

Introduction

Paul Gessinger

CERN

2022-04-01

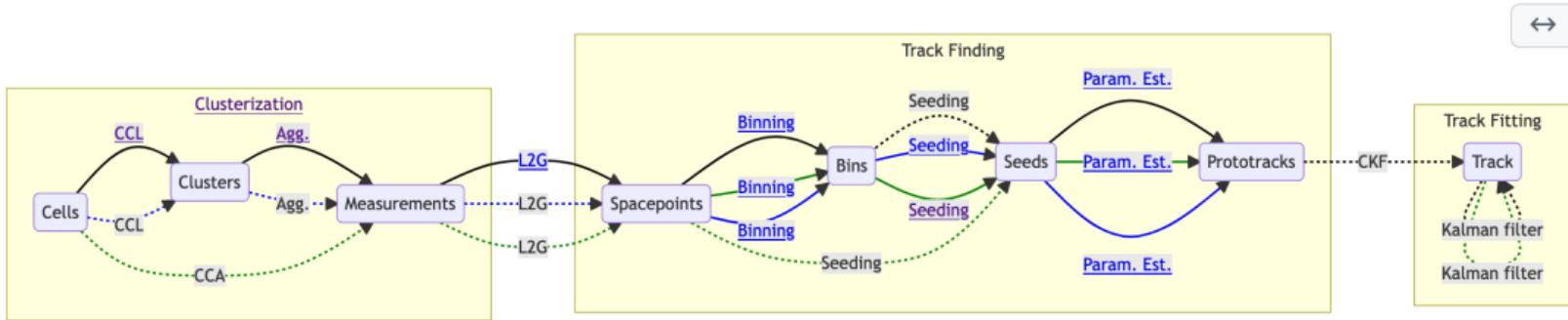


Status

Category	Algorithms	CPU	CUDA	SYCL
Clusterization	CCL	✓	●	●
	Measurement creation	✓	●	●
	Spacepoint formation	✓	●	●
Track finding	Spacepoint binning	✓	✓	✓
	Seed finding	✓	✓	✓
	Track param estimation	✓	✓	✓
	Combinatorial KF	●	●	●
Track fitting	KF	●	●	●

✓: exists ●: work started ●: work not yet started

Algorithm flow



Thanks @stephenswat

Recap i

algebra-plugins

- Beomki: implement general matrix operations
 - ▶ Allows customization of which algorithms to use
 - ▶ **More on that later!**

tracc

- **Another CUDA implementation of connected component labeling** ([PR#19](#))
by [@stephenswat](#), **recently updated!**

vecmem

- **Improve semantics of unique pointers to allow non-trivial types** ([PR#172](#))
by [@stephenswat](#), updated on 2022-04-01

Recap ii

deptray

- **feat: add telescope detector and guided navigation example (PR#197)**
by [@niermann999](#), merged on 2022-03-25
- **Reorganize core directory (PR#231)**
by [@beomki-yeo](#), merged on 2022-03-29
- **Feat: add constrained stepping (PR#228)**
by [@niermann999](#), merged on 2022-03-29
 - ▶ Navigation actor list is WIP
- **add vecpar example (PR#235)**
by [@georgi-mania](#), updated on 2022-03-31

Agenda today I

- **Matrix operations in algebra-plugins**
by Beom Ki Yeo
- **Roundtable**

Backup

acts-project/traccc
Merged PRs

acts-project/traccc: PRs merged since 2022-03-18 |

- **Move algorithm to core** ([PR#144](#))
by [@beomki-yeo](#), merged on 2022-03-18
- **changed Cluster EDM** ([PR#147](#))
by [@konradkusiak97](#), merged on 2022-03-21
- **Remove dependency on ACTS unit test headers** ([PR#148](#))
by [@stephenswat](#), merged on 2022-03-24
- **Fix range-loop-construct warning in module map** ([PR#149](#))
by [@stephenswat](#), merged on 2022-03-25
- **Organize options** ([PR#146](#))
by [@beomki-yeo](#), merged on 2022-03-26
- **Update algebra plugins to v0.8.0** ([PR#151](#))
by [@beomki-yeo](#), merged on 2022-03-26

acts-project/traccc: PRs merged since 2022-03-18 II

- **Run tests only for CPU-based builds** ([PR#150](#))
by [@stephenswat](#), merged on 2022-03-28
- **Add infrastructure for CUDA testing** ([PR#153](#))
by [@stephenswat](#), merged on 2022-03-29
- **Migrate README flowchart to Mermaid** ([PR#152](#))
by [@stephenswat](#), merged on 2022-03-29
- **Update min version for CMake to build project** ([PR#155](#))
by [@ugGit](#), merged on 2022-03-30
- **Update SYCL Seedfinding Status, main branch (2022.03.31.)** ([PR#159](#))
by [@krasznaa](#), merged on 2022-03-31

