Poetify
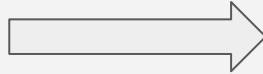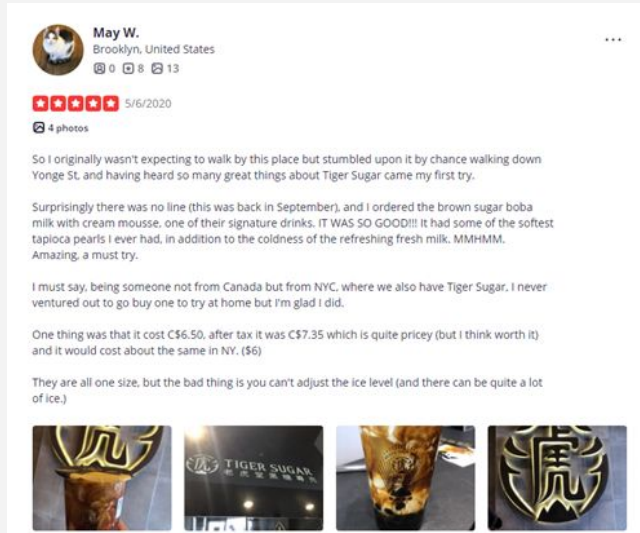
Team 25:
David Tran, William Sati, Stephen Wang, Percy Wang

What is the goal?

Review

Poem

The problem broken down

Why is it interesting? - Successful poem

★★★★★ **Amazing TV picture for the price!! Very impressed and happy!!**
Reviewed in Canada on June 5, 2020
Size : 50" | Style: 4K Ultra HD - H78G | **Verified Purchase**

So far this TV is great for what we needed it for. We wanted a budget-friendly smart TV for our basement where we could watch Disney+, Netflix, Amazon Prime, etc as we don't have an actual TV connection box down there at this time. A MUST for us was a composite connection as well, which this TV has (red, white and yellow ports), as we still like to take the out the old N64 and Wii and play them. The picture was surprisingly good even with the old graphics on the old Nintendo systems. Perhaps there are better TVs on the market, but for the price, we're very impressed with the pictures. Our TV was delivered by Purolator and the box and TV were in perfect condition on arrival. If I had to have 1 complaint, is that the Android system is a little slow/laggy at times, but honestly it's just a few seconds sometimes, nothing too crazy. I've attached some pictures to show how nice the picture is, even with our old N64.

GREAT TV FOR WHAT WE NEEDED

What did I do? Did I take advantage of this chance?

Did I spend money for a television?

A TV for what we needed?

That doesn't matter

at all. I have watched a great show.

In the end, the television ended.

It was a great show.

It is not a sad show

at all.

Why is it interesting? - Unsuccessful Poem

★★★★☆ **Good Value for Money, but for a real HDR experience you need to spend more money**
Reviewed in Canada on May 26, 2020
Size: 43" | Style: 4K Ultra HD - H78G | **Verified Purchase**

So far this is a pretty go TV for the money. There are a few things you need to be aware of though before buying.

The Good
Very nice UHD picture for the price. There are controls available if you want get in and calibrate the TV to your liking. The android TV OS is great and super easy to use. There are lots of app supported and you shouldn't have a problem finding the App you need from the play store. Though the build is cheap it still looks nice with a small bevel around the edge of the TV. If you like Google Assistant its there, though its a bit slow compared to using it on your phone. So far gaming looks really good on this TV. The sound is pretty good, with a lot of options to adjust it to you liking. I did notice some audio quality issues with some content on amazon prime...but think that was the content and not the TV.

The Bad
If you want a true HDR experience you have to spend the money, probably at least twice this amount. The viewing angle is very narrow, you need to be right in front of this TV or the color changes dramatically. This TV also doesn't allow you to turn off true motion, though overall the motion blur hasn't really bothered me to much so far. The build is a bit flimsy and if you have small kids you definitely need to mount this on a wall.

Overall if you need to stay in a budget and want some of the features of a High End HDR TV (Dolby Vision) and a decent picture quality, this TV might be for you.

GOOD TV FOR THE MONEY

In a restaurant at night, two white women

with one eye. Both hands,

one hand pointing toward the other. Their hands

are on the table.

They have white faces

and two brown faces. They look different.

White faces look different because

there are eyes in them

and there are eyebrows. There

is one eye. They look different because

there are two eyes. They look

different because there are two faces.

Demo

Sony X950H 55-inch 4K HDR Full Array LED Smart Android TV with Dolby Vision (XBR55X950H)

Visit the Sony Store

★★★★★ **Picture quality is fantastic**

Reviewed in Canada on January 17, 2021

Size : 65-inch | Style: TV Only | **Verified Purchase**

Picture quality is fantastic. First new TV since 20__ ___ ___ from 1080P 55" led to 4K 65" LED. I cannot compare to OLED, but I can say the picture q_____ _revious is a massive improvement. Works great in very bright room during the day, w___ __ and great at night in full darkness.

