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Beyond the Roadmap: HL-LHC HEP Software

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Abstract:

The HEP software ecosystem faces new challenges in 2020 with the approach of the High Luminosity LHC (HL-LHC) and the turn-on of a number of large new experiments. Current software development is organized around the experiments: No other field has attained this level of self-organization and collaboration in software development.

During 2017 the community produced a roadmap for the software R&D needed to address the software challenges of the 2020's, with a focus on the HL-LHC. Members of the community that produced over 20 papers and strategic roadmaps included individual researchers, the US and European labs, LHC-based experiments, non-collider experiments, and members of industry. The field's organization was apparent during this process.

HEP must now build on its past successes to address the challenges in front of it. Both technical solutions and new models of collaboration will be required. Funding agencies are ready to make new investments, such as the recent US NSF funded "Institute in Software in High Energy Physics (IRIS-HEP)"and recent calls for funding in Europe. In this talk, I will discuss the process by which we have gotten to this point and possible way forward.

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