Communication is organic:
- Time travel isn't linear like a movie reel
- People come up with their words in the moment

HOW?
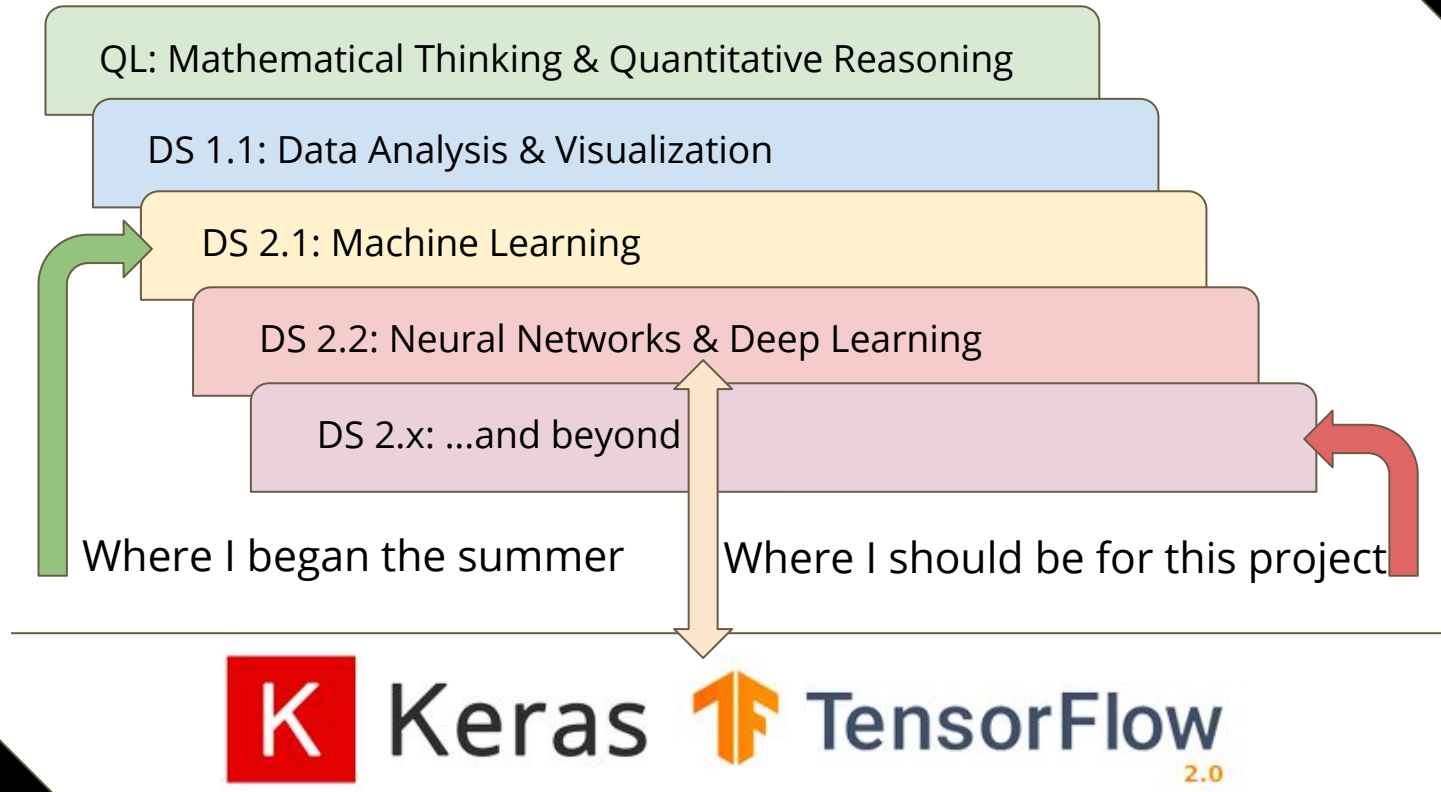- Natural Language Processing and Machine Learning

What it would look like
- NPC's would generate dialog about a given subject each time they are spoken to.

**Presented by
Genji Tapia**

Natural Language Processing & Machine Learning

QL: Mathematical Thinking & Quantitative Reasoning

DS 1.1: Data Analysis & Visualization

DS 2.1: Machine Learning

DS 2.2: Neural Networks & Deep Learning

DS 2.x: ...and beyond

Where I began the summer

Where I should be for this project

K Keras TensorFlow 2.0

CHALLENGE: #1

Going where others have not

DATA SET
Scripts!

What kind of scripts?
- Books have too much descriptive
- Movie dialog talks towards another actor

Games!
- Dialog is directed towards the character (RPG & Dating Sims)

Problem.... There are none!?!?

Lord of the Rings

LSTM

"You shall not pass!" said Gandalf, and the huge shadow halted.

Contacts and Community

Past contacts

- https://fantranslators.info/projects/rocket-slime-3ds/

Success! Four scripts from Shin Megami Tensei.

Translated scripts credited to: https://github.com/Megaflan/

DATA CLEANING - Regex

```
/.*(\{FF00\}|\{C7B8\})|(?!\{FF8\d\})(\{.{4}\})|(<.*>)|(\[.*\])|(#\.•.*)|"|\\n|\n|\r/g
```

```
<start>[7:FF07]It's like we're all stuck inside of
a sphere here in Tokyo.
<end>
<start>Hmmm... Ginza isn't on this side of
the sphere, it seems.
<end>
<start>...Man, Tokyo's nothing like
what the guide map says!
<end>
```
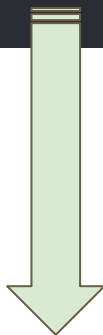
Hijiri

But, how did you stop
the Nightmare System?
Wasn't that Maiden operating it?