Still getting used to smart features, it'_ __ __ __ d intuitive, and the google assistant voice control works extremely well.

TV is not extremely thin, but the face b___ls are paper thin.

$1,498.00
✓prime

FREE delivery: **Tuesday, Aug 10**
Order within 11 hrs and 2 mins
Details

⌖ Deliver to Junjie - North York M3K 1J

Only 1 left in stock.

Add to Cart

Buy Now

🔒 Secure transaction

Ships from and sold by Amazon.ca.

Item arrives in packaging that reveals what's inside and can't be hidden. If this is a gift, consider shipping to a different address.

☐ Add gift options

Add to Wish List ▾

w/ UBPX800M2 Blu-Ray Player | w/ HTG700 Sound Bar

w/ HTST5000 Sound Bar | w/ HTX8500 Sound Bar

w/ HTZ9F Sound Bar

Electronics › Televisions & Video › Televisions

4K HDR LED TV
X950H | 55" Class (54.6" diag.)

What's in the box?

Table-top stand
AC power cord
Voice remote control w/ batteries
Quick setup guide
Operating instructions

SONY

WORKS WITH ALEXA

https://poetify.anvil.app/

Presentation Flow

– There is a natural flow in the presentation that keeps the audience engaged. (Make it fun!)

– The slides are easy to read. The audiences' attention is drawn to the most important information that you want to convey.

– The font size is large enough to be legible (including captions), and the audience is not overwhelmed with too much text. (Note: don't do what I do with the lecture slides. The lecture slides double as study material. Your slides don't have to.) There is enough timeto read each slide.

– The audience can understand the presentation. Any domain-specific jargon is either avoided or introduced. (Complex concepts may have to be defined multiple times. It is your job to make sure the audience can understand what you're trying to tell them.)

– The presentation is well-paced. The presenters do not talk too quickly, and are audible at all time.

Problem: What is the problem that you are trying to solve? Why is it important? (Percy)

– Within the first couple minutes of the presentation, the audience can clearly understand why the problem is interesting or important.

– The audience has a clear picture of the kind and amount of data you're working with, and any potential limitations of your data.

– A TA or good student in the audience should be able to come up with rudimentary ideas of how to solve your problem based on the information presented in the first couple minutes.

– The audience is aware of any nuances that makes the problem easier or harder than what someone might expect.

Demonstration: You will need to show a demonstration of your project evaluated on
new, never before seen data. Try to be creative and engaging with the demonstration. (Percy)

– The team is able to demonstrate their results on new, never before seen/tested data and

provide a convincing demonstration. The demonstration is engaging and easy to follow.

Data: What data did you use or collect? What does it look like? Is the amount/type of data sufficient for your project? Was there anything tricky or weird you need to do with the data? . . . with the train/test/validation split? (Steph)

Data Processing: What processing did you perform on your data? Why? (Steph)

– The audience can picture how you processed your data, and the effect of the processing

on the amount, type, and quality of your data.

– The audience has a clear idea of how your data will be used as input to your model.

– The audience understands why you decided to process your data a certain way.

– The audience understands any potential limitations of your approach.

– A TA or good student in the audience should be able to come up with alternatives and

suggestions based on your reasoning.

Our Datasets

kaggle

Haiku Poem Dataset

Amazon Review Training set

Poetry Foundation Dataset

Amount of data and types

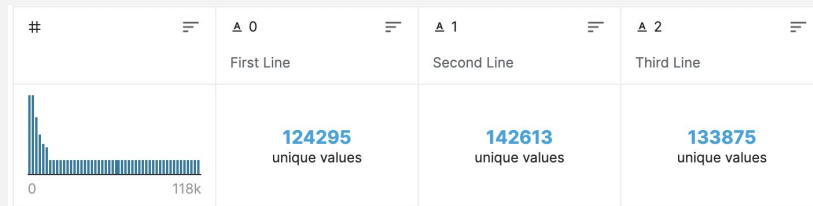Haiku Poem Dataset

- Poem types
  - Haikus
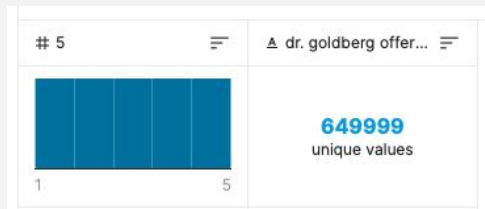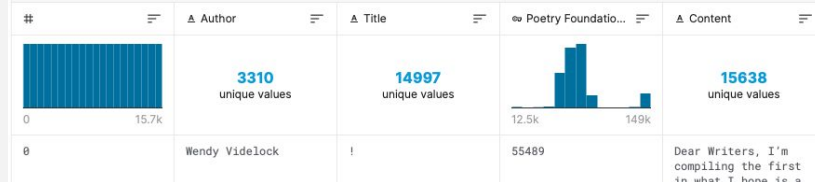 - Sonnets
  - Ballads
  - Poetry Foundation (15,000 values)

