Pull request and issue summary for acts-project/acts

June 20, 2023

acts-project/acts: PRs merged between 2023-06-13 and 2023-06-20 I

- ► **fix: Correct the pTperHelixRadius calculation in SeedFinderConfig** (#2132)
  by @beomki-yeo, ✅ reviewed by @andiwand, merged on 2023-06-13

- ► **refactor: explicit init, pre step, post step for navigator interface** (#1984)
  by @andiwand, ✅ reviewed by @benjaminhuth, merged on 2023-06-13

- ► **fix: changed keyword argument minMeasurements to nMeasurementsMin, solving...** (#2199)
  by @CarloVarni, ✅ reviewed by @LuisFelipeCoelho, merged on 2023-06-13

- ► **ci: Delete unit test and integration test binaries** (#2200)
  by @paulgessinger, ✅ reviewed by @andiwand, merged on 2023-06-13

- ► **fix: VectorMultiTrajectory clears meas offsets** (#2202)
  by @paulgessinger, ✅ reviewed by @andiwand, merged on 2023-06-13

- ► **fix: VectorMultiTrajectory gains reserve VectorTrackContainer clear** (#2203)
  by @paulgessinger, ✅ reviewed by @andiwand, merged on 2023-06-14

- ► **refactor: Allow TrackState copyFrom for different MTJs** (#2204)
  by @paulgessinger, ✅ reviewed by @noemina, merged on 2023-06-14

- ► **refactor: TrackStateType safety, bitsize, conversion** (#2201)
  by @paulgessinger, ✅ reviewed by @benjaminhuth, merged on 2023-06-14

acts-project/acts: PRs merged between 2023-06-13 and 2023-06-20 II

- ► **fix: unused warnign in non-debug mode** (#2208)
  by @asalzburger, ✅ reviewed by @andiwand, merged on 2023-06-14

- ► **ci: Add more labels to the labeler bot** (#2209)
  by @CarloVarni, ✅ reviewed by @andiwand, merged on 2023-06-14

- ► **feat: make FATRAS energy cut configurable in python** (#2210)
  by @benjaminhuth, ✅ reviewed by @andiwand, merged on 2023-06-14

- ► **fix: Remove incomplete initialisation from InterpolatedBFieldMap** (#1467)
  by @timadye, ✅ reviewed by @andiwand, merged on 2023-06-14

- ► **refactor: remove duplicate function in 'CI/release.py' and add print-outs** (#2212)
  by @AJPfleger, ✅ reviewed by @paulgessinger, merged on 2023-06-15

- ► **refactor: IWYU fixes and some manual modifications** (#2158)
  by @andiwand, ✅ reviewed by @paulgessinger, merged on 2023-06-15

- ► **refactor: TrackProxy::copyFrom copies track states** (#2205)
  by @paulgessinger, ✅ reviewed by @andiwand, merged on 2023-06-15

- ► **feat: python binding for Detector** (#2198)
  by @asalzburger, ✅ comment by @asalzburger, merged on 2023-06-16

- ⎇ **fix: Add missing term in 'EstimateTrackParamsFromSeed'** (#2211)
  by @beomki-yeo, ✅ reviewed by @CarloVarni, merged on 2023-06-16

- ⎇ **refactor: Rework Geant4 sim object lifetime** (#2185)
  by @andiwand, ✅ reviewed by @benjaminhuth, merged on 2023-06-18

- ⎇ **fix: GCC segfault in TrackTests.cpp** (#2217)
  by @paulgessinger, ✅ reviewed by @andiwand, merged on 2023-06-19

- ⎇ **feat: Improved FPE monitoring** (#2157)
  by @paulgessinger, ✅ comment by @paulgessinger, merged on 2023-06-19

- ⎇ **fix: clang-format style and update docs** (#2207)
  by @AJPfleger, ✅ reviewed by @paulgessinger, merged on 2023-06-20

- ⎇ **feat: add prototracks-to-seeds algorithm** (#2219)
  by @benjaminhuth, ✅ reviewed by @andiwand, merged on 2023-06-20

acts-project/acts: Open PRs I

- ▶ 🔀 **feat: NeuralCalibrator: ML-based measurement calibration** (#2111)
  by @gagnonlg, ✅ reviewed by @Corentin-Allaire, updated on 2023-06-20
- ▶ 🔀 **ci: Add codespell to CI** (#2218)
  by @benjaminhuth, ✅ reviewed by @andiwand, updated on 2023-06-20
- ▶ 🔀 **feat: Enable resolved stack traces in clang** (#2223)
  by @paulgessinger, ✅ reviewed by @benjaminhuth, updated on 2023-06-20
- ▶ 🔀 **refactor: Use inheritance to improve python Sequencer** (#2220)
  by @paulgessinger, ✅ reviewed by @andiwand, updated on 2023-06-20
- ▶ 🔀 **feat: Seed Vertex Finder** (#2038)
  by @pbalek, ✅ comment by @pbalek, updated on 2023-06-20
- ▶ 🔀 **chore: Align event generation in physics monitoring and ODD full chain** (#2222)
  by @andiwand, ✅ comment by @andiwand, updated on 2023-06-20
- ▶ 🔀 **refactor: Consistent naming of measurment_id and writer-reader-roundtrip** (#2103)
  by @benjaminhuth, ✅ reviewed by @andiwand, updated on 2023-06-20
- ▶ 🔀 **test: Unit test geometric digitization hit merging** (#2213)
  by @andiwand, ✅ comment by @AJPfleger, updated on 2023-06-20

acts-project/acts: Open PRs II

- ⑂ **fix: Improve full chain pulls towards standard normal distribution** (#2086)
  by @andiwand, ✅ reviewed by @pbutti, updated on 2023-06-20

- ⑂ **refactor: Testing HelicalTrackLinearizer by comparing its Jacobians to numerically computed derivatives** (#2141)
  by @felix-russo, ✅ comment by @felix-russo, updated on 2023-06-19

- ⑂ **refactor: Adding time to HelicalTrackLinearizer** (#2179)
  by @felix-russo, ✅ reviewed by @pbutti, updated on 2023-06-15

- ⑂ **feat: first test of cylindrical grid geometry** (#2176)
  by @asalzburger, ✅ comment by @niermann999, updated on 2023-06-13

- ⑂ **feat: Addition of CsvSeedWriter** (#2003)
  by @piotrmoszkowicz, ✅ comment by @niermann999, updated on 2023-05-25

- ⑂ **refactor: change the definition of the rotation parameters** (#2021)
  by @XiaocongAi, review requested, updated on 2023-05-23

- ⑂ 🚧 WIP **ci: no tracks in ExaTrkX CI** (#2224)
  by @benjaminhuth, ⚠️ **no reviewer**, updated on 2023-06-20

acts-project/acts: Open PRs III

- 🔀 🚧 WIP **ci: Add track momenta at vertex to physmon** (#2221)
  by @felix-russo, ⚠️ **no reviewer**, updated on 2023-06-20

- 🔀 🚧 WIP **refactor: Explicit and type safe navigation delegates** (#2214)
  by @andiwand, ✅ comment by @paulgessinger, updated on 2023-06-20

- 🔀 🚧 WIP **fix: Remove unit C** (#2142)
  by @andiwand, ⚠️ **no reviewer**, updated on 2023-06-20

- 🔀 🚧 WIP **refactor!: Particle hypothesis for track parameters** (#2181)
  by @andiwand, ⚠️ **no reviewer**, updated on 2023-06-19

- 🔀 🚧 WIP **ci: Physmon for single particles** (#2159)
  by @andiwand, ⚠️ **no reviewer**, updated on 2023-06-19

- 🔀 🚧 WIP **feat: Multilayer structure builder** (#2180)
  by @dimitra97, ✅ comment by @dimitra97, updated on 2023-06-16

- 🔀 🚧 WIP **feat: actsvg detector plugin** (#2215)
  by @asalzburger, ⚠️ **no reviewer**, updated on 2023-06-16

acts-project/acts: Open PRs IV

- 🔀 **WIP** **feat: Space point implementation** (#1900)
  by @CarloVarni, ✅ comment by @CarloVarni, updated on 2023-06-15

- 🔀 **WIP** **refactor: review FullBilloirVertexFitter** (#2196)
  by @felix-russo, ⚠️ **no reviewer**, updated on 2023-06-15

- 🔀 **WIP** **feat: Seed selector** (#2195)
  by @CarloVarni, ✅ comment by @CarloVarni, updated on 2023-06-15

- 🔀 **WIP** **feat: ITk fast tracking configuration for Seeding** (#2166)
  by @LuisFelipeCoelho, ✅ comment by @CarloVarni, updated on 2023-06-15

- 🔀 **WIP** **perf: Reduce memory consumption of track finding** (#2206)
  by @paulgessinger, ✅ comment by @paulgessinger, updated on 2023-06-14

- 🔀 **WIP** **refactor: Exa.TrkX logger and variable names** (#2192)
  by @benjaminhuth, ⚠️ **no reviewer**, updated on 2023-06-13

- 🔀 **WIP** **fix: add protection of the matrix inverse calculations to avoid FPE** (#2122)
  by @hrzhao76, ✅ comment by @andiwand, updated on 2023-06-13

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- ⚒ **WIP** **feat: Add PODIO plugin, Track EDM backend** (#2094)
  by @paulgessinger, ⚠ **no reviewer**, updated on 2023-06-12

- ⚒ **WIP** **refactor!: compile-time DetectorMeasurementInfo for SSS** (#2108)
  by @LuisFelipeCoelho, ✅ comment by @paulgessinger, updated on 2023-06-11

