Dear all,
after the EVO session of this morning, we have decided to apply the following scheme to the tracking code:

 PndTrackCand will store ONLY hit informations (no momentum anymore)
 PndTrack will store only the track informations (i.e. track parameters at the first and last hit), and an index of the corresponding PndTrackCand
 each tracking algorithm will register two separated TClonesArray, one for PndTrack objects, the other for PndTrackCand
 the link between PndTrack and PndTrackCand will be done using FairLink code

We have decided to apply the changes in three steps:

 Each tracking algorithm will write both PndTrack and PndTrackCand TClonesArray
 The momentum information will be removed from PndTrackCand
 The PndTrackCand object will be removed from PndTrack, leaving only the TCA index

We will proceed step by step, so that we will always be able to use track informations for analysis and tests.
Let's start with step 1.

The people involved should be:

MVD: Tobias/Ralf
STT: Gianluigi/Lia
TPC: Felix/Sebastian(?)/Christian(?)
GEM: Radek
LHE: Stefano
STT+MVD: Gianluigi
Global: Radex

I hope I have forgotten nobody.
When the first step change (i.e. writing two different TClonesArray made of PndTrack and PndTrackCand) will be applied, we cpuld move to the second step.

I would like to ask to developers to write in this forum the "OK" once the change will be done in the trunk, so that we could go on. It would be nice to have step 1 ready before next evo meeting (3rd november).

Subject: Re: Updates in PndTrack - PndTrackCand
Posted by StefanoSpataro on Tue, 19 Oct 2010 07:43:46 GMT

Step 1 - LHETRACK done (r10117)

It took me less than 30 minutes.
Waiting for all the other tracking algorythms...

Subject: Re: Updates in PndTrack - PndTrackCand
Posted by StefanoSpataro on Wed, 03 Nov 2010 11:32:24 GMT

Updates on 3/11/2010

MVD riem: OK - Tobias
STT real: ongoing - Gianluigi
STT idea: OK - Lia
TPC real: ongoing - Sebastian
GEM real: OK - Radek
LHE idea: OK - Stefano
LHE real: OK - Stefano
STT+MVD: ongoing - Gianluigi
Global: OK - Radek

Subject: Re: Updates in PndTrack - PndTrackCand
Posted by Sebastian Neubert on Sun, 28 Nov 2010 12:23:02 GMT

Dear colleagues,

I have implemented the PndTrackCand output for the PndTpcRiemannTrackingTask.
Now I am about to add the PndTracks. However I think I do not yet fully understand how this all will work out in the end.

There are still seed values for the momentum and position in the PndTrackCand ... right?
The PndTracks are filled with content in a common TrackFitting task... right?

Is there a an agreed Track Merging strategy, yet? In that case I suppose there should be a mechanism to join several PndTrackCands. As far as I can tell this is not there ... right?

Anyhow. My current picture is this: The pattern reco (for each subsystem) will spit out a PndTrackCand array plus an PndTrack array. The Tracks will be linked too the cands but they will not contain fitted parameters yet.

Cheers! Sebastian.

Subject: Re: Updates in PndTrack - PndTrackCand
Posted by StefanoSpataro on Sun, 28 Nov 2010 13:08:57 GMT

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Hi Sebastian,

Sebastian Neubert wrote on Sun, 28 November 2010 13:23There are still seed values for the momentum and position in the PndTrackCand ... right?

At present yes,
Christian has added them on 20/07/2009 regardless the original design, but I don't know for which reason.
They will be removed in a short time, because useless for our design.

Quote:
The PndTracks are filled with content in a common TrackFitting task... right?

Not exactly. PndTracks are filled by several track finding tasks which should also give prefit parameters (i.e. from helix assumption).

Quote:
Is there a an agreed Track Merging strategy, yet? In that case I suppose there should be a mechanism to join several PndTrackCands. As far as I can tell this is not there ... right?

There is a track merging strategy, but at present there is no code doing it for all the detectors because each track finding/fitting is giving different track/candidate objects, even if the object design was fixed three years ago. This is what we are trying to solve.

Quote:
Anyhow. My current picture is this: The pattern reco (for each subsystem) will spit out a PndTrackCand array plus an PndTrack array. The Tracks will be linked too the cands but they will not contain fitted parameters yet.

This I have not understood.
Your finding must give also the prefit values, and put these values in the PndTrack (if not you cannot extrapolate and merge to different detectors)

Hoping it helps a bit...

Subject: Re: Updates in PndTrack - PndTrackCand
Posted by Sebastian Neubert on Sun, 28 Nov 2010 14:10:32 GMT

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Hi Stefano!

Thank you for the quick reply...

Ok I begin to see the picture. I will thus put the prefit values to the PndTrack objects.

For backwards compatibility I will retain the direct Genfit output of the task until we have a common fitting task.

Cheers! Sebastian.

Subject: Re: Updates in PndTrack - PndTrackCand
Posted by StefanoSpataro on Sun, 28 Nov 2010 18:14:26 GMT
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For backward compatibility, probably a "persistance" flag could be helpful, so that you can set if you want to store a GTrack, a PndTrack or both.

Subject: Removing Seed from PndTrackCand
Posted by StefanoSpataro on Thu, 09 Dec 2010 09:33:18 GMT
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Dear all,
considering that almost everybody has updated the tracking classes to store a PndtrackCand and also a PndTrack TClonesArrays, I would move to the second step -> removing the seeds from PndTrackCand.

This means deleting the following data members:

    TVector3 fPosSeed;
    TVector3 fDirSeed;
    double fQoverPseed;

and the correlated member functions.
I would like to ask to tracking developers to apply this modification in their code, considering that the seed should be taken from the PndTrack object.
If not, I can just delete all the calls to SetSeed and GetSeed, but it is important that the code knows where to take those values properly.

Waiting for feedback, this is the responsible list:

MVD: Tobias/Ralf
STT: Gianluigi/Lia
TPC: Felix/Sebastian
GEM: Radek
LHE: Stefano
STT+MVD: Gianluigi
Global: Radek

LHE is not using seeds as originally planned, therefore it is ready for 3rd step.