- Reviews
  - Amazon Reviews (30,000 values)
  - Positive/Negative sentiment
  - Reviews with ratings

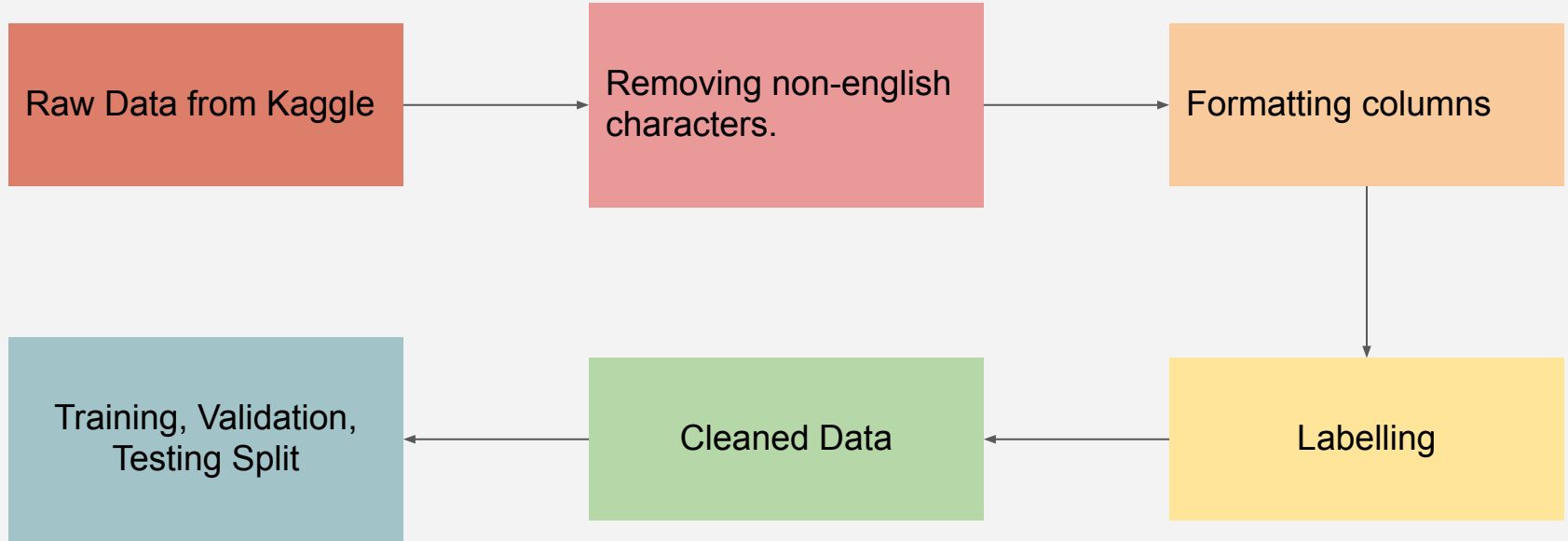Poetry Foundation Dataset

Reviews with Ratings Labelled (1 through 5 stars)

Review sentiment Dataset (1 for negative, 2 for positive)

Data Processing

Example

Raw Data

```
1  __label__2 Great CD: My lovely Pat has one of the GREAT voices of her generation. I have listened to this CD for YEARS and I still LOVE IT.
   When I'm in a good mood it makes me feel better. A bad mood just evaporates like sugar in the rain. This CD just oozes LIFE. Vocals are jusat
   STUUNNING and lyrics just kill. One of life's hidden gems. This is a desert isle CD in my book. Why she never made it big is just beyond me.
   Everytime I play this, no matter black, white, young, old, male, female EVERYBODY says one thing "Who was that singing ?"
2  __label__2 One of the best game music soundtracks - for a game I didn't really play: Despite the fact that I have only played a small portion
   of the game, the music I heard (plus the connection to Chrono Trigger which was great as well) led me to purchase the soundtrack, and it
   remains one of my favorite albums. There is an incredible mix of fun, epic, and emotional songs. Those sad and beautiful tracks I especially
   like, as there's not too many of those kinds of songs in my other video game soundtracks. I must admit that one of the songs (Life-A Distant
   Promise) has brought tears to my eyes on many occasions.My one complaint about this soundtrack is that they use guitar fretting effects in
   many of the songs, which I find distracting. But even if those weren't included I would still consider the collection worth it.
3  __label__1 Batteries died within a year ...: I bought this charger in Jul 2003 and it worked OK for a while. The design is nice and
   convenient. However, after about a year, the batteries would not hold a charge. Might as well just get alkaline disposables, or look
   elsewhere for a charger that comes with batteries that have better staying power.
4  __label__2 works fine, but Maha Energy is better: Check out Maha Energy's website. Their Powerex MH-C204F charger works in 100 minutes for
   rapid charge, with option for slower charge (better for batteries). And they have 2200 mAh batteries.
```

