

# “My Way of Telling a Story”: Persona-based Grounded Story Generation

By: Sunjana Kulkarni **Advisors:** Khyathi Chandu (LTI PhD candidate) and Professor Alan Black

## Overview:

- This semester’s work was a continuation of the existing work on anchoring personality in visual storytelling, which involved the construction of text generation models that generate a “story” from a sequence of images
- We want to see if we can influence these text generation models to generate a story based off of these images using a variety of human-like speaking styles and mannerisms

## Goals:

- Construct a dataset of persona-based sentences from 4 different genres of movies and television shows
- Use this dataset to construct a discriminator (classifier) that will influence the text generation models to generate a story from a sequence of images in the speaking manner/personality of a fictional character from one of these genres

## Current Progress:

- This semester, I focused on compiling, normalizing, and analyzing a dataset of 160,000 character-based sentences from movies and television shows.
- The four different genres were “archaic” (fantasy), “sitcoms”, “sci-fi”, and “comic-book” (superheroes).

## Next Steps:

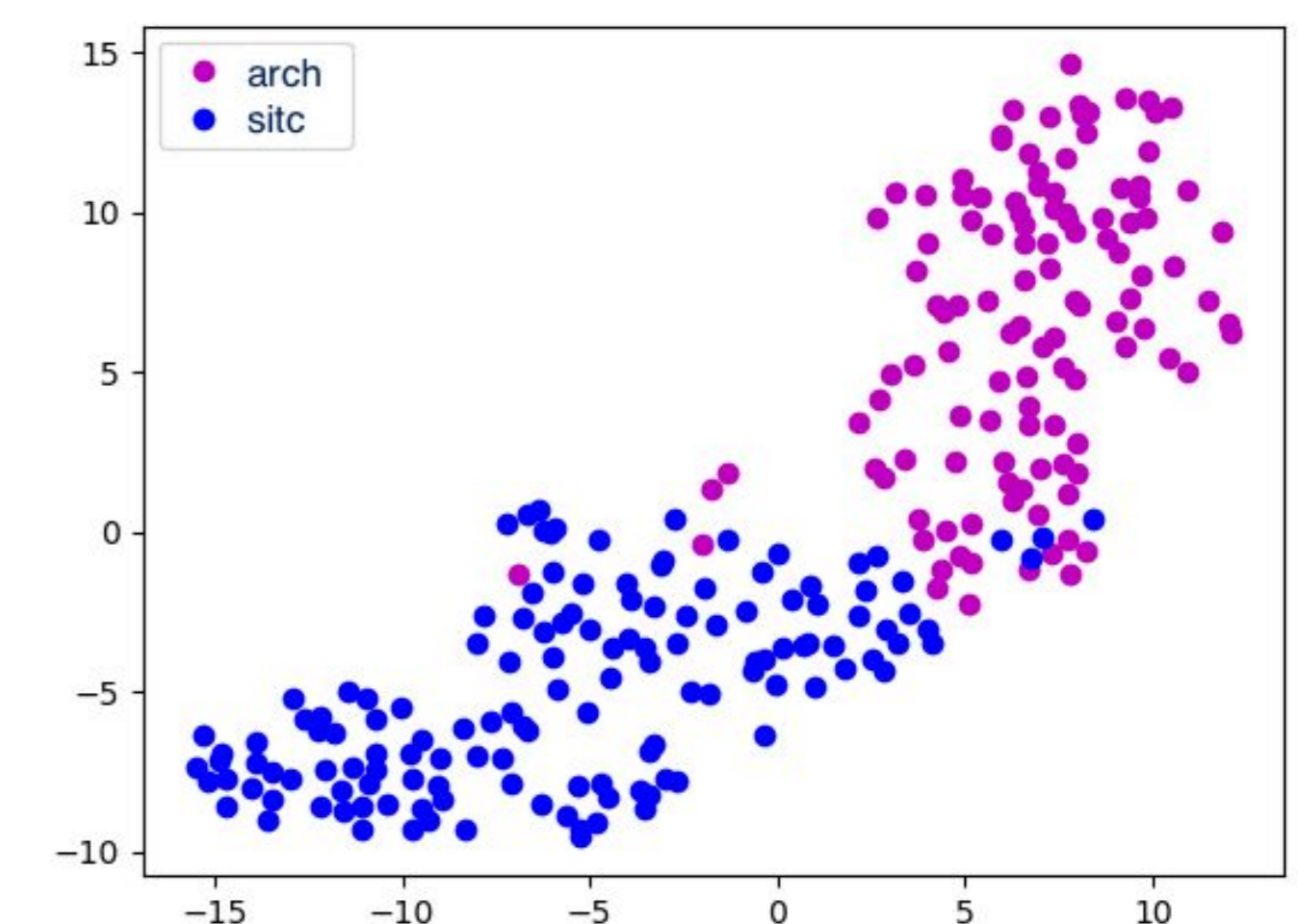
- Explore outliers in terms of speaking style within genres, apply tsne model to entire dataset to evaluate whether disentangling is optimal
- Select models to use for training the discriminator (i.e. adversarial, seq-to-seq) based on characteristics of the data

