 (1h 10m)

Presenter: SØGAARD, Andreas

Session Classification: Presentations

Contribution ID: 21

Type: **not specified**

Summary, next workshop, and goodbye

Thursday, 4 May 2023 12:10 (20 minutes)

Presenter: SØGAARD, Andreas

Session Classification: Presentations

Contribution ID: 22

Type: **not specified**

Event Classification for the ESSnuSB using GNNs

Tuesday, 2 May 2023 12:00 (30 minutes)

Presenter: IVERSEN, Kaare Endrup (Lund University)

Session Classification: Presentations

Contribution ID: 23

Type: **not specified**

Poster - Improving the direction and energy estimation of low-energy events in ANTARES with machine learning

Tuesday, 2 May 2023 17:00 (5 minutes)

Presenter: GARCÍA MÉNDEZ, Juan (Universitat Politècnica de València)

Session Classification: Presentations

Contribution ID: 24

Type: **not specified**

Poster - Impact of muon deflections on angular muon reconstructions

Tuesday, 2 May 2023 17:05 (5 minutes)

Presenter: GUTJAHR, Pascal

Session Classification: Presentations

Contribution ID: 26

Type: **not specified**

Poster - Detection and reconstruction of GeV neutrinos with IceCube

Tuesday, 2 May 2023 17:10 (5 minutes)

Presenter: KRUISWIJK, Karlijn

Session Classification: Presentations

Contribution ID: 27

Type: **not specified**

Poster - Improving the sensitivity of KM3NeT in the MeV-GeV range using a GCN

Tuesday, 2 May 2023 17:15 (5 minutes)

Presenter: MAURO, Jonathan

Session Classification: Presentations

Contribution ID: 29

Type: **not specified**

Poster - Ideas to measure the prompt component of the atmospheric muon flux

Tuesday, 2 May 2023 17:20 (5 minutes)

Presenter: NESTE, Ludwig (TU Dortmund University)

Session Classification: Presentations

Contribution ID: **30**

Type: **not specified**

Industry presentation - TBD

Session Classification: Presentations

Contribution ID: 32

Type: **not specified**

Roadmap towards v2.0 –mini-workshop introduction

Thursday, 4 May 2023 10:00 (30 minutes)

Presenter: SØGAARD, Andreas

Session Classification: Presentations