# Pull request and issue summary for acts-project/acts

July 2, 2024

#### Needs discussion I

► • TrackAtVertex trackWeight is not being written in IVF (#2149) by @andiwand

During my work on the vertexing I noticed that the 'trackWeight' of 'TrackAtVertex' https://github.com/acts-project/acts/blob/main/Core/include/Acts/Vertexing/TrackAtVertex.hpp#L69 default of '1' is never being overwritten in the IVF. Not sure if this is intended but it seems very odd.

#### acts-project/acts: PRs merged between 2024-06-25 and 2024-07-02 |

- ▶ feat: Wire grid size for 'AMVF' and 'AdaptiveGridSeeder' to Python in Examples (#3329) by @andiwand, ✓ reviewed by @paulgessinger, merged on 2024-06-26
- ▶ test: use ACTS logging for Navigator tests (#3312) by @AJPfleger, reviewed by @andiwand, merged on 2024-06-26
- ▶ build: Change the way coverage is enabled (#3318) by @paulgessinger, ✓ reviewed by @andiwand, merged on 2024-06-28
- ▶ fix(gx2f): compatible with non-Vector-TrackContainer (e.g. in Athena) (#3333) by @AJPfleger, ✓ reviewed by @andiwand, merged on 2024-06-28
- ▶ %- refactor(gx2f): change type of Gx2fnUpdateColumn to uint32\_t (athena compatability) (#3336)
  by @AJPfleger, ✓ reviewed by @andiwand, merged on 2024-06-28
- ▶ \$\infty\$ chore: Fix a number of SonarQube reliability issues (#3328) by @paulgessinger, ✓ reviewed by @benjaminhuth, merged on 2024-07-01

#### acts-project/acts: PRs merged between 2024-06-25 and 2024-07-02 II

- ▶ **feat: 'Surface::toStream' overload without stream argument** (#3335) by @paulgessinger, ✓ reviewed by @benjaminhuth, merged on 2024-07-01
- ▶ **feat: 'VariableSizeSubspace'** (#3331) by @andiwand, ✓ reviewed by @paulgessinger, merged on 2024-07-01
- ▶ build(deps): bump SonarSource/sonarcloud-github-c-cpp from 2 to 3 (#3338) by @dependabot[bot], ✓ reviewed by @paulgessinger, merged on 2024-07-01
- ▶ ‰ fix(vertexing): IterativeVertexFinder config takes const field (#3341) by @paulgessinger, ✓ reviewed by @andiwand, merged on 2024-07-02

#### acts-project/acts: Open PRs I

- ▶ \$\text{\text{build(deps): bump actions/labeler from 4 to 5 (#3291)}}\$
  by @dependabot[bot], \$\text{\text{v}}\$ reviewed by @andiwand, updated on 2024-07-02}
- ► ↑ refactor!: Rewrite 'BoundaryCheck'; Rename to 'BoundaryTolerance' and split out inside checks (#3170) by @andiwand, ✓ comment by @andiwand, updated on 2024-07-02
- ▶ \$\frac{1}{2}\$ feat: Detray plugin geometry (#3299) by @EleniXoch, \$\sqrt{2}\$ comment by @EleniXoch, updated on 2024-07-02
- ▶ ↑ refactor!: Use track container in Core 'CKF' and pass track proxies to delegates (#3161) by @andiwand, ✓ comment by @andiwand, updated on 2024-07-02
- ▶ \$\int \text{ feat: Silent excessive verbosity of the IVF Algorithm in Examples (#3343)} by @pbutti, \$\sqrt{\text{reviewed by @andiwand, updated on 2024-07-02}}\$
- ▶ \$\frac{1}{2}\$ feat: Select space points used to fill the seeding grid via delegate function. Add experimentCuts support (#3342) by @pbutti, \$\sqrt{2}\$ comment by @CarloVarni, updated on 2024-07-02
- ► Ci(release): Replace release script with git cliff (#3322)
   by @paulgessinger, reviewed by @andiwand, updated on 2024-07-02

