KeOps: Fast geometric methods with symbolic matrices

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Geometric methods rely on tensors that can be encoded using a symbolic formula and data arrays, such as kernel and distance matrices. We present an extension for standard computational frameworks (python, numpy and pytorch) that provides comprehensive support for this abstraction on CPUs and GPUs : our toolbox combines a versatile, transparent user interface with fast runtimes and low memory usage. In practice, for geometric problems that involve 10^3 to 10^6 samples in dimension 1 to 100, our library speeds up baseline GPU implementations by up to two orders of magnitude.

Web site : `https://www.kernel-operations.io/`

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