In order to make use of the performance advantages offered by modern graphics processing units (GPUs), certain image-processing methods are used on GPU platforms. This study presents a web-based interface, named cuDO-Lab, whose capabilities include morphological operations. Different from other similar studies, using this interface, experimental studies can be done on both CPU and GPU platforms. NVIDIA®'s Compute Unified Device Architecture (CUDA®) platform was employed to perform GPU operations. Thanks to cuDO-Lab, students can perform basic morphological operations without paying for licenses or requiring hardware such as CUDA® enabled GPU and software or driver installations. The cuDO-Lab also offers a responsive web-user interface, so the laboratory can be accessed from many devices, such as phones, tablets, laptops, and personal computers, with any screen resolution. This offers time savings, ease of use, and access from anywhere. © 2016 Wiley Periodicals, Inc Comput Appl Eng Educ; View this article online at wileyonlinelibrary.com/journal/cae; DOI 10.1002/cae.21751