CNN in offline reconstruction

Goal: train Convolutional Neural Network (CNN) prototype
        for clustering and energy regression

   → Useful as baseline for later studies of graph networks (GNN)

Today:

- Coarse **grid** ("pixels") in (η, φ, layer number) with ≤ 6 active sensors per "pixel"

   Center: energy weighted average rechit (η, φ)
   Boundary: square in (η, φ) plane around it with side 0.6
        (particles shot in cone $\Delta R = 0.3$)
   Grid division: 50 x 50 x 50 pixels
        (50 x 50 pixels in (η, φ) as determined yesterday, and 50 layers)

- **Converting** information of GNN input training dataset to suitable CNN input

   – **Pixel info** as vector(rechit1_info, rechit2_info, …, rechit6_info)
        complete with zeroes if < 6 sensors

   – **Rechit info**: list of relevant features E, η, φ, θ, R, t
        with relative positions of sensors within pixel

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Tomorrow:

- Finalize conversion

- May test a CNN setup on small converted dataset