## Current Data Analysis:

Distribution of the Dataset

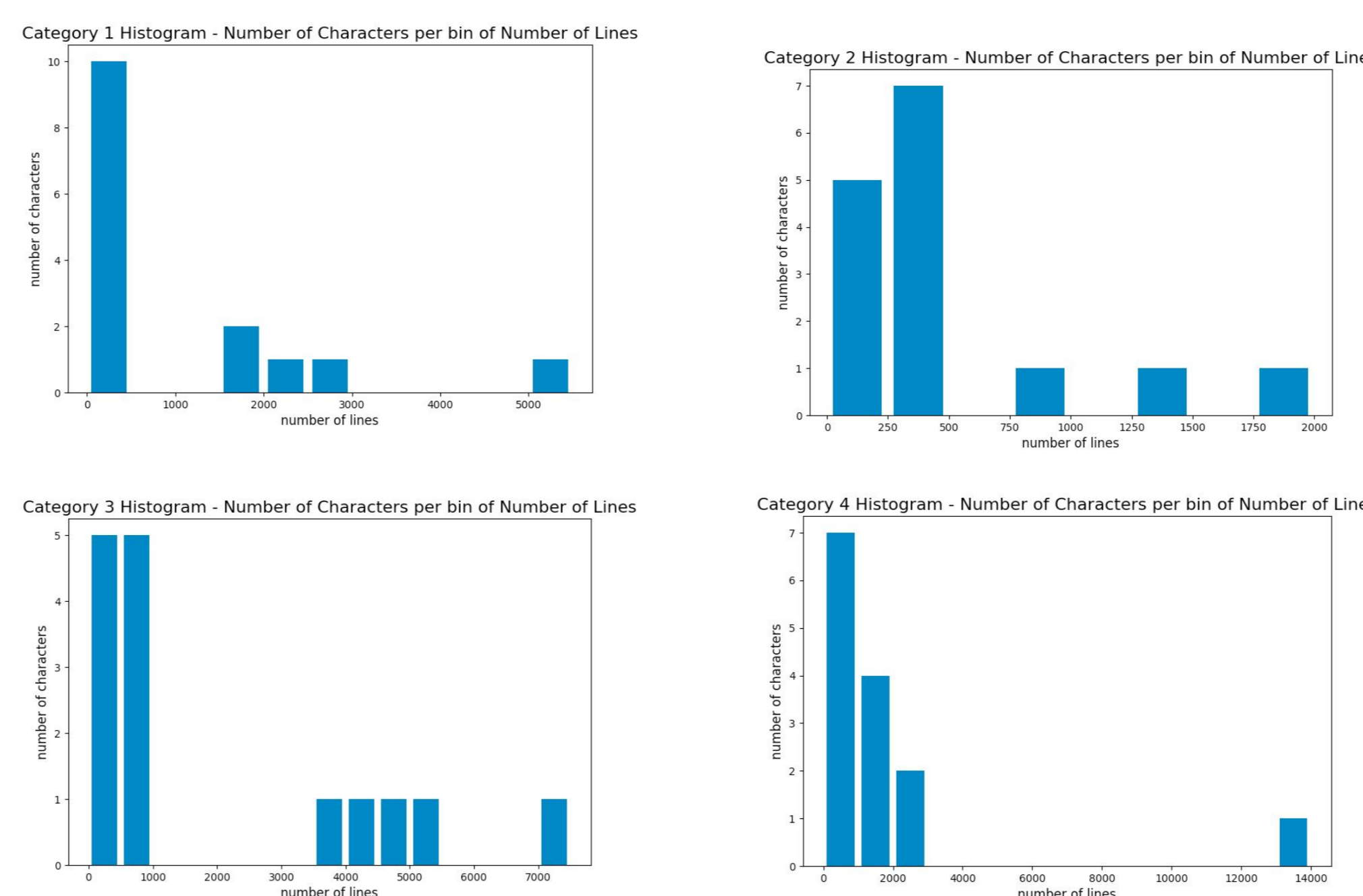
Category	Style	# of Lines
1	Archaic	40,826
2	Comic Book	20,216
3	Sitcom	42,328
4	Sci-Fi	57,311

