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Collaborative software and maintainability for ePIC experiment at EIC

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The ePIC collaboration is working towards realizing the primary detector for the upcoming Electron-Ion Collider (EIC). As ePIC approaches critical decision milestones and moves towards future operation, software plays a critical role in systematically evaluating detector performance and laying the groundwork for achieving the scientific goals of the EIC project. The scope and schedule of the project require a balanced approach between near-term priorities, such as preparing the Technical Design Report, and long-term objectives for the future construction, commissioning, and operational phases. ePIC leverages an agile development process with high-level milestones to ensure continuous real-world testing of the software through monthly production campaigns and CI-driven benchmarks. The ePIC software stack embraces cutting-edge, sustainable community software tools and avoids the “not invented here” syndrome by building on top of well-supported and actively developed frameworks like the key4HEP stack (DD4hep, PODIO, EDM4hep) and ACTS. This collaborative development approach fosters an elevated standard of quality based on lessons learned by the nuclear physics and high energy physics communities. This talk will explore our setup for a collaborative development process and how it integrates with our vision for Software & Computing in the future ePIC experiment.

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