- ⚒ **WIP** Stale **refactor: remove direction from constrained step** (#2073)
  by @andiwand, ✅ comment by @andiwand, updated on 2023-06-10

- ⚒ **WIP** Stale **refactor: add geohook for fast digitization range selection to itk example** (#2089)
  by @niermann999, ⚠ **no reviewer**, updated on 2023-06-04

- ⚒ **WIP** **feat: dd4hep building with unit tests** (#2161)
  by @asalzburger, ⚠ **no reviewer**, updated on 2023-05-30

- ⚒ **WIP** **feat!: new cubic volume building** (#1821)
  by @asalzburger, ⚠ **no reviewer**, updated on 2023-05-24

▶ ⊙ **Missing 'cmake_minimum_required' in 'ActsConfig.cmake.in'** (#2216)
by @andiwand, updated on 2023-06-17

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- ▶ ⑂ 🚧 WIP Stale **refactor: remove direction from constrained step** (#2073)
  by @andiwand, ⚠ **no reviewer**, updated on 2023-06-10

- ▶ ⑂ 🚧 WIP Stale **refactor: add geohook for fast digitization range selection to itk example** (#2089)
  by @niermann999, ⚠ **no reviewer**, updated on 2023-06-04

- ▶ ⊙ Stale **Track parameter estimation algorithm return parameter on the first seed SP surface** (#2037)
  by @Corentin-Allaire, updated on 2023-05-25

- ▶ ⊙ Stale **Feature: Measurement removal to get unbiased residual during smoothing** (#2031)
  by @XiaocongAi, updated on 2023-05-20

- ▶ ⊙ Stale **Expose individual steps of track reconstruction in full_chain python scripts** (#1997)
  by @tboldagh, updated on 2023-05-20

- ▶ ⊙ Stale **Improvements to Track EDM** (#1993)
  by @paulgessinger, updated on 2023-05-20

- ▶ ⊙ Stale **Bad physmon results if interactions enabled in Fatras** (#1643)
  by @benjaminhuth, updated on 2023-05-09

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- ▶ ⊙ Stale **Different results for full_chain_itk when running locally vs lxplus** (#1819)
  by @CarloVarni, updated on 2023-05-09

- ▶ ⊙ Stale **Bug: Probable Issues in Bevelled Cylinder Implementation** (#1238)
  by @rahmans1, updated on 2023-05-09

- ▶ ⊙ Stale **Cmake error if ACTS_BUILD_PLUGIN_ACTSVG=ON** (#1818)
  by @DraTeots, updated on 2023-05-09

- ▶ ⊙ Stale **Physmon throws many WARNINGs on Bethe-Heitler approximation** (#1748)
  by @paulgessinger, updated on 2023-05-09

- ▶ ⊙ Stale **SpacePoint EDM design** (#1971)
  by @CarloVarni, updated on 2023-05-09

- ▶ ⊙ Stale **vertex fitting and duplicate tracks** (#1992)
  by @rubihason, updated on 2023-05-09

- ▶ ⊙ Stale **Estimate Track Parameters from Seeds use only one surface. What about strips?** (#1895)
  by @CarloVarni, updated on 2023-05-09

- ▶ ⊙ Stale **error while i running full_chain_odd.py** (#1661)
  by @rubihason, updated on 2023-05-09

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- ▶ ⊙ Stale **Bug: Unpredicatable navigation in layer with overlapping surface** (#1852)
  by @Corentin-Allaire, updated on 2023-03-25

- ▶ ⊙ Stale **Make central minimum track momentum threshold** (#1761)
  by @paulgessinger, updated on 2023-01-21

- ▶ ⊙ Stale **Drop 'boost progress' from examples where it is not used** (#1736)
  by @tboldagh, updated on 2023-01-16

- ▶ ⊙ Stale **Remove 'volumeSignature' from geometry building** (#1731)
  by @paulgessinger, updated on 2023-01-16

- ▶ ⊙ Stale **Optimal seeding parameters for a detector** (#1699)
  by @CouthuresJeremy, updated on 2023-01-05

- ▶ ⊙ Stale **Particle smearing assertion with Geant4** (#1603)
  by @benjaminhuth, updated on 2022-12-21

- ▶ ⊙ Stale **Create volume restricted BFieldMap** (#1659)
  by @asalzburger, updated on 2022-12-21

- ▶ ⊙ Stale **Documentation update: Core** (#1418)
  by @paulgessinger, updated on 2022-11-23

acts-project/acts: All stale Issues / PRs IV

- ▶ ⊙ `Stale` **Documentation update: Examples** (#1420)
  by @paulgessinger, updated on 2022-11-23

- ▶ ⊙ `Stale` **Documentation update: How-to (core)** (#1422)
  by @paulgessinger, updated on 2022-11-23