Disentangled Tsne Embeddings



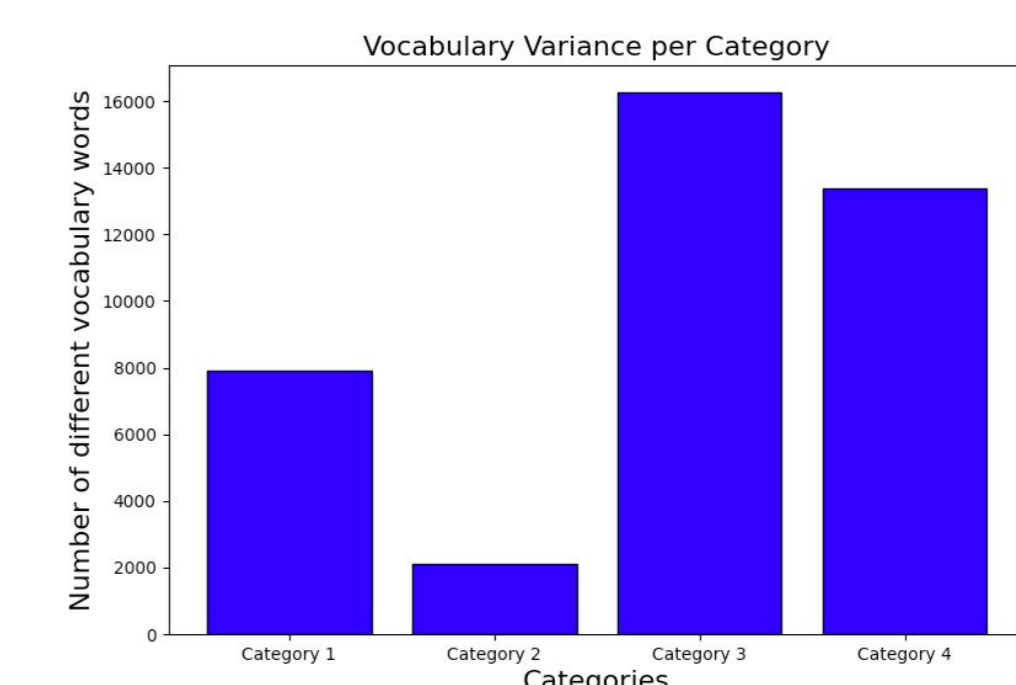
Above are the tsne embeddings for disentangled style representation for two-way classifier. This plot includes styles from categories 1 and 3. We trained this data on the model from the paper on “Disentangled Representation Learning for Non-Parallel Text Style Transfer”, cited below. From this graph, it appears categories 1 and 3 are sufficiently distinct in terms of speaking style.

