generate_plots.ipynb

[ ]:
```
import pandas as pd
import matplotlib.pyplot as plt
```

[ ]:
```
dl = pd.read_csv("logs/resnet_perturbation.csv")
dl.head()
dl["Perturbation"].value_counts()
```

[ ]:
```
dl_GPN = dl[dl["Perturbation"]=="Gaussian Pixel Noise"]
svm_GPN = pd.read_csv("Robustness_Testing_Results_SVM/Gaussian pixel noise.csv")
svm_GPN_acc = pd.read_csv("Robustness_Testing_Results_SVM/Gaussian pixel noise␣
↪ACCURACY.csv")
dl_GPN["Value"].tolist()
dl_GPN["F1-Macro"].tolist()
```

[ ]:
```
plt.plot(dl_GPN["Value"].tolist(), dl_GPN["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_GPN["Value"].tolist(), svm_GPN_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Std. Deviation of random noise added to each pixel")
plt.ylabel("Accuracy")
plt.title("Gaussian Pixel Noise")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Gaussian pixel noise Accuracy.pdf", format="pdf",␣
↪bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_GB = dl[dl["Perturbation"]=="Gaussian Blur"]
svm_GB_acc = pd.read_csv("Robustness_Testing_Results_SVM/Gaussian blurring␣
↪ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_GB["Value"].tolist(), dl_GB["Accuracy"].tolist(), 'b', marker = 'x')
plt.plot(dl_GB["Value"].tolist(), svm_GB_acc["Accuracy"].tolist(), 'r', marker =␣
↪'x')
plt.xlabel("Std. Deviation of blur to each pixel")
plt.ylabel("Accuracy")
plt.title("Gaussian Blur")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Gaussian blurring Accuracy.pdf", format="pdf", bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_ICI = dl[dl["Perturbation"]=="Contrast Increase"]
svm_ICI_acc = pd.read_csv("Robustness_Testing_Results_SVM/Image Contrast␣
↪Increase ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_ICI["Value"].tolist(), dl_ICI["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_ICI["Value"].tolist(), svm_ICI_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Multiplication Value for each Pixel")
plt.ylabel("Accuracy")
plt.title("Image Contrast Increase")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Image Contrast Increase ACCURACY.pdf", format="pdf",␣
↪bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_ICD = dl[dl["Perturbation"]=="Contrast Decrease"]
svm_ICD = pd.read_csv("Robustness_Testing_Results_SVM/Image Contrast Decrease.
↪csv")
svm_ICD_acc = pd.read_csv("Robustness_Testing_Results_SVM/Image Contrast␣
↪Decrease ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_ICD["Value"].tolist(), dl_ICD["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_ICD["Value"].tolist(), svm_ICD_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Multiplication Value for each Pixel")
plt.ylabel("Accuracy")
plt.title("Image Contrast Decrease")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.xlim(max(dl_ICD["Value"].tolist()), 0.1)
plt.savefig("Image Contrast Decrease ACCURACY.pdf", format="pdf",␣
↪bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_IBI = dl[dl["Perturbation"]=="Brightness Increase"]
svm_IBI_acc = pd.read_csv("Robustness_Testing_Results_SVM/Image Brightness␣
↪Increase ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_IBI["Value"].tolist(), dl_IBI["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_IBI["Value"].tolist(), svm_IBI_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Addition Value for each Pixel")
plt.ylabel("Accuracy")
plt.title("Image Brightness Increase")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Image Brightness Increase ACCURACY.pdf", format="pdf",␣
↪bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_IBD = dl[dl["Perturbation"]=="Brightness Decrease"]
svm_IBD_acc = pd.read_csv("Robustness_Testing_Results_SVM/Image Brightness␣
↪Decrease ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_IBD["Value"].tolist(), dl_IBD["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_IBD["Value"].tolist(), svm_IBD_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Subtraction Value for each Pixel")
plt.ylabel("Accuracy")
plt.title("Image Brightness Decrease")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Image Brightness Decrease ACCURACY.pdf", format="pdf",␣
↪bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_IBD = dl[dl["Perturbation"]=="Occlusion"]
svm_IBD_acc = pd.read_csv("Robustness_Testing_Results_SVM/Occlusion of the Image␣
↪Increase ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_IBD["Value"].tolist(), dl_IBD["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_IBD["Value"].tolist(), svm_IBD_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Square Edge length")
plt.ylabel("Accuracy")
plt.title("Occlusion")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Occlusion Accuracy.pdf", format="pdf", bbox_inches="tight")
plt.show()
```

[ ]:
```
dl_IBD = dl[dl["Perturbation"]=="Salt And Pepper"]
svm_IBD_acc = pd.read_csv("Robustness_Testing_Results_SVM/Salt and Pepper Noise␣
↪ACCURACY.csv")
```

[ ]:
```
plt.plot(dl_IBD["Value"].tolist(), dl_IBD["Accuracy"].tolist(), 'b', marker =␣
↪'x')
plt.plot(dl_IBD["Value"].tolist(), svm_IBD_acc["Accuracy"].tolist(), 'r', marker␣
↪= 'x')
plt.xlabel("Strength")
plt.ylabel("Accuracy")
plt.title("Salt and Pepper Noise")
plt.legend(['ResNet-26D', 'SVM with SIFT'])
plt.savefig("Salt and Pepper Noise ACCURACY.pdf", format="pdf",␣
↪bbox_inches="tight")
plt.show()
```