acts-project/traccc
Open PRs

acts-project/traccc: Open PRs I

- **Another CUDA implementation of connected component labeling** ([PR#19](#))
by [@stephenswat](#), updated on 2022-04-01
- **Implement and test a CUDA version of the module map** ([PR#154](#))
by [@stephenswat](#), updated on 2022-04-01
- **Implement CUDA spacepoint formation with flat EDM** ([PR#158](#))
by [@stephenswat](#), updated on 2022-04-01
- **Remove variance from spacepoint EDM** ([PR#156](#))
by [@stephenswat](#), updated on 2022-04-01
- **Return internal spacepoint members by value** ([PR#157](#))
by [@stephenswat](#), updated on 2022-04-01

No merged PRs since **2022-03-18** in
acts-project/vecmem

acts-project/vecmem
Open PRs

acts-project/vecmem: Open PRs I

- **Improve semantics of unique pointers to allow non-trivial types** ([PR#172](#))
by [@stephenswat](#), updated on 2022-04-01
- **Correctly import cassert.h in unique obj deleter** ([PR#171](#))
by [@stephenswat](#), updated on 2022-03-29
- **[WIP] Add cms caching cuda allocator** ([PR#79](#))
by [@cgleggett](#), updated on 2021-04-28

acts-project/detray
Merged PRs

acts-project/detray: PRs merged since 2022-03-18 |

- **ref: Use adj matrix in geometry graph** ([PR#179](#))
by [@niermann999](#), merged on 2022-03-20
- **feat: add telescope detector and guided navigation example** ([PR#197](#))
by [@niermann999](#), merged on 2022-03-25
- **Update algebra-plugins to v0.8.0** ([PR#227](#))
by [@beomki-yeo](#), merged on 2022-03-26
- **Fix a bug in cuda navigator** ([PR#229](#))
by [@beomki-yeo](#), merged on 2022-03-27
- **Fix Warnings from Clang compilation** ([PR#225](#))
by [@beomki-yeo](#), merged on 2022-03-29
- **Feat: add constrained stepping** ([PR#228](#))
by [@niermann999](#), merged on 2022-03-29

acts-project/detray: PRs merged since 2022-03-18 II

- **Reorganize plugin definitions** ([PR#230](#))
by [@beomki-yeo](#), merged on 2022-03-29
- **Reorganize core directory** ([PR#231](#))
by [@beomki-yeo](#), merged on 2022-03-29
- **Ref: move intersection enum to own namespace** ([PR#232](#))
by [@niermann999](#), merged on 2022-03-29

acts-project/detray
Open PRs

acts-project/detray: Open PRs I

- **feat: add actor list** ([PR#234](#))
by [@niermann999](#), updated on 2022-04-01
- **Rewrite CI with LLVM** ([PR#233](#))
by [@beomki-yeo](#), updated on 2022-03-31
- **add vecpar example** ([PR#235](#))
by [@georgi-mania](#), updated on 2022-03-31
- **feat: adding nlohman library** ([PR#213](#))
by [@asalzbuerger](#), updated on 2022-03-23
- **feat: make surface finders callable from navigator** ([PR#208](#))
by [@niermann999](#), updated on 2022-03-13

acts-project/algebra-plugins
Merged PRs

acts-project/algebra-plugins: PRs merged since 2022-03-18 I

- **general matrix operations** (PR#52)
by @beomki-yeo, merged on 2022-03-24
- **Refactor Transform3 with Matrix Actor** (PR#54)
by @beomki-yeo, merged on 2022-03-25
- **change xxx_getter_type to xxx_getter** (PR#55)
by @beomki-yeo, merged on 2022-03-25
- **Add set_zero and set_identity matrix operator** (PR#56)
by @beomki-yeo, merged on 2022-03-30
- **Add set block function in matrix** (PR#57)
by @beomki-yeo, merged on 2022-03-31
- **Remove size type parameter in frontend matrix actor** (PR#58)
by @beomki-yeo, merged on 2022-03-31

acts-project/algebra-plugins: PRs merged since 2022-03-18 II

- **Add 'size_type' to plugin namespace** ([PR#59](#))
by [@beomki-yeo](#), merged on 2022-04-01

acts-project/algebra-plugins

Open PRs

acts-project/algebra-plugins: Open PRs I