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ROOT: Back To The Future

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After 20 years of evolution, ROOT is currently undergoing a change of gears, bringing our vision of simplicity, robustness and speed closer to physicists' reality. ROOT is now offering a game-changing, fundamentally superior approach to writing analysis code. It is working on a rejuvenation of the graphics system and user interaction. It automatically leverages modern CPU vector and multi-core capabilities. It improves compilation and run time with the use of C++ modules. And last but not least, it offers a new, optimized interface to access the content of a TTree.
In parallel to these major new development efforts, ROOT continues to build on its strengths and evolves, for instance with a speedup of the I/O subsystem thanks the judicious use of multiple cores and offering alternative compression algorithms, enhancements of its machine learning capabilities and connections, and improved platform support.
This presentation will introduce the motivation, describe the features and state the progress with these main development lines. It will provide insights on the impact on experiments' frameworks, benchmarks from the context of the experiments' frameworks and data formats.

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