

# NetID: gg676, xl598, vt152, smk371

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In [ ]: import numpy as np
import pickle
from sklearn.manifold import TSNE
import matplotlib.pyplot as plt
```

```
In [ ]: def load_projections(file_name):
    with open('/common/home/gg676/535/tsne_data/'+file_name, 'rb') as fp:
        data = pickle.load(fp)
        return data
```

```
In [ ]: img_wrt_combined = load_projections('image_wrt_combined.pkl')
combined = load_projections('combined.pkl')
```

```
In [ ]: collate_1024_dim = np.vstack([combined, img_wrt_combined])
```

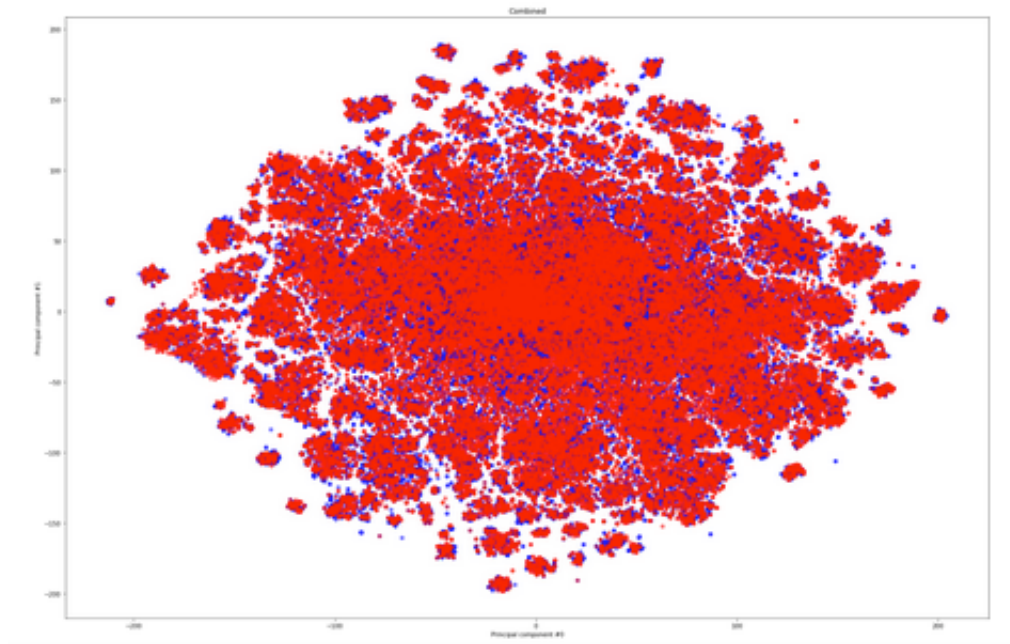
```
In [ ]: tsne = TSNE(n_components=2, perplexity=30, n_iter=5000)
```

```
In [ ]: collate_50_dim_tsne = tsne.fit_transform(collate_1024_dim)
```

```
In [ ]: fig, (upper, lower) = plt.subplots(
    nrows=2, ncols=2, figsize=(50, 40)
)

combined_ax, title_ax, = upper
instr_ax, ingr_ax = lower

combined_ax.scatter(collate_50_dim_tsne[:60000, 0], collate_50_dim_tsne[:60000, 1])
combined_ax.scatter(collate_50_dim_tsne[60000:, 0], collate_50_dim_tsne[60000:, 1])
combined_ax.set_ylabel("Principal component #1")
combined_ax.set_xlabel("Principal component #0")
combined_ax.set_title("Combined")
```



In [ ]: