


Pull request and issue summary for acts-project/acts

April 18, 2023

Needs discussion I

- ▶  **Track parameter estimation algorithm return parameter on the first seed SP surface (#2037)**
by @Corentin-Allaire

















To use our seed as an input of the CKF, we use 'TrackParamsEstimationAlgorithm' to convert them into track parameters. This algorithm computes track parameters on the first seed space point surface.

This could be an issue if the seed is too far away from the perigee, as this would mean we could miss some of the track hits in the CKF.















Should we instead extrapolate those parameters to the perigee (the change would be pretty trivial but will break our testing infrastructure), or should we keep it as is?













In any case, I think we should be more explicit about this in the doc/code.
















acts-project/acts: PRs merged between 2023-04-11 and 2023-04-18 |

- ▶  **feat: adding Indexed Surface infrastructure (#2018)**
by @asalzburger,  reviewed by @noemina, merged on 2023-04-11
- ▶  **refactor: move vertex performance writer (#1998)**
by @andiwand,  reviewed by @asalzburger, merged on 2023-04-11
- ▶  **feat: Add Mlpack DBScan clustering to the ML Ambiguity solver (#2005)**
by @Corentin-Allaire,  reviewed by @andiwand, merged on 2023-04-11
- ▶  **docs: first brush over the geometry pages (#1395)**
by @asalzburger,  reviewed by @benjaminhuth, merged on 2023-04-11
- ▶  **feat: add python bindings for next navigator (#2019)**
by @andiwand,  reviewed by @asalzburger, merged on 2023-04-11
- ▶  **fix: Energy loss function (#1323)**
by @beomki-yeo,  reviewed by @andiwand, merged on 2023-04-12
- ▶  **feat: Add logger to multi stepper (#1964)**
by @benjaminhuth,  reviewed by @andiwand, merged on 2023-04-12
- ▶  **feat: GSF add final multi-component state to track container (#1928)**
by @benjaminhuth,  reviewed by @andiwand, merged on 2023-04-12
















acts-project/acts: PRs merged between 2023-04-11 and 2023-04-18 II

- ▶  **test: disable ml solver test for now (#2024)**
by @andiwand,  reviewed by @paulgessinger, merged on 2023-04-12
- ▶  **feat: Mockup builder class with a cpp script for test (#2008)**
by @dimitra97,  reviewed by @noemina, merged on 2023-04-12
- ▶  **perf: Space Point Formation requires functions that accepts const reference to source links (#1991)**
by @CarloVarni,  reviewed by @tboldagh, merged on 2023-04-12
- ▶  **refactor: Restructure the ONNX and mlpack plugins (#2025)**
by @paulgessinger,  reviewed by @benjaminhuth, merged on 2023-04-12
- ▶  **feat: EDM4hep plugin, Track reader + writer (#2022)**
by @paulgessinger,  reviewed by @andiwand, merged on 2023-04-13
- ▶  **build: Take CMAKE_CXX_STANDARD into account (#1981)**
by @paulgessinger,  reviewed by @andiwand, merged on 2023-04-13
- ▶  **feat: Refitting algorithm (#1940)**
by @benjaminhuth,  reviewed by @andiwand, merged on 2023-04-13






















- ▶  **refactor!: move SSS coordinate information to spacePointData (#2004)**
by @LuisFelipeCoelho,  reviewed by @CarloVarni, merged on 2023-04-14
- ▶  **refactor: Compile time get compatible doublets (#2013)**
by @CarloVarni,  reviewed by @LuisFelipeCoelho, merged on 2023-04-14
- ▶  **ci: Fix skipped Geant4 tests, always enable all tests by default in CI (#2032)**
by @paulgessinger,  reviewed by @andiwand, merged on 2023-04-17
- ▶  **feat: remove middle SPs in last layer (#1972)**
by @LuisFelipeCoelho,  reviewed by @CarloVarni, merged on 2023-04-17
- ▶  **refactor: Mockup builder files location (#2029)**
by @dimitra97,  reviewed by @andiwand, merged on 2023-04-17
- ▶  **feat: Minimal example for using C++20 concepts (#2034)**
by @paulgessinger,  reviewed by @benjaminhuth, merged on 2023-04-17

- ▶  **feat: Add ConstRefHolder type, add support to TrackContainer (#2035)**
by @paulgessinger,  reviewed by @EdwardMoyse, updated on 2023-04-18
- ▶  **refactor: Generalize NavigationDirection to Direction (#2030)**
by @andiwand,  comment by @benjaminhuth, updated on 2023-04-18
- ▶  **feat: add SVG visualization functionality for indexed surfaces (#2033)**
by @asalzburger,  comment by @niermann999, updated on 2023-04-17
- ▶  **feat: Seed Vertex Finder (#2038)**
by @pbalek, review requested, updated on 2023-04-17
- ▶  **build: Add tests for non-compilation of invalid behavior (#2036)**
by @paulgessinger,  **no reviewer**, updated on 2023-04-17
- ▶  **refactor: add propagator stage (#1987)**
by @andiwand,  reviewed by @asalzburger, updated on 2023-04-17
- ▶  **feat: Make layer envelope dimensions configurable (#1982)**
by @plariono,  reviewed by @asalzburger, updated on 2023-04-15
- ▶  **feat: Addition of CsvSeedWriter (#2003)**
by @piotrmoszkowicz,  comment by @niermann999, updated on 2023-04-14





acts-project/acts: Open PRs II

- ▶  **refactor: remove/rearrange includes in propagator (#1988)**
by @andiwand,  comment by @andiwand, updated on 2023-04-14
- ▶  **feat: cylindrical detector (#1983)**
by @asalzburger,  comment by @asalzburger, updated on 2023-04-14
- ▶  **fix: Solve the CI issue with the ML solver (#2026)**
by @Corentin-Allaire,  **no reviewer**, updated on 2023-04-13
- ▶  **refactor: change the definitiom of the rotation parameters (#2021)**
by @XiaocongAi, review requested, updated on 2023-04-13
- ▶  **feat: Add method to return measurement indices (#2028)**
by @gagnonlg,  **no reviewer**, updated on 2023-04-12
- ▶   **refactor: and fix new detector geometry (#2027)**
by @andiwand,  comment by @asalzburger, updated on 2023-04-13
- ▶   **docs: adding Fatras description (#1402)**
by @asalzburger,  comment by @AJPfleger, updated on 2023-04-11













acts-project/acts: Open PRs III

- ▶   **WIP** Stale **feat!: new cubic volume building (#1821)**
by @asalzburger,  **no reviewer**, updated on 2023-04-11
- ▶   **WIP** **feat: Space point implementation (#1900)**
by @CarloVarni,  comment by @CarloVarni, updated on 2023-04-11
- ▶   **WIP** **refactor!: split filterCandidates for ITk SSS seeding (#1985)**
by @LuisFelipeCoelho,  comment by @LuisFelipeCoelho, updated on 2023-04-04
- ▶   **WIP** Stale **refactor: Exa.Trkx configurable stages (#1898)**
by @benjaminhuth,  **no reviewer**, updated on 2023-04-02
- ▶   **WIP** **refactor: explicit init, pre step, post step for navigator interface (#1984)**
by @andiwand,  **no reviewer**, updated on 2023-03-25
- ▶   **WIP** Stale **fix: B-field interpolation errors (#1467)**
by @timadye,  **no reviewer**, updated on 2022-10-12
- ▶   **WIP** Stale **feat: Adding unit tests for perigee propagation outside beam pipe (#1354)**
by @asalzburger,  **no reviewer**, updated on 2022-09-09









- ▶ **Track parameter estimation algorithm return parameter on the first seed SP surface (#2037)**
by @Corentin-Allaire, updated on 2023-04-17
- ▶ **ML Ambi python level test throws FPE *sometimes* (#2023)**
by @paulgessinger, updated on 2023-04-17
- ▶ **Feature: Measurement removal to get unbiased residual during smoothing (#2031)**
by @XiaocongAi, updated on 2023-04-14










- ▶   **WIP**  **Stale** **feat!: new cubic volume building (#1821)**
by @asalzbürger,  **no reviewer**, updated on 2023-04-11

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











- ▶   **WIP** Stale **feat!: new cubic volume building (#1821)**
by @asalzburger,  **no reviewer**, updated on 2023-04-11
- ▶   **WIP** Stale **refactor: Exa.Trkx configurable stages (#1898)**
by @benjaminhuth,  **no reviewer**, updated on 2023-04-02
- ▶  Stale **Bug: Unpredictable 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

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

- ▶  **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
- ▶  **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 bug: interpolation out of bounds with ATLAS B-field map (#1484)**
by @timadye, updated on 2022-11-12
- ▶  **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 EDM Memory usage (#1516)**
by @paulgessinger, updated on 2022-10-22
- ▶  **Stale Documentation update: Contribution guidelines (#1423)**
by @paulgessinger, updated on 2022-10-19
- ▶   **WIP Stale fix: B-field interpolation errors (#1467)**
by @timadye,  **no reviewer**, updated on 2022-10-12
- ▶  **Stale Monitor Floating Point Exceptions in CI (#1481)**
by @paulgessinger, updated on 2022-10-01
- ▶  **Stale Optionally have the vertex finding recalculate perigee parameters relative to consistent reference (#1482)**
by @paulgessinger, updated on 2022-10-01
- ▶  **Stale Full chain vertexing with AMVF (#1406)**
by @paulgessinger, updated on 2022-10-01









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



- ▶  **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
- ▶   **WIP Stale feat: Adding unit tests for perigee propagation outside beam pipe (#1354)**
by @asalzburger,  **no reviewer**, updated on 2022-09-09

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

- ▶ **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 \geq 5.1** (#1211)
by @paulgessinger, updated on 2022-04-29
- ▶ **Stale** **Bug: issue on first build after DD4hep update on system with globally installed acts** (#1139)
by @gagnonlg, updated on 2022-02-22

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

- ▶  **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

- ▶  **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