Processed Data

```
1  "summary","text"
2  "Stuning even for the non-gamer"," This sound track was beautiful! It paints the senery in your mind so well I would recomend it even to
   people who hate vid. game music! I have played the game Chrono Cross but out of all of the games I have ever played it has the best music! It
   backs away from crude keyboarding and takes a fresher step with grate guitars and soulful orchestras. It would impress anyone who cares to
   listen! ^_^"
3  "The best soundtrack ever to anything."," I'm reading a lot of reviews saying that this is the best 'game soundtrack' and I figured that I'd
   write a review to disagree a bit. This in my opinino is Yasunori Mitsuda's ultimate masterpiece. The music is timeless and I'm been listening
   to it for years now and its beauty simply refuses to fade.The price tag on this is pretty staggering I must say, but if you are going to buy
   any cd for this much money, this is the only one that I feel would be worth every penny."
4  "Amazing!"," This soundtrack is my favorite music of all time, hands down. The intense sadness of ""Prisoners of Fate"" (which means all the
   more if you've played the game) and the hope in ""A Distant Promise"" and ""Girl who Stole the Star"" have been an important inspiration to
   me personally throughout my teen years. The higher energy tracks like ""Chrono Cross ~ Time's Scar~"", ""Time of the Dreamwatch"", and
   ""Chronomantique"" (indefinably remeniscent of Chrono Trigger) are all absolutely superb as well.This soundtrack is amazing music, probably
   the best of this composer's work (I haven't heard the Xenogears soundtrack, so I can't say for sure), and even if you've never played the
   game, it would be worth twice the price to buy it.I wish I could give it 6 stars."
5  "Excellent Soundtrack"," I truly like this soundtrack and I enjoy video game music. I have played this game and most of the music on here I
   enjoy and it's truly relaxing and peaceful.On disk one. my favorites are Scars Of Time, Between Life and Death, Forest Of Illusion, Fortress
   of Ancient Dragons, Lost Fragment, and Drowned Valley.Disk Two: The Draggons, Galdorb - Home, Chronomantique, Prisoners of Fate, Gale, and my
```

Example

Raw Data

```
1   __label__2 Great CD: My lovely Pat has one of the GREAT voices of her generation. I have listened to this CD for YEARS and I still LOVE IT.
    When I'm in a good mood it makes me feel better. A bad mood just evaporates like sugar in the rain. This CD just oozes LIFE. Vocals are jusat
    STUUNNING and lyrics just kill. One of life's hidden gems. This is a desert isle CD in my book. Why she never made it big is just beyond me.
    Everytime I play this, no matter black, white, young, old, male, female EVERYBODY says one thing "Who was that singing ?"
```

Processed
Data

```
1   "summary","text"
2   "Stuning even for the non-gamer","" This sound track was beautiful! It paints the senery in your mind so well I would recomend it even to
    people who hate vid. game music! I have played the game Chrono Cross but out of all of the games I have ever played it has the best music! It
    backs away from crude keyboarding and takes a fresher step with grate guitars and soulful orchestras. It would impress anyone who cares to
    listen! ^_^"
```

Splitting the Data

Current Split:

- 77.5%   Training
- 19.5%   Validation
- 3%   Testing
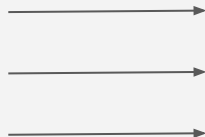
Goal:

- 60%   Training
- 20%   Validation
- 20%   Testing

Model: What model(s) did you build? What kind of models (CNN, RNN, GAN, etc) are
They? (Will)

– The audience has a clear picture of the various types of networks (CNN, RNN, etc) used in your model. They should also have a sense of how "complex" your model is (e.g.number of layers).

– The audience is not overwhelmed with too much information that isn't necessary to contextualize your results.

– The audience has enough information to appreciate any intricacies in how you designed your model, or your choice of hyperparameters.

– A TA or good student in the audience should be able to compare alternative approaches, and make an educated guess about how their alternative would compare to your model.

Models

Overview

```
Review → [Summarizer: T5 Transformer] → Review Title → [Generator: GPT2 Transformer] → Poetic Review
```

