

Research Topic	Depth Image Generation from a Single RGB Image Using Deep Learning	Faculty of Information Science and Technology
Host University	Uppsala University / Visby, Gotland / Sweden	Department of Media Science
Duration	From October 8 to December 17, 2019	KASSAI Kazuma

## Summary of the Research Activities

I studied about “Depth Image Generation from a Single RGB Image Using Deep Learning”. With advancing sensor technology, Virtual Reality and Augmented Reality, depth image has been used various fields in recent years. It has the distance information from a camera to its object. However, it isn't popular because it needs dedicated device to capture depth image. So the purpose of this research is to generate depth images from a single RGB images. I intend to develop a method to generate depth image only from a single RGB image. By using a depth image generated in our method, I think that we can improve the performance of surrounding recognition by car camera recorder, function a high-accuracy AR on condition that marker less.

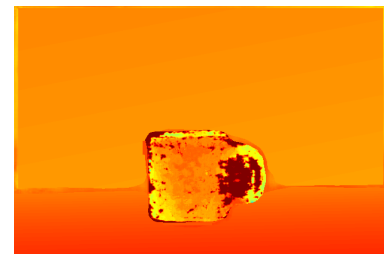
In Sweden, I examined the object detection method and implemented an image processing system. First, I implemented the object detection methods "DeepLab" and "MaskR-CNN". Next, an image processing system was implemented using the detected object information (segmentation mask, bounding box). And, I implemented processing to cut out the object part and mask the background part. This is a process for use in machine learning input images and datasets. Dr. Hayashi of Uppsala University provided advice on research.



Input Image



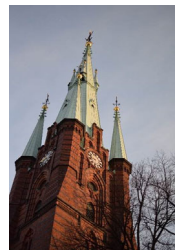
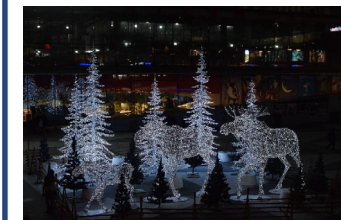
Mask Image



Output Image

## Sightseeing

Gotland is a famous tourist destination. During the summer season, many tourists come from the mainland of Sweden and other countries. My stay was not in the tourist season, but on holidays I visited tourist spots. During my stay I went to Stockholm, the capital of Sweden. I was impressed by the beautiful cityscape. It was a good experience.



## 指導教員講評

研究のみならず、日本では体験できない貴重な経験ができたと思います。大学院での研究活動に是非活かしてください。

指導教員氏名: 村木 祐太