# acts-project/acts: Open PRs II

- ▶ \$\infty\$ fix: Unit test hough transform and fix identifier bug (#3332) by @dimitra97, \$\square\$ comment by @andiwand, updated on 2024-07-02
- ➤ ↑ refactor!: BinningValue becomes a strong enum (#3337) by @paulgessinger, ✓ reviewed by @andiwand, updated on 2024-07-02
- ➤ ↑ refactor!: Track EDM brush over (#3192) by @andiwand, ✓ comment by @andiwand, updated on 2024-07-01
- ▶ \$\infty\$ feat: GSF Debugger (#2682) by @benjaminhuth, reviewed by @paulgessinger, updated on 2024-07-01
- ▶ \$\times\$ fix: update the DD4hep requirements when the ODD is built (#3330) by @Corentin-Allaire, \$\square\$ comment by @Corentin-Allaire, updated on 2024-06-28
- ▶ \$\infty\$ feat: covfie plugin (#3117) by @fredevb, \$\square\ \text{comment by @paulgessinger, updated on 2024-06-21}\$
- ► \$\ \frac{1}{3} \quad \text{Stale} \quad \text{refactor: Use Core CKF extrapolation after inwards extension (#3195)} \quad \text{by @andiwand, \( \begin{array}{c} \no \text{reviewer}, \text{ updated on 2024-06-21} \end{array}\)

# acts-project/acts: Open PRs III

- ▶ \$\infty\$ feat: traccc chain in examples (common chain logic and CPU chain) (#3320) by @fredevb, no reviewer, updated on 2024-06-21
- ▶ \$\tilde{\cappa}\$ refactor: change the definition of the rotation parameters (#2021) by @XiaocongAi, \$\tilde{\cappa}\$ reviewed by @paulgessinger, updated on 2024-06-21
- ▶ \$\infty\$ feat: traccc plugin (conversion) (#3281) by @fredevb, \$\infty\$ comment by @paulgessinger, updated on 2024-06-20
- ▶ \$\frac{1}{2}\$ build, fix: Public Header Relocatability, main branch (2024.06.18.) (#3303) by @krasznaa, \$\hat{1}\$ no reviewer, updated on 2024-06-18
- ▶ \$\infty\$ feat: Telescope style seeding (#3300) by @ssdetlab, ↑ no reviewer, updated on 2024-06-17
- ► Stale feat: introduction obj simhit writer (#3180) by @asalzburger, no reviewer, updated on 2024-06-15
- ▶ \$\infty\$ feat: Misalignment shift and test check that only selected modules are shifted (#2843) by @LaraCalic, comment by @paulgessinger, updated on 2024-06-14

# acts-project/acts: Open PRs IV

- ▶ \$\text{\text}\$ test: Add option to only build matching unittests (#3233) by @benjaminhuth, \$\square\$ comment by @benjaminhuth, updated on 2024-06-14
- ▶ \$\text{\text{\$\gequiv}\$ refactor: Move MLAmbiguitySolver to Core (#3272)} by @Corentin-Allaire, \$\hat{\text{\$\lambda\$}\$ no reviewer, updated on 2024-06-11}
- ▶ ↑ refactor!: Seed filter container policy (#3136) by @CouthuresJeremy, ✓ comment by @CouthuresJeremy, updated on 2024-06-10
- ▶ ↑ refactor!: Move 'Navigator' external surfaces into options (#3189) by @andiwand, ↑ no reviewer, updated on 2024-06-10
- ▶ ↑ refactor!: Refactor direct navigator initialization (#3183) by @andiwand, ↑ no reviewer, updated on 2024-06-08
- ▶ **[** refactor!: Split propagator options (#3181) by @andiwand, no reviewer, updated on 2024-06-08
- ▶ \$\text{\text{\$\geq}}\$ refactor!: Refactor navigator options (#3182) by @andiwand, \text{\$\ldot\$} no reviewer, updated on 2024-06-08
- ▶ \$\infty\$ feat: Geometry agnostic space point maker (#2890) by @Alon114, \( \bar{\Lambda} \) no reviewer, updated on 2024-06-06

# acts-project/acts: Open PRs V

- ▶ \$\times\$ refactor: Do not allocate memory if the surface is connected with a detector el... (#3069) by @junggjo9, \$\times\$ comment by @AJPfleger, updated on 2024-06-06
- ▶ 1 WIP feat: Variable size measurement for Examples (#3107) by @andiwand, ✓ comment by @paulgessinger, updated on 2024-07-02
- Feat!: Resurrect original 'AdaptiveGridTrackDensity' vs 'SparseGridTrackDensity' (#3340)
  by @andiwand, no reviewer, updated on 2024-07-02
- by @paulgessinger, no reviewer, updated on 2024-07-01
- ▶ (i) WIP ci: Add GeoModel Plugin to CI (#3327) by @benjaminhuth, ★ changes requested by @paulgessinger, updated on 2024-07-01
- by @andiwand, no reviewer, updated on 2024-07-01
- ▶ \$\times \text{WIP} ci: Update CI job to newer OS (drop ubuntu 20.04, centos7/8) (#3227) by @AJPfleger, \textstyle comment by @andiwand, updated on 2024-07-01