T5 Transformer

Output

T5 Transformer

Encoder → Decoder

Input
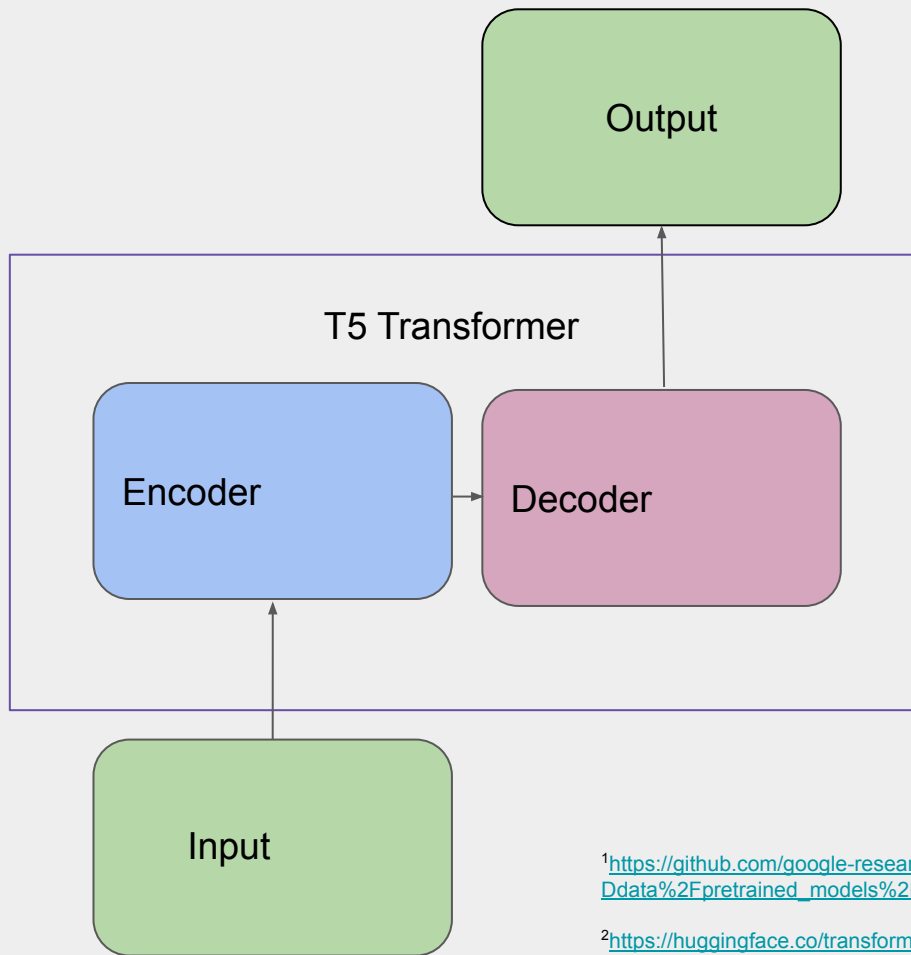
- **Text-to-Text Transfer Transformer (T5)**

- Used **T5** Small (60 Million parameters)[1],

- Has 6 hidden encoder and decoder layers, 8 attention heads/layer[2]

[1]https://github.com/google-research/text-to-text-transfer-transformer#:~:text=We%20have%20released%20the%20following,t5%2Ddata%2Fpretrained_models%2Fsmall

[2]https://huggingface.co/transformers/model_doc/t5.html

Creating a Summarizer
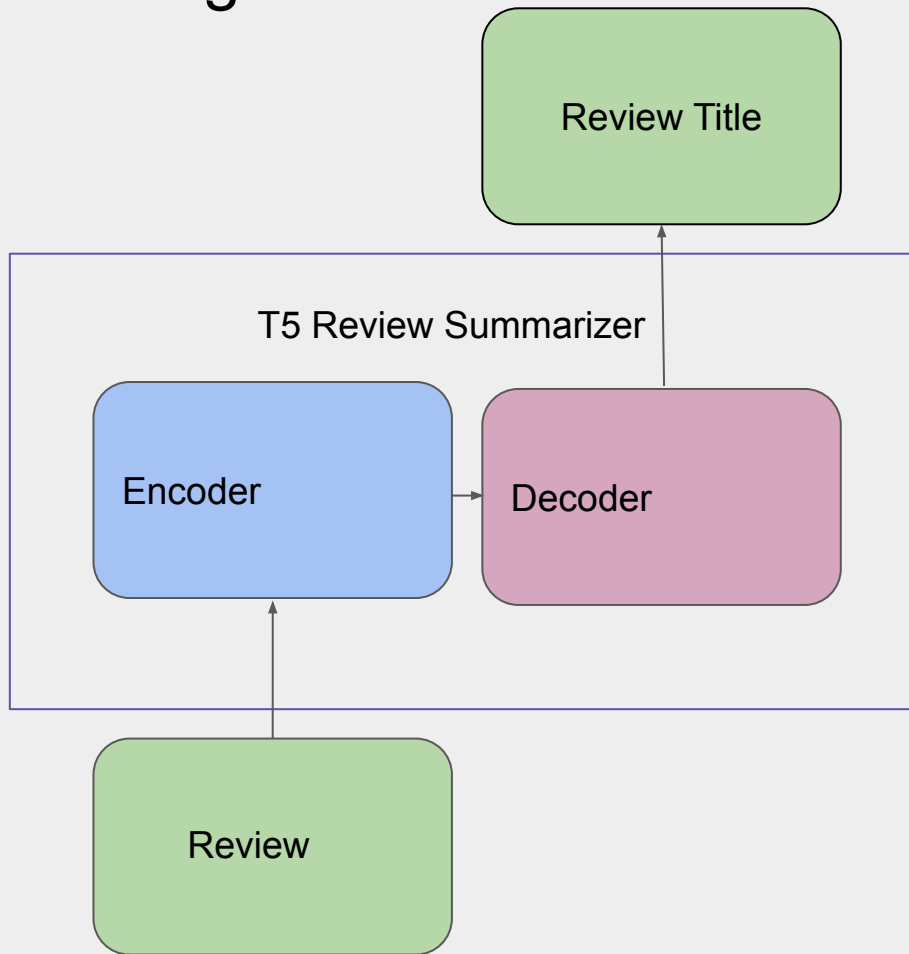
- Started from Huggingface's pre-trained AutoModelForSeq2SeqLM .

