Rendering of computer-generated imagery (CGI) is a very compute-intensive process. Rendering time of individual frames may vary from a few seconds to several hours depending on the scene complexity, output resolution and quality. For example, a short animation project may be about two minutes in length. It comprises 3600 frames at 30 frames per second (fps). An average rendering time for a fairly simple frame can be approximately 2 minutes, resulting in a total of 120 hours to render a simple 2-minute animation. Fortunately, animation rendering is a highly parallelizable activity as frames can be computed independently of each other. A typical animation studio has a render farm, a sophisticated cluster of special computers (nodes) used to render 3D graphics. By spreading the rendering of individual frames across hundreds of machines, the overall render time is reduced significantly.

Researchers and students in a university do not usually have a render farm available. Some universities have general-purpose compute clusters but these are used mainly for running complex numerical simulations. Although rendering on these clusters is doable but it usually involves using generic queue manager (e.g. Condor, Portable Batch System PBS) rather than specialized render queue manager (e.g. DrQueue, Qube!), due to which rendering workflow becomes tedious. This paper presents a solution to create a render frame-like environment using compute-cluster resources and most importantly by using the existing render queue manager. This way, researchers and students can be presented with a rendering environment similar to any animation studio. Several benchmarking results will be presented to prove the potential benefit of this method in terms of execution time, simplicity and portability.