

# ROOT Users Workshop



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## Help yourself with the proper tools to tame ROOT

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ROOT is an incredibly rich and biodiverse set of tools that lets you run the most sophisticated analyses on very large physics datasets with a great speed and only a few lines of code. However, there are a myriad of classes and options you may deploy, and is hard to know them all or choose the best suited, and the documentation is sometimes cryptic or scattered across manual, reference guide and forum.

Likewise, there are hundreds of tricks to remember, as well as caveats and hidden bugs. Among students, ROOT is notoriously famous for making easy the most complex tasks, and for turning pretty difficult the most simple ones, like zooming a graph. This not only affects the efficiency of daily or even experienced ROOT users, but also scares potential newcomers in favour of other software (numpy, MATLAB, matplotlib, ...). As a consequence, the size and growth of the ROOT community is dampened, and the potentially enriching contributions of these users-to-be are lost.

To counterbalance this brain drain, as well as to tame the powerful beast that ROOT represents for daily users, I have focused my effort on improving its user-friendliness by fixing outdated documentation, improving the help messages and usability, as well as developing and sharing workflows for effective programming and debugging.

In my talk, I will review what external tools I deem essential for interacting with ROOT in a way that makes your experience (newbie or expert developers) more productive and comfortable. Finally, I will outline the high-performance data acquisition system I have programmed using ROOT for prompt gamma-ray experiments in the field of medical physics and proton therapy.

### Summary

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