

Update Acts2detray geometry conversion

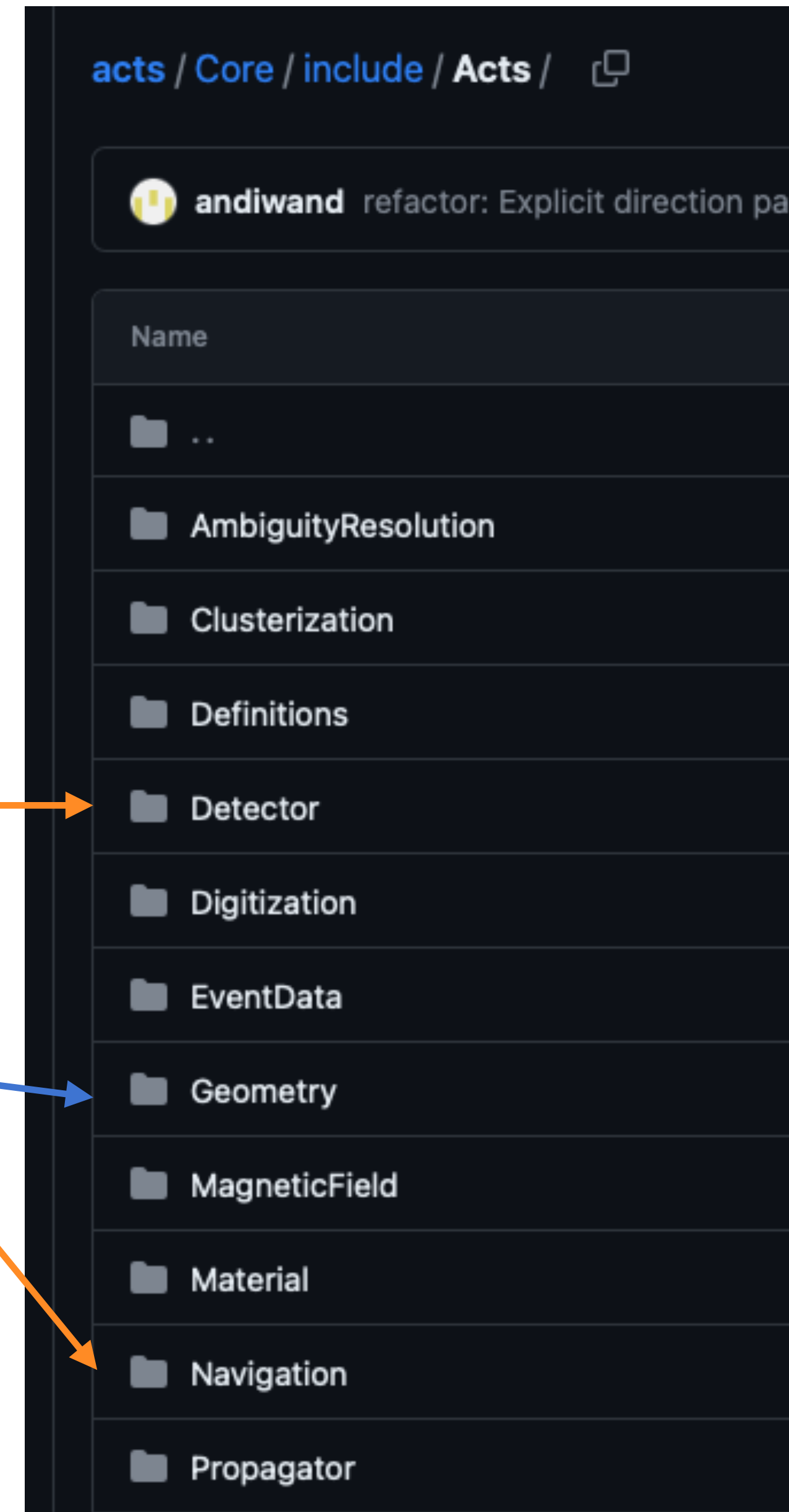


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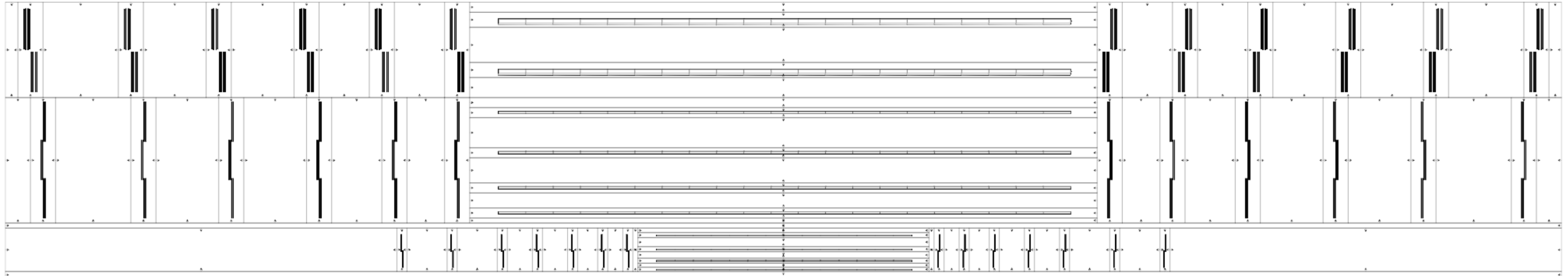
[:0] Layerless geometry in Acts

depray R&D indicated that ACTS geometry will work without layers

