To install dlib with GPU support on Windows, you need to install the necessary components like CMake, clone the dlib repository, configure the build process with the DLIB\_USE\_CUDA flag set to ON to enable CUDA support, and then compile and install dlib using your Python environment; essentially specifying the path to your CUDA toolkit during the build process.

rmdir /s /q dlib

Key steps:

* **Prerequisites:**
  + **CUDA Toolkit:** Ensure you have the NVIDIA CUDA Toolkit installed on your system.
  + **CMake:** Install CMake using pip install cmake
  + **Python environment:** Create a virtual environment with the desired Python version.
* **Clone dlib repository:**
  + Open a command prompt and navigate to your desired directory.
  + Run git clone https://github.com/davisking/dlib.git

This was already done under C:\Temp\dlib

* **Configure build process:**
  + Navigate to the dlib directory:cd C:\Temp\dlib
  + Create a build directory: mkdir build (ALREADY DONE)
  + Enter the build directory: cd build
  + Execute CMake command with CUDA flag: cmake .. -DDLIB\_USE\_CUDA=ON -DCUDAToolkit\_ROOT\_DIR="/path/to/cuda/toolkit"

ENABLE LAPACK:

cmake .. -DDLIB\_USE\_CUDA=ON -DDLIB\_USE\_LAPACK=ON

* + **Important:** Replace /path/to/cuda/toolkit with the actual path to your CUDA installation directory. (already set in sys var)
* **Build and install:**
  + Run cmake --build . (include the dot, to build the project )

**WRAPPING UP**

* + Once built Navigate back to C:\Temp\dlib and
  + run python setup.py install to install dlib in your Python environment.

Verification:

* **Import in Python:** Open a Python interpreter and try to import dlib: import dlib
* **Check CUDA support:**
  + Run print(dlib.DLIB\_USE\_CUDA)
  + If the output is True, then dlib is using CUDA.

Important considerations:

* **CUDA compatibility:** Make sure your GPU is compatible with the CUDA version you install.
* **Environment management:** Using a virtual environment is recommended to isolate dependencies.
* **Troubleshooting:** If you encounter issues, double-check your CUDA installation path and ensure the CMake configuration is correct.