# acts-project/acts: Open PRs VI

- by @andiwand, no reviewer, updated on 2024-06-27
- by @andiwand, no reviewer, updated on 2024-06-27
- by @andiwand, no reviewer, updated on 2024-06-25
- by @AJPfleger, no reviewer, updated on 2024-06-23
- ▶ \$\frac{\sqrt{1900}}{\sqrt{1900}}\$ Stale **feat!: Space point implementation** (#1900) by @CarloVarni, \sqrt{2000} comment by @paulgessinger, updated on 2024-06-22
- by @niermann999, no reviewer, updated on 2024-06-22
- by @asalzburger, no reviewer, updated on 2024-06-22

# acts-project/acts: Open PRs VII

- ▶ ↑ WIP refactor: Some internal GSF refactorings (#2697) by @benjaminhuth, ★ changes requested by @andiwand, updated on 2024-06-21
- by @paulgessinger, no reviewer, updated on 2024-06-21
- by @andiwand, no reviewer, updated on 2024-06-21
- ▶ ↑ WIP feat: Add Frustum/Octree Navigation (#3306) by @Matthewharri,review requestedreview requested, updated on 2024-06-20
- ▶ ↑ WIP refactor: path handling to use 'std::filesystem' (#3308) by @AJPfleger, ★ changes requested by @stephenswat, updated on 2024-06-19
- ▶ \$\times \text{WIP} \text{ refactor: Remove 'lastHierarchySurfaceReached' from 'Navigator' (#3237) by @andiwand, \text{ reviewed by @paulgessinger, updated on 2024-06-14}

# acts-project/acts: Open PRs VIII

- by @andiwand, no reviewer, updated on 2024-06-14
- ▶ ↑ WIP refactor: Resolve surfaces on initialization in 'Navigator' (#3283) by @andiwand, ↑ no reviewer, updated on 2024-06-13
- by @AJPfleger, no reviewer, updated on 2024-06-12
- ▶ (\*\*) WIP feat: Add per event timing (#3124) by @CouthuresJeremy, ✓ comment by @andiwand, updated on 2024-06-11
- ▶ \$\times \quad \text{WIP} \text{ feat: Hashing seeding algorithm (#3148)} by @CouthuresJeremy, \$\times \text{ comment by @CouthuresJeremy, updated on 2024-06-11}
- ▶ \$\times \text{WIP} \text{ feat: geo model detector elements, converters and plugins (#3213)} by @asalzburger, \$\times\$ comment by @benjaminhuth, updated on 2024-06-11

#### acts-project/acts: Open PRs IX

- ▶ ↑ WIP refactor!: Template on track container frontend 'TrackContainer' (#3193) by @andiwand, ✓ comment by @paulgessinger, updated on 2024-06-05
- by @benjaminhuth, comment by @benjaminhuth, updated on 2024-05-25

#### acts-project/acts: New stale Issues / PRs since 2024-06-25 | |

- by @andiwand, no reviewer, updated on 2024-07-01
- ▶ **Stale** Ensure Fitters use all provided measurements (#2737) by @andiwand, updated on 2024-06-25
- ▶ Stale Bug: Fatras sets step size to 0 (#2543) by @andiwand, updated on 2024-06-25
- Stale [Feature Request] Padding utility for field map in case tracking volume is larger than a given field map (#2523)
  by @janheinri, updated on 2024-06-25
- Stale Bug: AMVF 'deleteLastVertex' might be wrong (#2380) by @andiwand, updated on 2024-06-25

#### acts-project/acts: New stale Issues / PRs since 2024-06-25 II

- Stale Construct tracking geometry from python (#2173) by @andiwand, updated on 2024-06-25
- Stale TrackAtVertex trackWeight is not being written in IVF (#2149) by @andiwand, updated on 2024-06-25
- Stale EstimateTrackParamsFromSeed does not use time of measurement (#2136) by @andiwand, updated on 2024-06-25

- Stale Create volume restricted BFieldMap (#1659) by @asalzburger, updated on 2024-06-25
- Stale Add Primary Vertex Label to tracks (#1544) by @Lucas-Borgna, updated on 2024-06-25

