Cuda Libraries

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Math Libraries: For compute-intensive applications in areas such as molecular dynamics, computational fluid dynamics, etc.

- **cuBLAS** : GPU-accelerated basic linear algebra (BLAS) library
- **cuFFT** : GPU-accelerated library for Fast Fourier Transforms
- **CUDA Math Library** : GPU-accelerated standard mathematical function library
- **cuTENSOR** : GPU-accelerated tensor linear algebra library

Parallel Algorithm Libraries: For highly efficient parallel algorithms.

- **Thrust** : GPU-accelerated library of C++ parallel algorithms and data structures.

Image and Video Libraries: For image and video decoding, encoding, and processing.

- **nvJPEG** : High performance GPU-accelerated library for JPEG decoding
- **NVIDIA Performance Primitives** : Provides GPU-accelerated image, video, and signal processing functions.
- **NVIDIA Video Codec SDK** : A complete set of APIs, samples, and documentation for hardware-accelerated video encode and decode on Windows and Linux.
- **NVIDIA Optical Flow SDK** : Exposes the latest hardware capability of NVIDIA Turing™ GPUs dedicated to computing the relative motion of pixels between images.

Communication Libraries: Performance-optimized multi-GPU and multi-node communication primitives.

- **NVSHMEM** : OpenSHMEM standard for GPU memory, with extensions for improved performance on GPUs.
- **NCCL** : Open-source library for fast multi-GPU, multi-node communications that maximizes bandwidth while maintaining low latency.

Deep Learning Libraries: For Deep Learning applications.

- **NVIDIA cuDNN** : GPU-accelerated library of primitives for deep neural networks.
- **NVIDIA TensorRT™** : High-performance deep learning inference optimizer and runtime for production deployment.
- **NVIDIA Jarvis** : Platform for developing engaging and contextual AI-powered conversation apps.
- **NVIDIA DeepStream SDK** : Real-time streaming analytics toolkit for AI-based video understanding and multi-sensor processing.
- **NVIDIA DALI** : Portable, open-source library for decoding and augmenting images and videos to accelerate deep learning applications.

Partner Libraries: OpenCV, FFmpeg, ArrayFire, MAGMA, etc.