- Fine-tuned the model on Amazon Review -> Review Title (input,target) pairs

Overview

GPT2 Transformer

Output

GPT2 Transformer

Decoder

Input
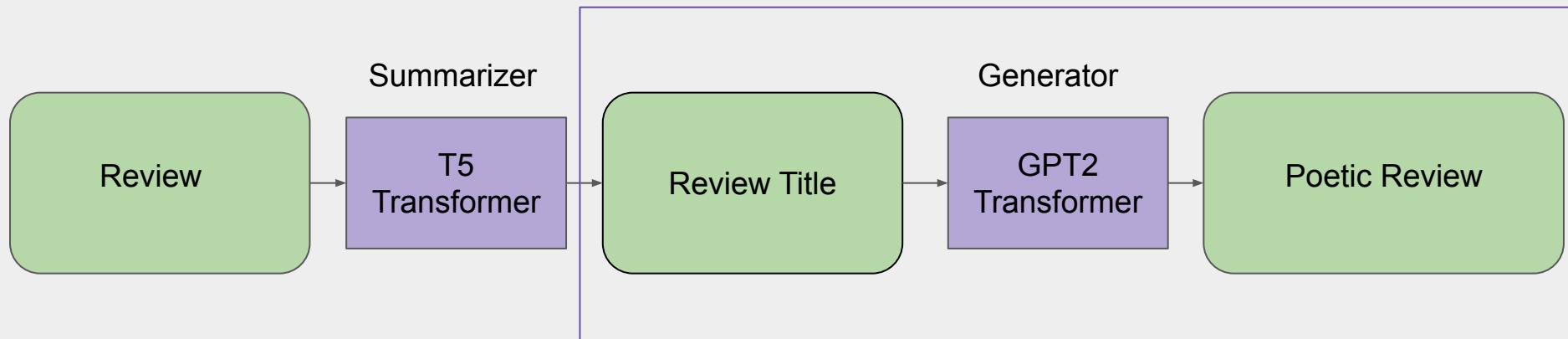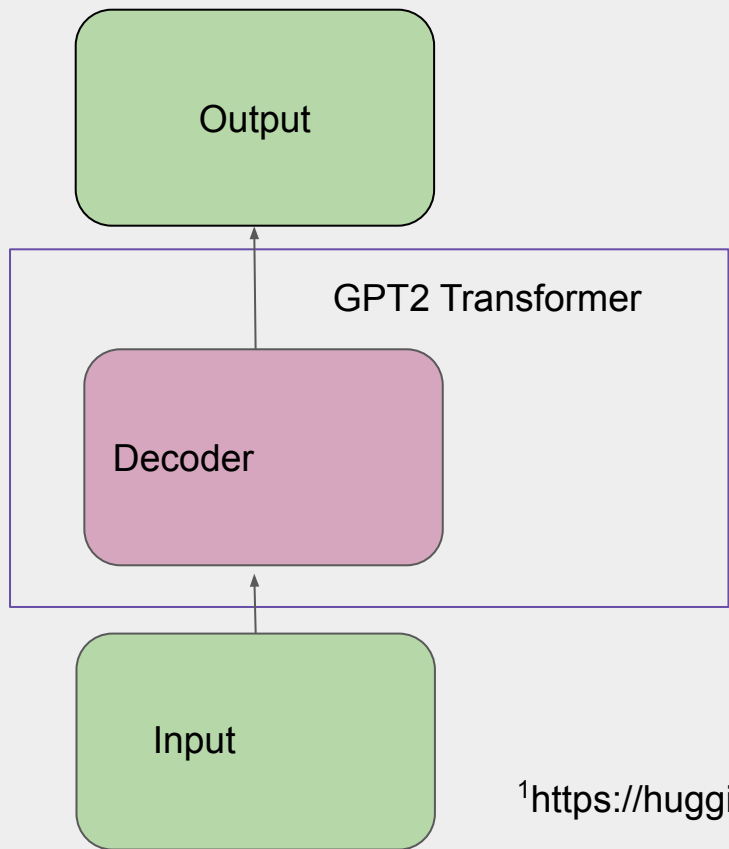
- Generative Pre-trained Transformer (GPT2)

- Objective: predict the next word, given all of the previous words within some text

- Used small GPT2 -> 12-layer, 768 dimensions in hidden layer, 12-attention-heads, 117M parameters[1].

