Please provide the following information to be shared with on capstone information exchange platform:

1. **Project number:**
   S19-66

2. **Project title (as will appear on the poster):**
   Object detection based on YOLOv3 and compressing method

3. **Team members:**
   Dian Jin (POC), Chenyang Gao, Yi Qi

4. **Adviser(s) name(s):**
   Bo Yuan

5. **Up to 5 keywords that will help to classify the project scope:**
   Accelerate object detection

6. **Project abstract (up to 250 words) to be shared with judges:**
   Object detection using YOLO algorithm speed up.

   Nowadays computer vision become more and more important in daily life. Object detection is a very significant part of computer vision. Many application like Face detection, Intelligent Vehicles, Image searching engine and so on are based on the object detection. And real time detection is required for these application. Many algorithm are created under this situation, such as R-CNN, and the developed version of it. But it still too slow to reach the goal (Real time). The YOLO algorithm can solve this problem. The algorithms mention above are all based on DNN.

   Object detection needs two not only do the classification but also needs to find the position and the boundary of the object. The mainly difference between YOLO and other algorithm like R-CNN, is the architecture. Traditional algorithm separate the DNN into two part, the first part is to find the object (The position and the boundary), the second part is to do the classification. Intuitively, if we combine these two part, the object detection can be faster. Then the YOLO comes out, although the accuracy of detection may be lower, but the detection speed has a significant improvement. And due to the update of backbone of YOLOv3, the accuracy also improve.

   Also, we apply the compressing method to training, which compress the backbone of the DNN. Decrease the complexity of the computation, which increase the inference speed. By adjusting the pruning ratio make a trade-off between accuracy and speed.