



Haiku Generator from Photo

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Introduction



- What is a Haiku?
 - a Japanese 5-7-5 syllable poem often relating to nature
- What is this project?
 - We created a haiku text generating model which is a fine tuned GPT-2 model. With this model and an existing object detection model, we can get keywords from an input photo and output a related haiku

Dataset



- Haiku Dataset by bfbarry on Kaggle
 - contains 11,269 haikus scraped and cleaned from the haiku subReddit
- Haiku Dataset by Harshit Jhalani on Kaggle
 - contains over 118,000 English haikus gathered from multiple sources, only about 5,000 of which are used in training the model

Proposed Method



- Cleaned our haiku datasets and used a *GPT-2 tokenizer* which is based on byte-level Byte-Pair-Encoding to encode each of our poems.
- Used the PyTorch Trainer to fine tune the *GPT2LMHeadModel*.
- We generated haikus from our nature related words and filtered out poems that do not follow the 5-7-5 syllable structure using the *syllables* Python library.
- We used ImageAI's *Image Classification* to provide us with image recognized objects in each input photo. We used these objects as keywords for our haiku generator to generate haikus related to each photo

Evaluation Method



- We evaluate the poems generated using *BERTScore*, which was created by Cornell University scholars
- The *BERTScore* has been shown to resemble human judgment on sentence-level and system-level evaluation.
- We evaluate the haikus on the mean of the F1 measure, as this score combines both precision and recall.

Results



- From all of the 60 nature keywords, we had 117 haikus generated. The average *BERTScore* was 0.55. Some example haikus include:

Keyword: root

root in the garden
a small flower grows with me
to be a small bud

Keyword: wind

winded from the sun
the wind blows the earth silent
the sea is waiting

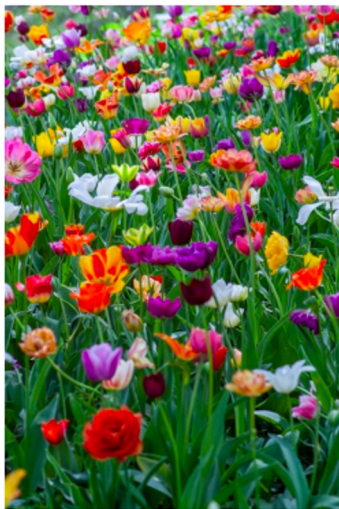
Keyword: moss 🌱

moss in the garden
an old man in the garden
the old man is dead

More Results



daisy in the tree
as the birds sing in the wind
my heart is the same



sandbar on the beach
the sandbar is too close
to the ocean floor



Thank You