## Histograms



These histograms group together characters across each of the genres based on the number of lines they have. From these graphs, it is clear that in each category, there are a few outlier characters with many more speaking lines than the vast majority of characters. This raises the question of how to utilize the dialogue data of these outlier characters without ignoring the speaking styles of the majority of the characters from each of the categories.

## Vocab Variance



This bar chart illustrates the variety in vocabulary of the topmost speaking 14-15 characters for each category. Based on this data, it is clear that categories 3 and 4 each have a much larger vocabulary compared to 1 and 2.

## Citations:

John, V., Mou, L., Bahuleyan, H., & Vechtomova, O. (2019). Disentangled Representation Learning for Non-Parallel Text Style Transfer. *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*. doi:10.18653/v1/p19-1041

## Sources for Category 1 data:

<https://www.imdb.com/scripts/Chronicles-of-Narnia-The-Lion-the-Witch-and-the-Wardrobe.html>  
<https://www.imdb.com/scripts/Lord-of-the-Rings-Fellowship-of-the-Ring-The.html>  
<https://www.imdb.com/scripts/Lord-of-the-Rings-The-Two-Towers.html>  
<https://www.imdb.com/scripts/Lord-of-the-Rings-Return-of-the-King.html>  
<https://transcripts.foreverdreaming.org/viewtopic.php?7e67&t=7739>  
<https://transcripts.foreverdreaming.org/viewtopic.php?7e143&t=8875>

## Sources for Category 2 data:

[https://transcripts.fandom.com/wiki/Category:Marvel\\_Transcripts](https://transcripts.fandom.com/wiki/Category:Marvel_Transcripts)

## Sources for Category 3 data:

<https://www.imdb.com/scripts/Star-Wars-A-New-Hope.html>  
<https://www.imdb.com/scripts/Star-Wars-Attack-of-the-Clones.html>  
<https://www.imdb.com/scripts/Star-Wars-The-Empire-Strikes-Back.html>  
<https://www.imdb.com/scripts/Star-Trek-II-The-Wrath-of-Khan.html>  
<https://www.imdb.com/scripts/Star-Trek-First-Contact.html>  
<https://www.imdb.com/scripts/Star-Trek-Generations.html>  
<https://www.imdb.com/scripts/Star-Trek-Nemesis.html>

## Sources for Category 4 data:

<https://www.imdb.com/scripts/Star-Wars-A-New-Hope.html>  
<https://www.imdb.com/scripts/Star-Wars-Attack-of-the-Clones.html>  
<https://www.imdb.com/scripts/Star-Wars-The-Empire-Strikes-Back.html>  
<https://www.imdb.com/scripts/Star-Trek-II-The-Wrath-of-Khan.html>  
<https://www.imdb.com/scripts/Star-Trek-First-Contact.html>  
<https://www.imdb.com/scripts/Star-Trek-Generations.html>  
<https://www.imdb.com/scripts/Star-Trek-Nemesis.html>

## Sources for Category 4 (cont.):

<https://www.imdb.com/scripts/Star-Trek-The-Motion-Picture.html>  
<https://www.imdb.com/scripts/TRON.html>  
<https://www.imdb.com/scripts/TRON-Legacy.html>  
<https://www.imdb.com/scripts/Jurassic-Park.html>  
<https://www.imdb.com/scripts/Jurassic-Park-The-Lost-World.html>  
<http://www.chakoteya.net/DoctorWho/episodes9.html>  
<http://www.chakoteya.net/DoctorWho/episodes10.html>  
<http://www.chakoteya.net/DoctorWho/episodes11.html>