▶ I saved her.
I took care of her.
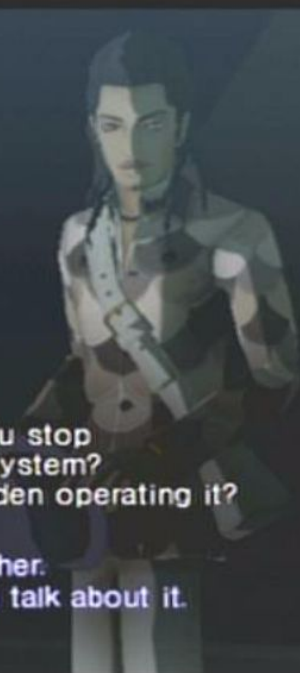I don't want to talk about it.

```
It's like we're all stuck inside of a sphere here in Tokyo.
Hmmm Ginza isn't on this side of the sphere, it seems.
Man, Tokyo's nothing like what the guide map says!
```

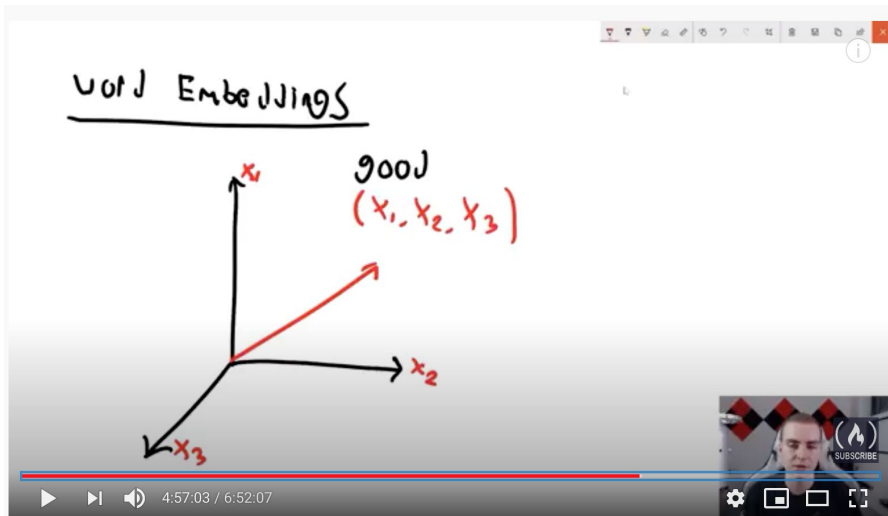# TRAINING OUR MODEL

- Using Colab.Research.Google.com

Clean Game Dialog

LSTM

```
Type a starting string: I'm thinking
I'm thinking about coming from that door?!
```

CHALLENGE: #2

Typing to the right:
input 'I'm thinking'
- Works.

I'm thinking about coming from that door?!

Typing to the left?
Input 'time'
- Doesn't.

vvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvevevevevtime
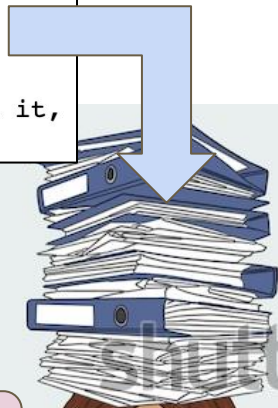
SOLUTION: #2 - Using Two Models


```
EXAMPLE

INPUT
mrades have deserted us.
And by deciphering the symbols on it,
And h

OUTPUT
rades have deserted us.
And by deciphering the symbols on it,
And he
```
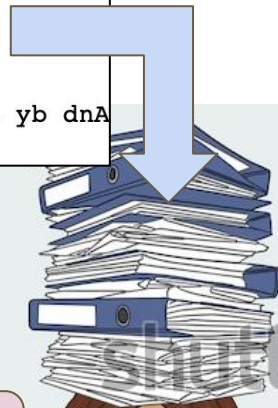
```
EXAMPLE

INPUT
eh dnA
 ,ti no slobmys eht gnirehpiced yb dnA
 .su detresed evah sedar

OUTPUT
h dnA
 ,ti no slobmys eht gnirehpiced yb dnA
 .su detresed evah sedarm
```

thinking about coming up with a Reason.

What the hell are you think

LSTM

LSTM
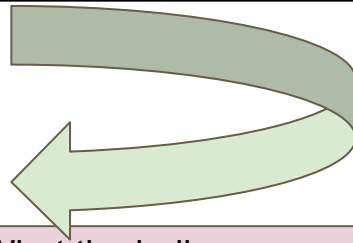
Current Output

Combining both the left and right models

```
Type a starting string: think

What the hell are you thinking about coming up with a Reason.
```

It also outputs different responses each time.

```
Type a starting string: I'm thinkin

That's why I'm thinking, and I'm going to continue on with my life.
```

```
Type a starting string: I'm thinkin

That's why I'm thinking, but
I had not to be functioning, even though the switch for really thinks of you.
```

FUTURE PLANS

Potential Improvements:

- Clean the data more: Replace nouns with keywords to dynamically 'find & replace' text in post. (Currency, Player Name, Location, ETC)

- Spellchecker + Grammar Check + Sentiment analysis to filter results and throw out 'bad' sentences.

- Find the 'sweet spot' of how much information to feed the model. Try using NVIDIA's "Megatron" Transformer.

16,000 char	319,000*2 char	164 GB
Poor model	Current model	Generalized

Unique ← → Generic

Gollum

Average 'English' face

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