

# UCS664

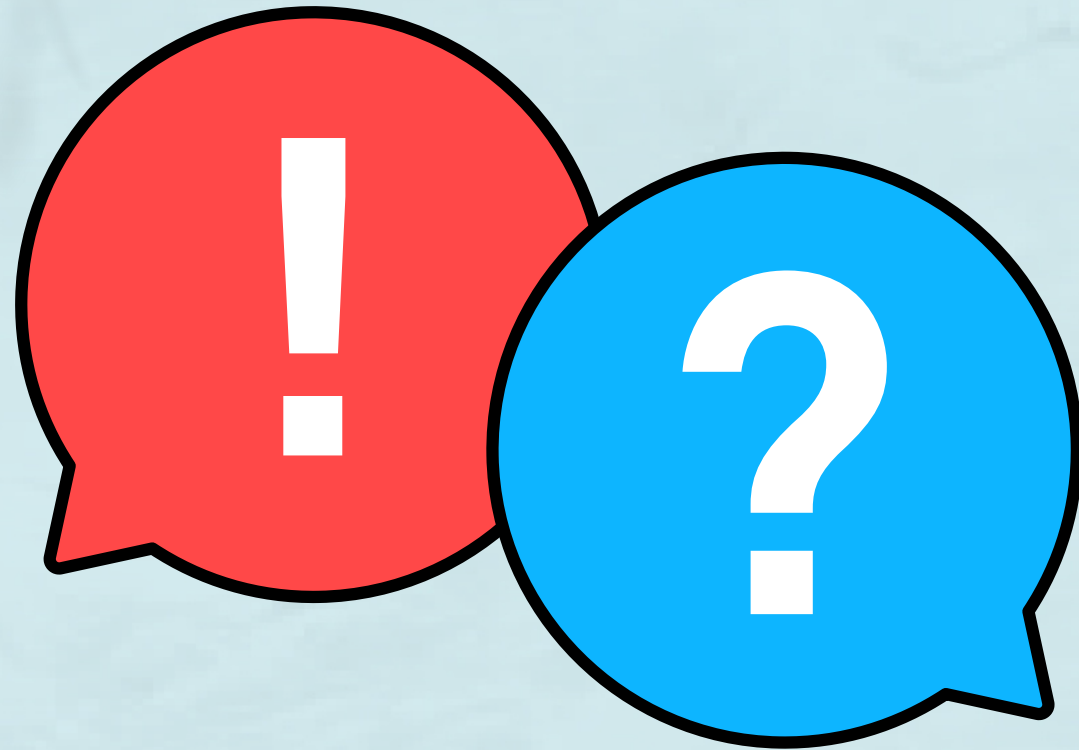
# NATURAL LANGUAGE

# PROCESSING

**Metaverse Character generation**

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# Problem Statement



As the use of virtual reality and the metaverse grows, people struggle to create digital representations of themselves efficiently. Our project uses textual data to predict and recommend basic features of a virtual character. We preprocess user-generated data and utilize transfer learning techniques to enhance prediction accuracy. We can also scrape and summarize character descriptions to expand our dataset. By offering character style recommendations, we aim to improve the user experience and make it easier for individuals to express themselves in virtual environments.



# Dataset

Google form responses dataset combined with kaggle datasets.

<https://www.kaggle.com/datasets/fivethirtyeight/fivethirtyeight-comic-characters-dataset>



# Proposed Framework

1. Statistical method
2. Transfer learning for deep learning
3. Transfer learning for machine learning



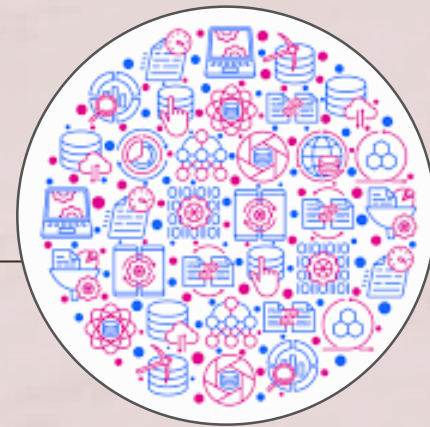


# Methodology



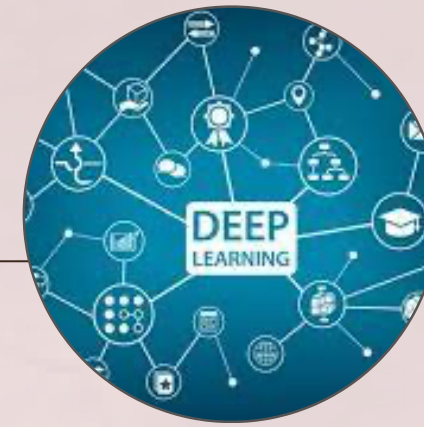
## Data Collection

- google form
- kaggle
- web scraping



## Data Preprocessing

- data cleaning
- data reduction
- concatenation of data
- data transformation (vectorisation)
- one hot encoding