[1]https://huggingface.co/transformers/v2.2.0/pretrained_models.html

Creating a Review Generator
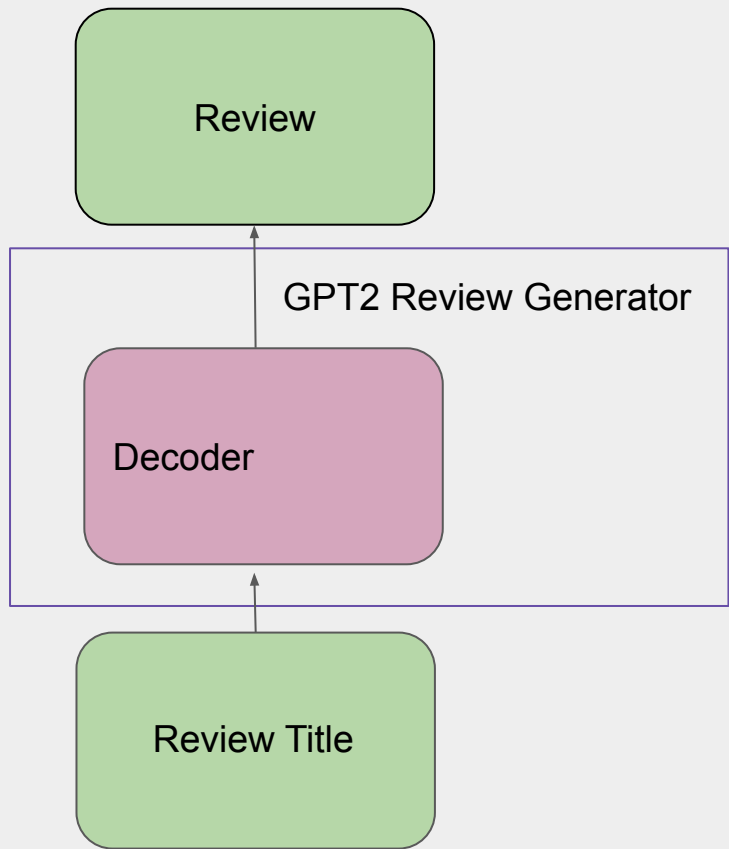
- Started from Huggingface's GPT2LMHeadModel.

- Fine-tuned on:
  "Review Title <SEP> Review"

Creating a Poetic Review Generator

- Fine-tuned on:
- "Poem Title<SEP>Poem"

Return to Overview

Quantitative Results: How are you measuring and comparing performance? How well did your model perform?(David)

– The audience has a precise understanding of the quantitative measurement(s) you used; a good student or TA would be able to compute the measurements themselves if given the model and data.
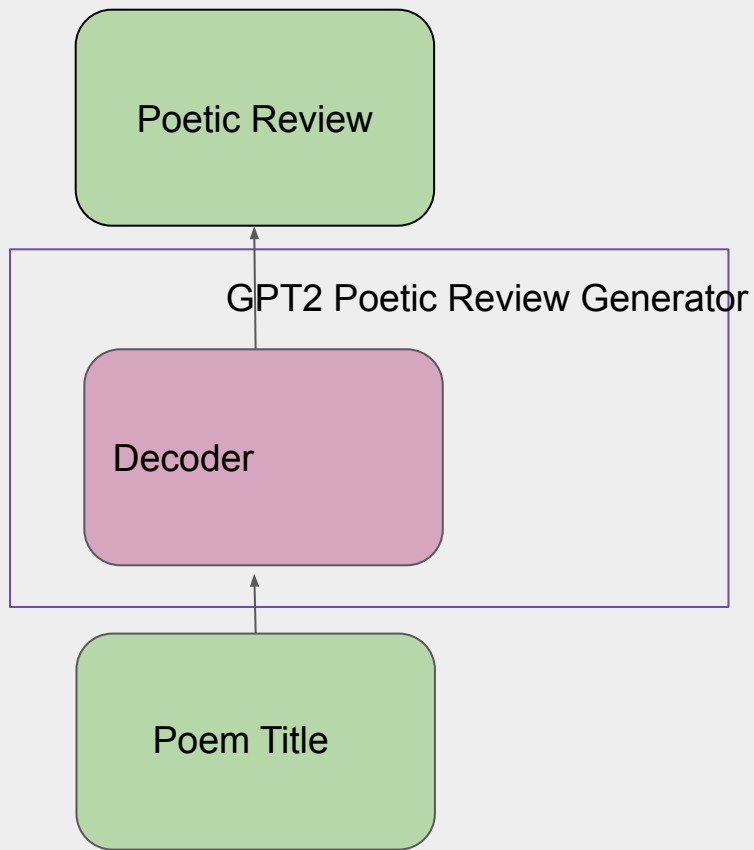
– The audience understands why you chose those measurement(s), and can evaluate whether your reasons make sense.

– The quantitative results are displayed in a way that is easy to understand, and in a way that the audience can come to their own conclusions about the performance of your models.

