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# Advancing Awkward Arrays for High-Performance CPU and GPU Processing

Awkward Array provides efficient handling of large, irregular data structures in Python, playing a key role in high-energy physics analysis. This work presents ongoing efforts to optimize Awkward Arrays for GPUs using CUDA, aiming to achieve performance parity with or surpass CPU kernel implementations. Key improvements focus on optimized memory management, leveraging CUDA-specific features, and maximizing parallelism to enhance throughput. These advancements enable faster and more scalable data processing, particularly for HL-LHC data analysis within the Python ecosystem. We will discuss the challenges, solutions, and performance benchmarks.

## Significance

## References

## Experiment context, if any

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