## Model Selection

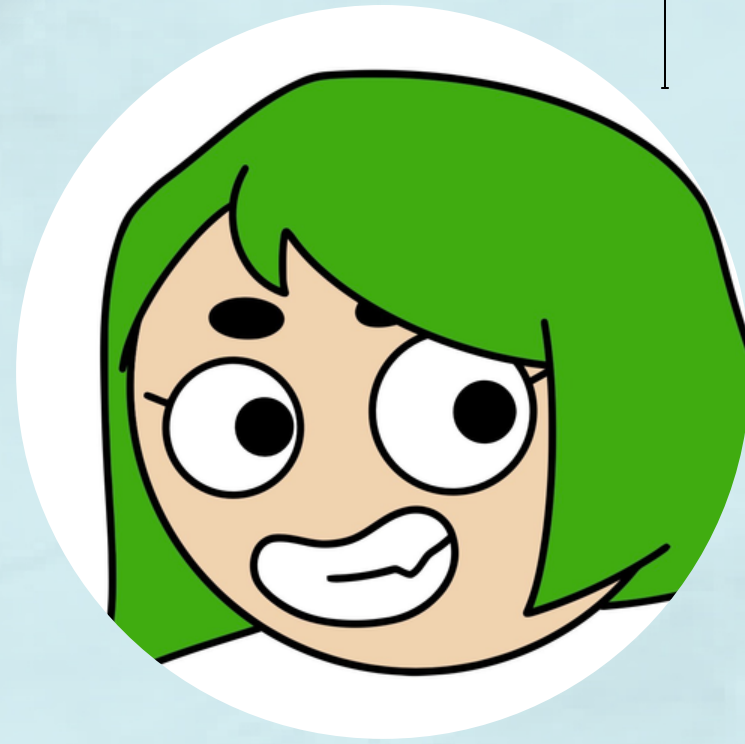
- transfer learning approach using CNN
- Transfer learning approach using Random Forest



## Interpretation

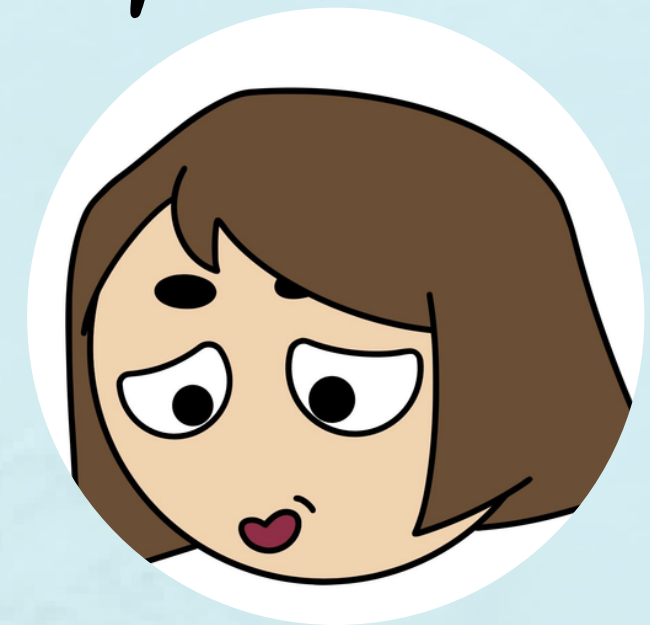
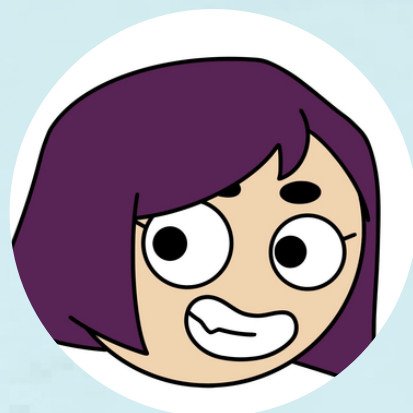
- The model would be able to provide with a relatable mask during a party.





# Result and sample output

**A prospective metaverse character with its character alignment, hair colour, and physical facial traits based on the responses and choices of the user.**





# References

- <https://www.analyticsvidhya.com/blog/2020/01/fundamentals-deep-learning-activation-functions-when-to-use-them/>
- <http://www.nlpir.org/wordpress/wp-content/uploads/2019/10/Densely-Connected-CNN-with-Multi-scale-Feature-Attention-for-Text-Classification.pdf>
- [https://ieeexplore.ieee.org/abstract/document/8873454/authors#author\\_s](https://ieeexplore.ieee.org/abstract/document/8873454/authors#author_s)
- <https://www.hindawi.com/journals/jhe/2022/3498123/>
- <https://arxiv.org/pdf/2010.12309.pdf>
- <https://dl.acm.org/doi/abs/10.1145/3357384.3357891>
- <https://www.sciencedirect.com/science/article/pii/S030645732100276>