

Visualization WG

CWP report

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On behalf of many contributors (*full list will appear in the CWP chapter*)

The workshop

- Was the workshop successful for the WG?
- I would say: “**Extremely useful!**”
- The CWP effort and the WG **evolved** a lot during these 5 days!
- During the workshop we worked on:
 - **Scope**
 - **Chapter text**

The WG scope - before the workshop

- At the workshop in **San Diego** (Jan 2017) we defined the scope of the WG to include **event displays only**
- We thought that those could be considered out-of-scope:
 - **Statical visualisation** (histograms, plots) —> Data Analysis WG?
 - Graphical widgets for **slow control** —> we thought interaction with hardware is not strictly in the “data visualisation” definition

The WG scope - evolution during the workshop

- **Discussion with the other WGs**, here, was very useful
- **We realised** that:
 - **Histogramming tools** were not covered yet in any of the WGs (*more on that later*)
 - **Other types of visualisation** are used in HEP experiments, and those were **not covered** either:
 - Analytics/performance/monitoring
 - Graphs and networks, used in visualising e.g. ML nets

“Visualization” redefinition

- Thus, we thought to redefine the scope
- For that, we decided to use **a new, very nice definition:**
 - **“Visualization:** Turning numbers into pixels” (*by Hadrien Grasland*)

Histograms/plots & performance

With the **new** “visualization” **definition** in mind:

■ Histograms/plots:

- Here at the Workshop, the **Data Analysis WG started writing** a section on statistical visualisation
- The two WGs agreed on **moving** the content about **plotting** from the Data Analysis chapter to the Visualisation WG

■ Analytics/performance:

- Discussing with the **Computing/Data WGs**, we agreed to cover the performance/monitoring data visualisation tools and techniques in the Visualisation chapter

Writing the chapter

- We arrived here with a **huge list** of bullets, collected during the two successful **topical workshops** and the other WG meetings
- Many **useful writing sessions** here at the workshop helped us reshaping the chapter and starting the actual writing
- The **text** is ~14 pages so far, but it is still **growing**

Chapter:

https://docs.google.com/document/d/1dtE2DEdYCWzPaEy_twgSCFdmGxphXMjMcOV0yjl4AKc/edit#

Chapter - Next steps

- First half of July: **complete** the content of the chapter. First version ready for comments from the community
- Second half of July: **implementation** of comments / harmonization
- End-July: chapter complete and ready for the final **submission** to arXiv

Beyond CWP - Fostering collaboration

- The Visualisation WG **agreed on sharing** knowledge and work **beyond the CWP effort**
- Plans to **collaborate** toward common and collaborative work
- It was several years a topical workshop on HEP visualisation was not organised. The [first HSF Visualization Workshop](#) has been **very well received** and **successful!**
- Planned to have **one topical workshop / year** to show new development and to **foster collaboration among HEP** experiments
- Started a **new HSF GitHub WG repository** to **share** code/documents/tutorials: <https://github.com/HEP-SF/Visualization>

Thanks to Sebastien Binet, our first contributor!

Roadmap

■ 1 year:

- **Demonstrators** implementing the ideas about useful **common techniques/best practices/tools**
- **Foster** more **collaborative papers**
- Think about and foster **external collaborations** for R&D projects: **industry** (e.g. NVidia, Intel, ...) and **other sciences** (e.g. Geophysics, ...)

■ 3 years:

- From demonstrators to actual **tools** to be used by HEP experiments

■ 5 years:

- We would like to **address the issue of data access**, in collaboration with the Data Management WG: **event picking is currently very tricky** and somehow a **stopper** for efficient and convenient event displays in HEP