- **Experimental** geometry model developed since late 2022 (dedicated namespace)
- **Navigation** developed for this Experimental geometry resulted in huge reduction of code lines
- Runs alongside **standard geometry** in the same Propagator infrastructure



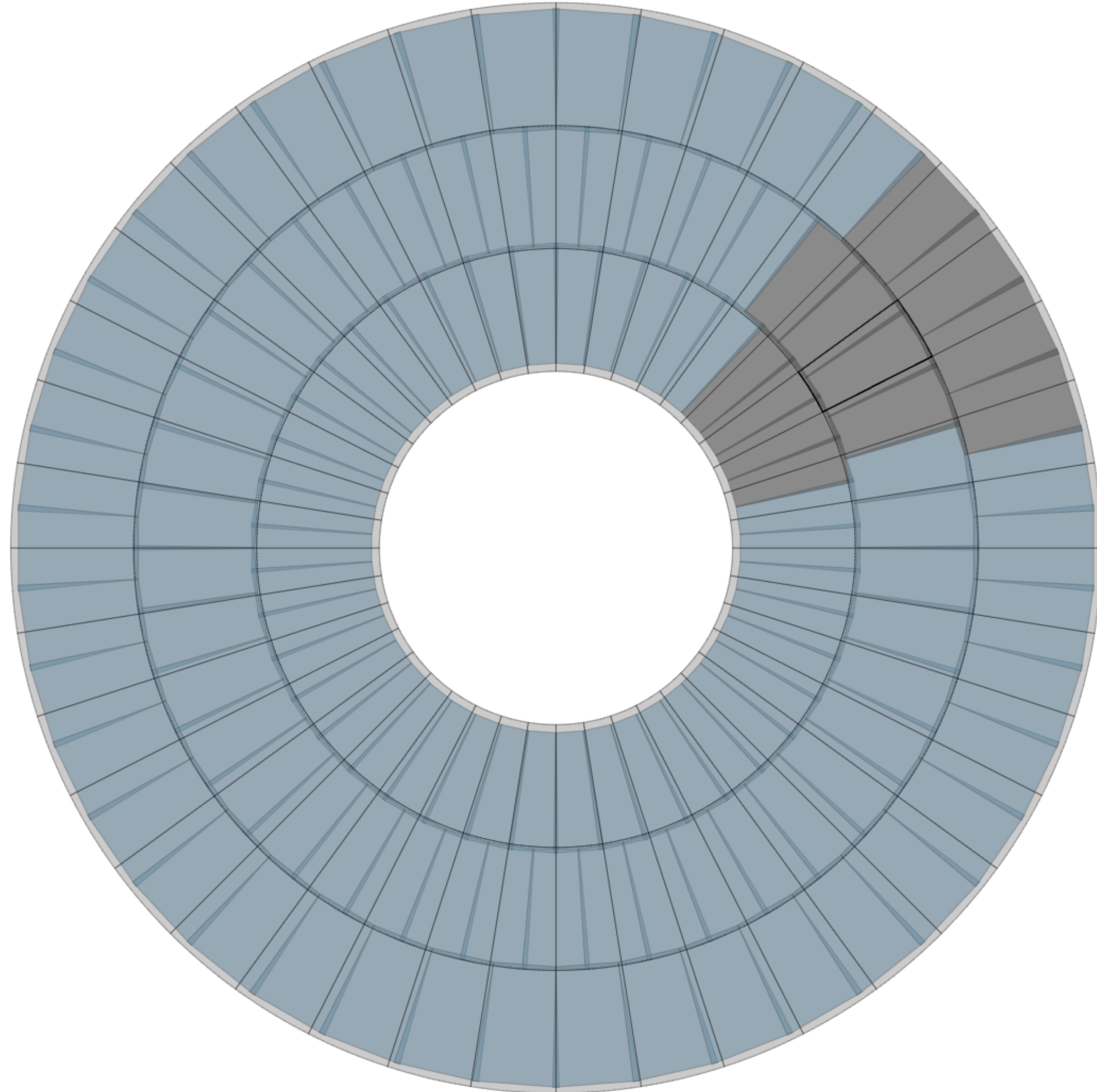
OpenDataDetector builds in this geometry



