

Deep Learning

Image Recognition

Basic Idea of Project

- Create a neural network (a Convolution Neural Network, CNN) to solve a self chosen task, in this case image recognition. The images chosen were of various types of rooms, such as kitchen, bedroom, bar, restaurant, etc.
- Attempt to create a Generative Adversarial Network (GAN) to create realistic images similar, but unique, from the training data.

CNN Model

- As a CNN trained only on the images did not succeed, a pre-trained model was used and had much better results. This model was not trained specifically on whole rooms, but on specific objects. As certain objects only appear in certain rooms, this can be used to discriminate which room is which. For example, a bowling pin / ball most likely would only appear in a bowling alley. To see (for us humans) what the CNN is “looking” at, a heatmap is applied over the training images.

Skills Learned

- Creating a CNN and GAN network with Keras (Python)
- Creating a successful network that can be used to automatically classify new data for further projects
- Working with image data