

Roadmap OTB 10 with ITK5

OTB User days 2024

The world is how we shape it*

Presentation overview

1. A necessary migration
2. Changes in OTB between itk 4 and 5 :
 - Threading
 - Vector data handling
 - API change
 - Compiler compatibility

01

A Necessary migration

ITK 4 no longer available in distribs

- Last version of ITK4 is in Ubuntu 22.04
- **No longer maintained since 2022**
- Threading model **not efficient on todays processors**
- **Needs to be patched** to compile with modern GCC ≥ 11

OTB no longer packaged in distribs

- **Debian does not package itk 4** since Debian 11, so otb was not available as « apt install otb-bin »
- Ubuntu as a debian derivative does not have it packaged too
- Same case for fedora...

ITK 5 advantages

- OTB can be **packaged again** on all distribs
- **Performance improvements** with new ITK5 threading model
- Modularisation in itk / Full cmake like OTB
- **Pip install itk => pip install otb ?**
- Use of python itk filters to develop a **full python pipeline**

02

Changes between ITK 4 and 5

Threading and vector data handling

- Dynamic Multithreading : no more ThreadID
- Adaptation of all GenerateData calls for all OTB filters based on ITK
- Use of old multithreading method for compatibility reasons on 5 filters (data stored by threadID)
- ITKTree => Boost graph for vectorData

No High level API change

- Only « under the hood modifications »
- Python API unchanged and working like OTB 9 version
- No change in applications
- Use of boost graph library which is header only

Modern compiler compatibility

- No more patch needed for ITK in superbuid
- GCC ≥ 11
- Clang ≥ 10
- MSVC ≥ 2019

03

Modularisation
