



Contribution ID: 738 Contribution code: **contribution ID 738**

Type: **Poster**

## Vectorised Neutrino Reconstruction by Computing Graphs

Many HEP analyses are adopting the concept of vectorised computing, often making them increasingly performant and resource-efficient.

While a variety of computing steps can be vectorised directly, some calculations are challenging to implement.

One of these is the analytical neutrino reconstruction which involves fitting that naturally varies between events.

We show a vectorised implementation of the analytical neutrino reconstruction using a graph computing model.

It uses established deep learning software libraries and is natively portable to local and external hardware accelerators such as GPUs.

Using the example of ttH events with a semi-leptonic final state, we present performance studies for our implementation.

### Significance

Vectorised analyses and columnar computing are current topics in HEP computing.

Convenience for switching from a conventional to a vectorised analysis drives progress in adopting these methods.

We show a basic concept for performing extensive calculations like the analytical reconstruction of a neutrino within a vectorised analysis.

### References

### Speaker time zone

Compatible with Europe

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**Session Classification:** Posters: Walnut

**Track Classification:** Track 2: Data Analysis - Algorithms and Tools