# acts-project/acts: New stale Issues / PRs since 2024-06-25 III

- ▶ **Stale Documentation update: Core** (#1418) by @paulgessinger, updated on 2024-06-25
- Stale Reproducibility test using hash checks for non-linear KF (#1246) by @paulgessinger, updated on 2024-06-25
- Stale Debug Information in Acts Seeder (#944)
   by @osbornjd, updated on 2024-06-26

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

- ▶ \$\frac{\text{MIP}}{\text{will}}\$ Stale refactor: Remove target volume estimation from 'Navigator' (#3242) by @andiwand, \text{\text{no reviewer}}, updated on 2024-07-01
- ▶ O Stale [bug] Off axis endcap with dd4hep plugin. (#942) by @whit2333, updated on 2024-06-26
- ▶ **Ostale Debug Information in Acts Seeder** (#944) by @osbornjd, updated on 2024-06-26
- Stale Reproducibility test using hash checks for non-linear KF (#1246) by @paulgessinger, updated on 2024-06-25
- Stale Documentation update: Core (#1418)
   by @paulgessinger, updated on 2024-06-25
- ▶ **Stale** Add Primary Vertex Label to tracks (#1544) by @Lucas-Borgna, updated on 2024-06-25

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

- Stale Cmake error if ACTS\_BUILD\_PLUGIN\_ACTSVG=ON (#1818) by @DraTeots, updated on 2024-06-25
- Stale EstimateTrackParamsFromSeed does not use time of measurement (#2136)
   by @andiwand, updated on 2024-06-25
- Stale TrackAtVertex trackWeight is not being written in IVF (#2149) by @andiwand, updated on 2024-06-25

- Stale Bug: not all tracks have fittedMomentum (#2364) by @felix-russo, updated on 2024-06-25
- Stale Bug: AMVF 'deleteLastVertex' might be wrong (#2380) by @andiwand, updated on 2024-06-25

#### acts-project/acts: All stale Issues / PRs III

- ▶ **Stale** [Bug] Fatras can't seem to handle energy loss for electrons on thin surfaces (#2498) by @janheinri, updated on 2024-06-25
- Stale [Feature Request] Padding utility for field map in case tracking volume is larger than a given field map (#2523)
  by @janheinri, updated on 2024-06-25
- ▶ **Stale** Bug: Fatras sets step size to 0 (#2543) by @andiwand, updated on 2024-06-25
- ▶ **Stale** Ensure Fitters use all provided measurements (#2737) by @andiwand, updated on 2024-06-25
- by @CarloVarni, no reviewer, updated on 2024-06-22
- Stale bug: KF verbosity statement (#3097) by @osbornjd, updated on 2024-06-20

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

- ► Stale feat: introduction obj simhit writer (#3180) by @asalzburger, no reviewer, updated on 2024-06-15
- ▶ **Stale EDM Memory usage** (#1516) by @paulgessinger, updated on 2024-05-25
- Stale Detailed timing per event (#1700) by @CouthuresJeremy, updated on 2024-05-25
- by @benjaminhuth, no reviewer, updated on 2024-05-25
- Stale Question: Set a different value of eta range using ODD (#2776) by @rubihason, updated on 2024-05-25
- Stale Write Fatras documentation (#2796) by @andiwand, updated on 2024-05-25

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

- Stale Documentation on geometry misalignments (#2940) by @paulgessinger, updated on 2024-05-17
- Stale Bug: material map auto tuning only considers the "Default" mapping type (#2942) by @plariono, updated on 2024-05-17
- ▶ **Stale bug: some dependencies in setup script wrong** (#3014) by @AJPfleger, updated on 2024-05-17
- Stale perf: CKF general (#3082) by @andiwand, updated on 2024-05-05
- ▶ Stale Some 'toStream' implementations change the state of 'std::ostream' (#3079) by @andiwand, updated on 2024-05-04

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

- ► Stale HepMC plugin looks incomplete (#3050) by @andiwand, updated on 2024-04-26
- ► Stale 'EigenStepper' (and extensions) cannot be easily extended for dense environment covariance transport (#2868) by @andiwand, updated on 2024-03-20
- Stale 'Stepper' and 'Navigator' cannot be configured by 'PropagatorOptions' (#2861) by @andiwand, updated on 2024-02-09
- Stale 'AdaptiveGridTrackDensity' has a hidden 'd0' cut (#2840) by @andiwand, updated on 2024-01-17
- Stale EDM4hep parameter conversion should use jacobians directly (#2813) by @paulgessinger, updated on 2024-01-11
- Stale 'Surface::boundToFreeJacobian' could also use 'FreeVector' parameters (#2810) by @andiwand, updated on 2024-01-10