All the C++ infrastructure is in Acts master

- **Python based** building infrastructure in branch on [asalzburger/acts](#)
- PRs to be expected next week
- Navigation testing to start

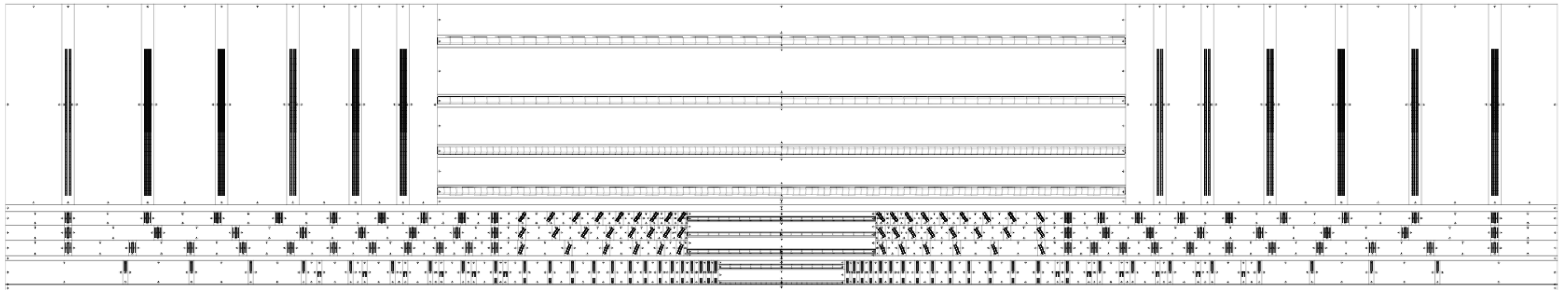
Fully indexed (as in detray)



Grids carry indices to surfaces

Source:
- bin : [2, 24]
Target:
- object: 12
- object: 23
- object: 34
- object: 37
- object: 54
- object: 65
- object: 76
- object: 79
- object: 96
- object: 107
- object: 118
- object: 121

Another detector :-)