Qualitative Results: What are some sample predictions generated by your model? Does
it make sense? Did you "cherry-pick" the best results or are you showing a representative
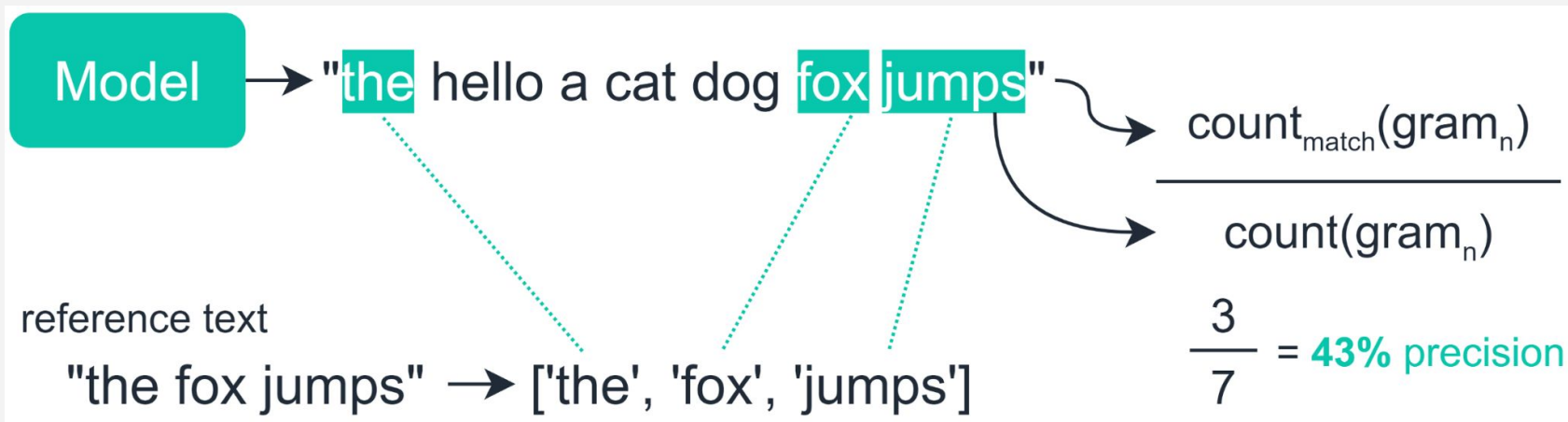Sample? (David)

– The qualitative results are illustrative, and help the audience contextualize the

quantitative results. (e.g. why your model performed well or poorly)

– The audience knows how you chose which qualitative results to display, and has the

sense that the group is forthcoming in the presentation.

Discussion (Perhaps should be interwoven when talking about the results?)

– The discussion is insightful, interesting, and surprising; the audience learns more from your interpretation than if they were to look at the raw data themselves.

– The audience understands and is largely convinced of your interpretation of your quantitative and qualitative results (e.g. about whether your model performed well, and

why).

– The audience sees that the team put a lot of thought into understand what made the model successful or unsuccessful.

ROUGE Metric

- ROUGE-1 measures the percentage of overlapping words in the summary and review

Model → "the hello a cat dog fox jumps"

$$\frac{count_{match}(gram_n)}{count(gram_n)}$$

reference text

"the fox jumps" → ['the', 'fox', 'jumps']

$$\frac{3}{7} = 43\% \text{ precision}$$

BLEU Metric

- BLEU measures the percentage of overlapping words in the review and generated poem

Score Calculation in BLEU.

$$\text{Unigram precision } P = \frac{m}{w_t}$$

$$\text{Brevity penalty } p = \begin{cases} 1 & \text{if } c > r \\ e^{\left(1-\frac{r}{c}\right)} & \text{if } c \leq r \end{cases}$$

$$\text{BLEU} = p \cdot e^{\sum_{n=1}^{N} \left(\frac{1}{N} * \log Pn\right)}$$

Quantitative Results

- Recall-Oriented Understudy of Gisting Evaluation (ROUGE) [https://towardsdatascience.com/the-ultimate-performance-metric-in-nlp-111df6c64460] metric was used to evaluate the accuracy of summarization
- Bilingual Evaluation Understudy (BLEU) [https://machinelearningmastery.com/calculate-bleu-score-for-text-python] metric was used to compare the original review to the generated poem

ROUGE and BLEU Scores

- ROUGE-1 score of 0.114 when evaluated on review validation set
- BLEU score of 0.16 when evaluated on poem testing set
- Scores were calculated using Pytorch Ignite and NLTK Python libraries

Qualitative Results

Input Review: I truly like this soundtrack and I enjoy video game music. I have played this game and most of the music on here I enjoy and it's truly relaxing and peaceful.

A GREAT SOUNDTRACK

1. A great soundtrack. She sang to me
2. As she flew from the window
3. And sang to me
4. With her little voice.
5. And I was silent on the hill,
6. And the dark was chill;
7. Her music I longed to hear.

How Can We Improve This Model?

- Limitation with the amount of poetry data
    - Only 15651 unique poems
    - Full review dataset contains 500000+ reviews
- Only calculate the loss on the generated poems and not the titles

Was The Model Successful?

- Poems occasionally retain the original topic and sentiment from the review
- General flow of the poem could be improved
- Our team considers this model a success

Thank You For Listening!