#### acts-project/acts: All stale Issues / PRs VII

- Stale Telescope detector cookbook (#2800) by @paulgessinger, updated on 2024-01-10
- ▶ **Stale** Write CKF documentation (#2794) by @paulgessinger, updated on 2024-01-10
- Stale Add description of Blueprint tree and how it can be used to create layerless detector. (#2785)
  by @paulgessinger, updated on 2024-01-10
- ► Stale Describe replacements of TrackingGeometry, TrackingVolume etc and how the classes map to one another. (#2786) by @paulgessinger, updated on 2024-01-10
- Stale Describe how the legacy geometry used to work and how it differs from the layerless geometry (#2787)
  - by @paulgessinger, updated on 2024-01-10
- Stale 'SurfaceReached' aborter is messing with the step size (#2738) by @andiwand, updated on 2023-12-28
- Stale Propagation state cannot be initialized outside the propagation (#2736) by @andiwand, updated on 2023-12-28

# acts-project/acts: All stale Issues / PRs VIII

- ► Stale FPE: AMVF keepNewVertex (#2590) by @andiwand, updated on 2023-11-26
- ▶ **Stale** Track finding rework (#2320) by @paulgessinger, updated on 2023-11-11
- ► Stale Propagator step count limit reached and Step size adjustment exceeds maximum trials (#2469)
  by @CarloVarni, updated on 2023-11-11
- Stale [Feature Request] Reference surface for tracking algorithm is hardcoded to be at origin (#2525)
  by @ianheinri. updated on 2023-11-09
- Stale Incorrect material interaction in backward propagation ? (#2429) by @Corentin-Allaire, updated on 2023-10-06
- ► Stale Expand TrackingGeometry building from DD4hep with user given input (#2403) by @asalzburger, updated on 2023-09-27

#### acts-project/acts: All stale Issues / PRs IX

- ▶ **Stale FPE: GaussianMixtureReduction** (#2347) by @paulgessinger, updated on 2023-09-03
- ► Stale FPE: RootTrajectoryStatesWriter (#2348) by @paulgessinger, updated on 2023-09-03
- ▶ **Stale FPE: RootTrajectorySummaryWriter** (#2284) by @paulgessinger, updated on 2023-08-12
- Stale Inconsistent use of 'VolumeMaterialInteraction' thickness (#2279) by @andiwand, updated on 2023-08-05
- Stale Move some Digitization code from FATRAS to Core? (#2230) by @benjaminhuth, updated on 2023-07-28
- Stale MultiTrajectory buffer default constructible (#2154) by @tboldagh, updated on 2023-07-20
- Stale Track nDoF only returns the sum of calibrated size and not the actual DoFs. (#2076) by @pbutti, updated on 2023-06-22
- Stale Track parameter estimation algorithm return parameter on the first seed SP surface (#2037)
  by @Corentin-Allaire. updated on 2023-05-25

# acts-project/acts: All stale Issues / PRs X

- Stale Expose individual steps of track reconstruction in full\_chain python scripts (#1997) by @tboldagh, updated on 2023-05-20
- Stale Bug: Probable Issues in Bevelled Cylinder Implementation (#1238) by @rahmans1, 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 Bug: Unpredicatable navigation in layer with overlapping surface (#1852) by @Corentin-Allaire, updated on 2023-03-25

#### acts-project/acts: All stale Issues / PRs XI

- Stale Make central minimum track momentum threshold (#1761) by @paulgessinger, updated on 2023-01-21
- Stale Optimal seeding parameters for a detector (#1699) by @CouthuresJeremy, updated on 2023-01-05

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

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

# acts-project/acts: All stale Issues / PRs XII

- Stale Full chain vertexing with AMVF (#1406) by @paulgessinger, updated on 2022-10-01
- Stale Ambiguous perigees with low momentum (#1386) by @andiwand, updated on 2022-09-20
- Stale Fatras: Bethe-Heitler calculation wrong? (#1437) by @asalzburger, updated on 2022-09-20
- Stale Vertexing issues observed in python vertexing example (#1091) by @paulgessinger, updated on 2022-08-11

#### acts-project/acts: All stale Issues / PRs XIII

- ► Stale Bug: issue on first build after DD4hep update on system with globaly installed acts (#1139) by @gagnonlg, updated on 2022-02-22
- Stale Add example (+test) for vertex fitting with constraints (#1100) by @paulgessinger, updated on 2022-01-07

- 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