

MicroBooNE Pandora Workshop and Working Meeting

Monday, 11 July 2016 - Thursday, 14 July 2016

Cavendish Laboratory, University of Cambridge

Scientific Programme

Pattern recognition is the identification of structures and regularities in data. In high energy physics, it is a vital stage in the reconstruction of events recorded by fine-granularity detectors. The development and operation of Liquid Argon Time Projection Chambers (LAr TPCs) for neutrino physics has created a need for new approaches to pattern recognition, in order to fully exploit the superb imaging capabilities offered by this technology.

The Pandora SDK is a re-usable software development kit which aids the process of designing, implementing and running pattern recognition algorithms. In particular, it promotes the use of a multi-algorithm approach to pattern recognition: individual algorithms each aim to address a specific task in a particular topology. A series of many tens of algorithms then carefully build-up a picture of the event and, together, provide a robust automated pattern recognition solution.

This workshop aims to provide a thorough grounding in the development of pattern recognition algorithms using Pandora. The internal workings of the Pandora SDK will be discussed, as will the Event Data Model, XML configuration and best-practices for algorithm development. A complete overview of the Pandora reconstruction at MicroBooNE will be provided. A series of exercises will allow each participant to develop a complete (but basic) reconstruction for MicroBooNE events. There will be plentiful opportunity for any promising new ideas to be worked-up to production standards and included in the MicroBooNE reconstruction.

For further details about the Pandora project, please see <http://github.com/PandoraPFA/Documentation>