

## New Perspectives



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# Reconstruction Techniques in ANNIE

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The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a 26-ton Gd-doped water Cherenkov neutrino detector. It aims both to determine the neutron multiplicity from neutrino-nucleus interactions in water and provide a staging ground for new technologies relevant to the field. To this end, several analysis methods have been developed. Interaction position and subsequent track direction is determined by a maximum likelihood fit. Machine and deep learning techniques are used to reconstruct interaction energy and perform particle identification. Beam data is being analyzed and Large Area Picosecond Photo-Detectors (LAP-PDs) are being deployed and commissioned, which are expected to enhance event reconstruction capabilities. This talk will cover these analysis techniques being used and their status.

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