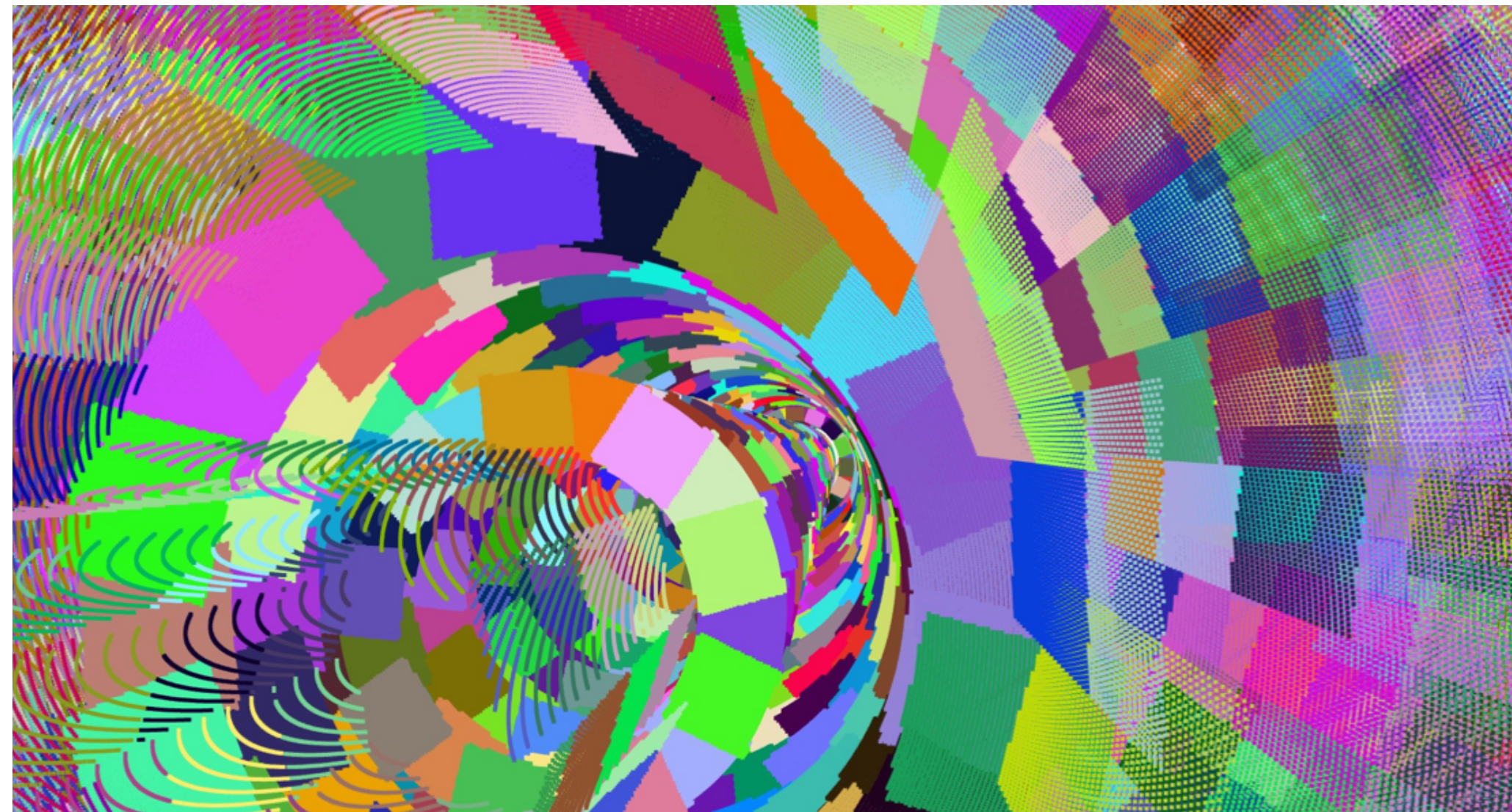


[:1] detray geometry loading

CSV format changed to .json with dedicated payload

- **ToyDetector** roundtrip test successful (unit test available for this)
- Proof of principle succeeded with ATLAS
ITK dummy import (everything into one volume)

```
{
  "header": {
    "version": "detray - 0.35.0",
    "detector": "toy_detector",
    "date": "2023-06-28T 14:30:25Z",
    "tag": "geometry",
    "no. volumes": 20,
    "no. surfaces": 3244
  },
  "data": {
    "volumes": [
      {
        "name": "",
        "index": 0,
        "type": 0,
        "transform": {
          "translation": [
            0.0,
            0.0,
            0.0
          ]
        }
      }
    ]
  }
}
```



B. Wynne

- missing piece grid import/export

[:2] Acts geometry exporting

Json exporting infrastructure for

- **Experimental** geometry almost in place
- Dedicated detray translator for geometry json exporting (some key changes)
- One piece missing:
Acts::Portal objects need to be (potentially) split into sub-portals that have exactly one link for detray::portal to interpret correctly