Artificial Intelligence
SEIS 764 – Fall 2021
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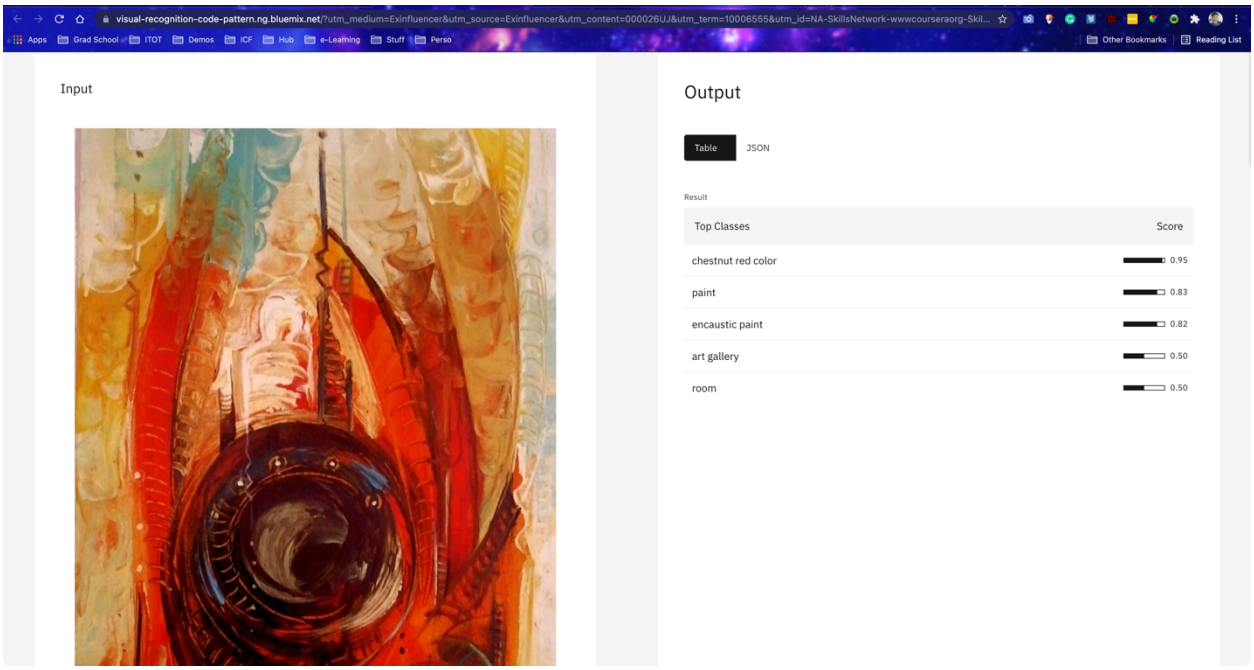
**Assignment 1**

## Part 1: Classify Images with AI




## Part 2: GAN

1. What does the text say about placement of objects? Does this explain the results you saw earlier?

   GAN uses a technique called GAN Dissection that enable it to compose objects specific to the scene they are trained on.
   Yes, it does explain the result I saw when I tried to add a door in the sky and it didn't add it or adding a bring to create a pathway on grass.

2. How does the GAN help you manipulate images?

   There are group of neurons in a GAN that correspond to an object and control its creation across a variety on contexts. We can then manipulate images by controlling the object related neurons directly which result in making change in GAN output.

3. What are some of the use cases for GANs?

   GANs can be used in game design, video & photo edition, and Architecture.

**Part 3: Adversarial Attacks on AI**

1. What does Watson identify the image as, and at what confidence level?
   The image is identified as Siamese Cat at 92% confidence level

2. What does Watson identify the image as now, and at what confidence level?
   The image is now identified as Egyptian Cat at 30% confidence level

3. Gaussian Noise -- For each level, note what does Watson identify the image as, and at what confidence level?
   - Low, the image is identified as Egyptian Cat at 27% confidence level
   - Medium, the image is identified as Egyptian Cat at 29% confidence level
   - High, the image is identified as Egyptian Cat at 33% confidence level

4. Spatial Smoothing -- For each level, note what does Watson identify the image as, and at what confidence level?
   - Low, the image is identified as Egyptian Cat at 69% confidence level
   - Medium, the image is identified as Siamese Cat at 77% confidence level
   - High, the image is identified as Siamese Cat at 96% confidence level

5. Feature Squeezing -- For each level, note what does Watson identify the image as, and at what confidence level?
   - Low, the image is identified as Egyptian Cat at 30% confidence level
   - Medium, the image is identified as Egyptian Cat at 30% confidence level
   - High, the image is identified as Siamese Cat at 58% confidence level