- ▶ ⊙ `Stale` **Documentation update: Plugins** (#1421)
  by @paulgessinger, updated on 2022-10-22

- ▶ ⊙ `Stale` **Documentation update: FATRAS** (#1419)
  by @paulgessinger, updated on 2022-10-22

- ▶ ⊙ `Stale` **Vertexing produces vertex candidates that are unreasonable** (#1361)
  by @paulgessinger, updated on 2022-10-22

- ▶ ⊙ `Stale` **Add Primary Vertex Label to tracks** (#1544)
  by @Lucas-Borgna, updated on 2022-10-22

- ▶ ⊙ `Stale` **Documentation update: Contribution guidelines** (#1423)
  by @paulgessinger, updated on 2022-10-19

- ▶ ⊙ `Stale` **Optionally have the vertex finding recalculate perigee parameters relative to consistent reference** (#1482)
  by @paulgessinger, updated on 2022-10-01

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- ▶ ⊙ `Stale` **Full chain vertexing with AMVF** (#1406)
  by @paulgessinger, updated on 2022-10-01

- ▶ ⊙ `Stale` **Documentation: hints for debugging** (#1463)
  by @timadye, updated on 2022-09-24

- ▶ ⊙ `Stale` **Vertexing produces unexpectedly poor efficiency** (#1362)
  by @paulgessinger, updated on 2022-09-20

- ▶ ⊙ `Stale` **Ambiguous perigees with low momentum** (#1386)
  by @andiwand, updated on 2022-09-20

- ▶ ⊙ `Stale` **Vertexing produces propagation errors** (#1345)
  by @paulgessinger, updated on 2022-09-20

- ▶ ⊙ `Stale` **add monitoring for vertexing in physmon** (#1313)
  by @andiwand, updated on 2022-09-20

- ▶ ⊙ `Stale` **2D r-z Magnetic Field Map Improperly Read** (#669)
  by @osbornjd, updated on 2022-09-20

- ▶ ⊙ `Stale` **Fatras: Bethe-Heitler calculation wrong?** (#1437)
  by @asalzburger, updated on 2022-09-20

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- ▶ ⊙ Stale **Some writers performs their writes in the destructor** (#881)
  by @paulgessinger, updated on 2022-08-11

- ▶ ⊙ Stale **Vertexing issues observed in python vertexing example** (#1091)
  by @paulgessinger, updated on 2022-08-11

- ▶ ⊙ Stale **Magnetic Field Storage** (#1239)
  by @osbornjd, updated on 2022-06-12

- ▶ ⊙ Stale **Reproducibility test using hash checks for non-linear KF** (#1246)
  by @paulgessinger, updated on 2022-06-12

- ▶ ⊙ Stale **Cut tube segment dd4hep conversion tests** (#1146)
  by @rahmans1, updated on 2022-05-25

- ▶ ⊙ Stale **Bug: fatras different particle final states between python and executable** (#1221)
  by @CouthuresJeremy, updated on 2022-05-01

- ▶ ⊙ Stale **ci: Coverage job is broken with gcovr $>=$ 5.1** (#1211)
  by @paulgessinger, updated on 2022-04-29

- ▶ ⊙ Stale **Bug: issue on first build after DD4hep update on system with globaly installed acts** (#1139)
  by @gagnonlg, updated on 2022-02-22

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- ▶ ⊙ `Stale` **Feat: Radial bounds in DD4hep plugin** (#822)
  by @whit2333, updated on 2022-02-19

- ▶ ⊙ `Stale` **Add example (+test) for vertex fitting with constraints** (#1100)
  by @paulgessinger, updated on 2022-01-07

- ▶ ⊙ `Stale` **Should seed finding tools have a higher-level interface?** (#988)
  by @stephenswat, updated on 2021-11-25

- ▶ ⊙ `Stale` **[bug] Off axis endcap with dd4hep plugin.** (#942)
  by @whit2333, updated on 2021-11-25

- ▶ ⊙ `Stale` **Improvement: Estimate track parameters from seed at perigee surface** (#1036)
  by @XiaocongAi, updated on 2021-11-10

- ▶ ⊙ `Stale` **Polyhedron surfaces tests are disabled** (#454)
  by @msmk0, updated on 2021-11-04

- ▶ ⊙ `Stale` **Tracking for TPC/DC without surfaces** (#165)
  by @FabianKlimpel, updated on 2021-11-04

- ▶ ⊙ `Stale` **BoundingBox tests fail on double precision** (#752)
  by @paulgessinger, updated on 2021-11-04

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- ⊙ Stale **Debug Information in Acts Seeder** (#944)
  by @osbornjd, updated on 2021-10-21

- ⊙ Stale **fix: avoid double-static cast** (#647)
  by @asalzburger, updated on 2021-10-21