**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 7: CUDA**

**Lesson 2: Image Processing**

**Exercise Instructions for Students**

*Developed by Michael D. Shah for the Shodor Education Foundation, Inc.*

Some sample code has been provided along the lecture.

1. Students should first start by modifying the 'make\_brighter' function.

\_\_global\_\_

void make\_brighter(unsigned char\* pixel\_array, int size){

int id = threadIdx.x+blockDim.x\*blockIdx.x;

// Check to make sure we do not have more threads

// than the index of our array

if(id < size){

pixel\_array[id] \*= 6;

}

}

* Modify the function to make an image darker for example.

2. Students should then implement the grayscale kernel filter.

3. Try creating a filter that filters out the 'green' and 'blue' components of the image.

* (i.e. A kernel that zeroes out the red and green components)



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