

From Shakespeare to Trump: AI that Talks with Attitude

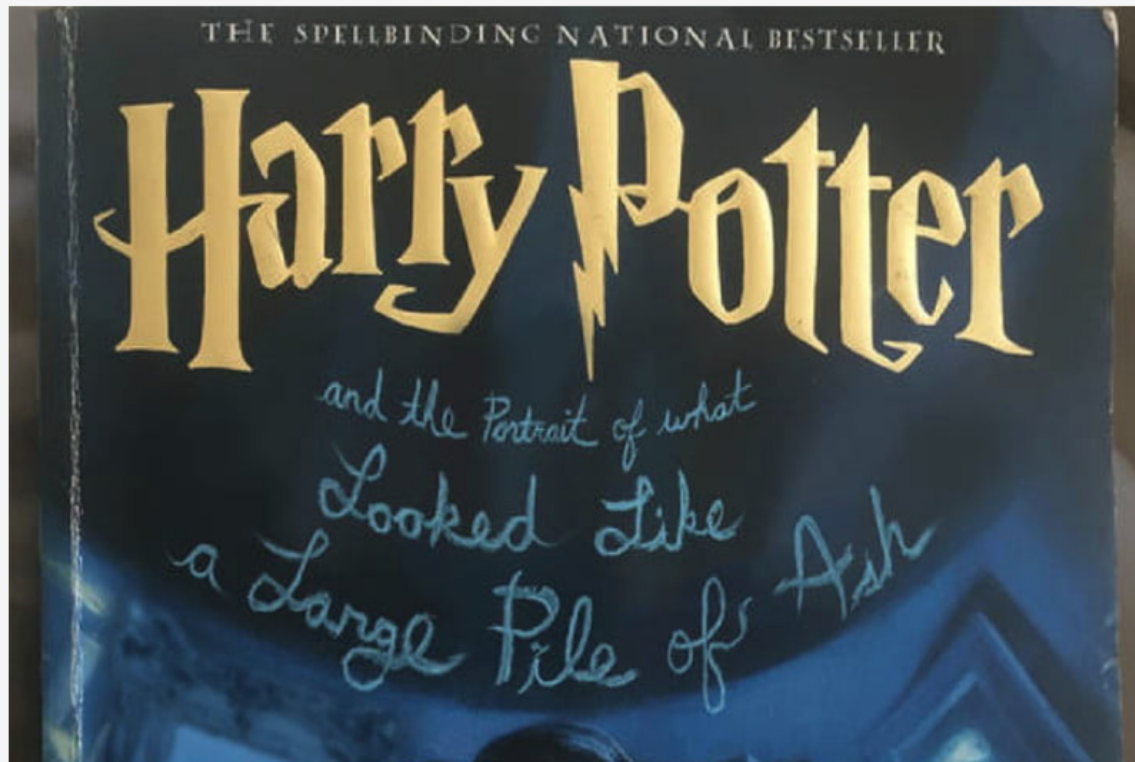
By Cheuk Ting Ho

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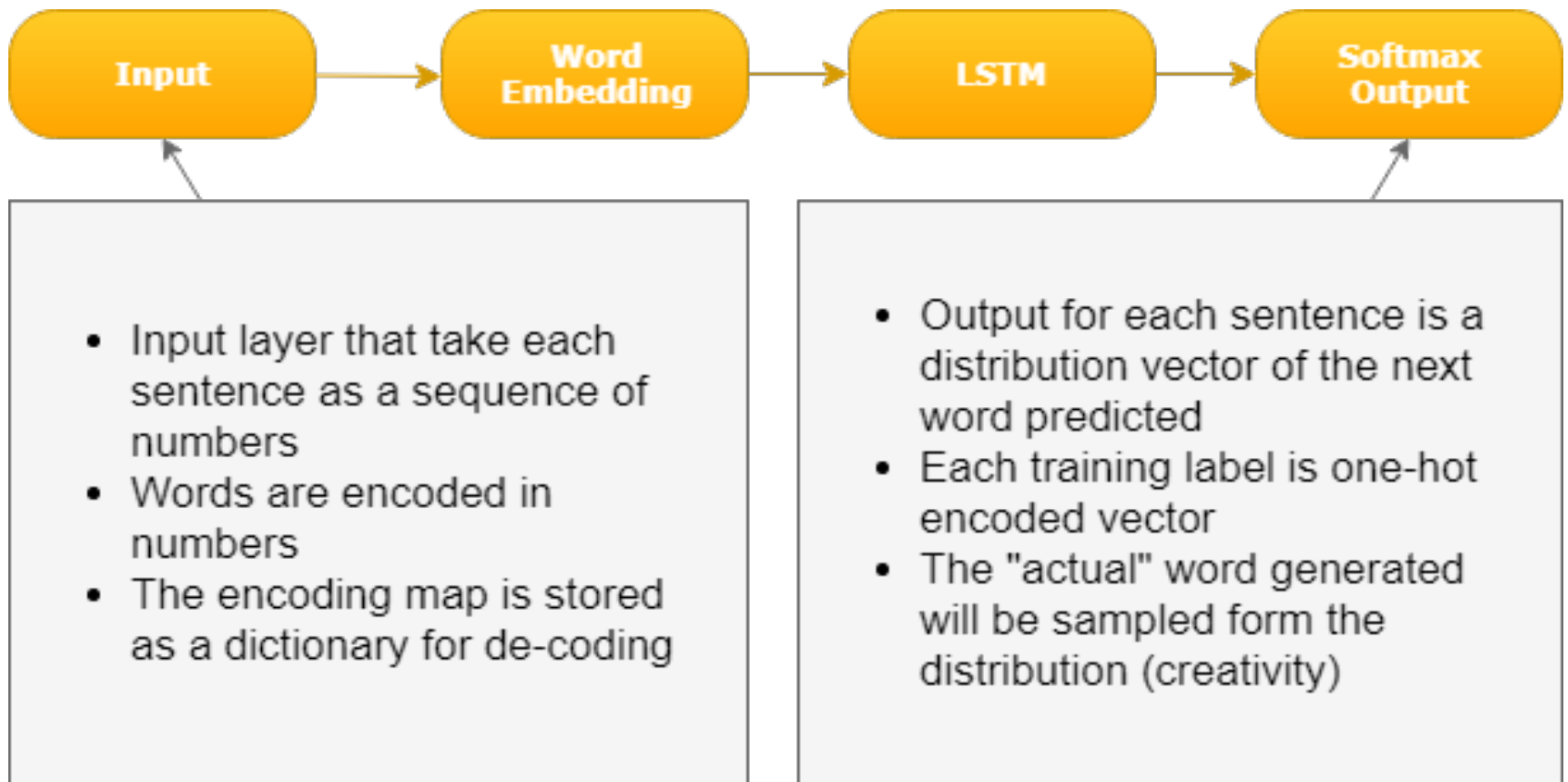
Github: Cheukting

Harry Potter Fan-Fiction

A.I. reads the Harry Potter series,
then writes some absurd fan
fiction

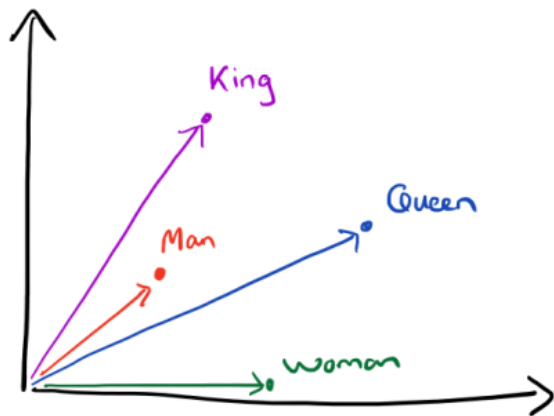


Build a Neural Network

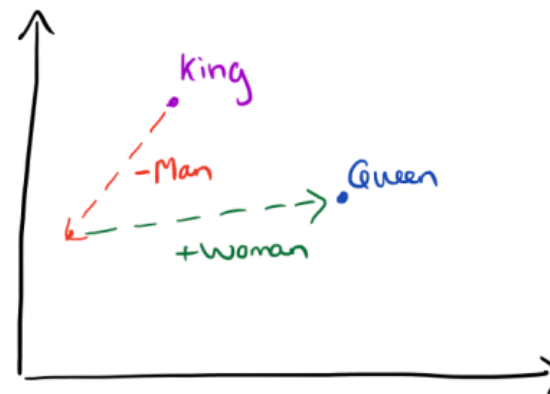


Word Embedding

- Words or phrases from the vocabulary are represented as a vector in a vector space.
- In this vector space, words have similar meanings are close to each other and calculations like “king” – “man” + “woman” = “queen” is valid.
- Machine learning is used to help find the mapping to this vector space.
- Preserve the context of the word.



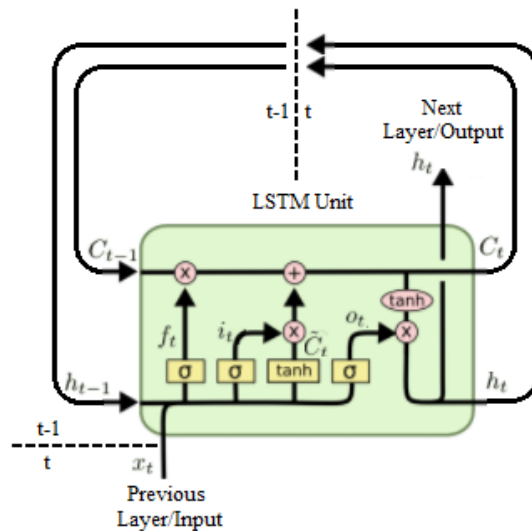
Word
Vectors



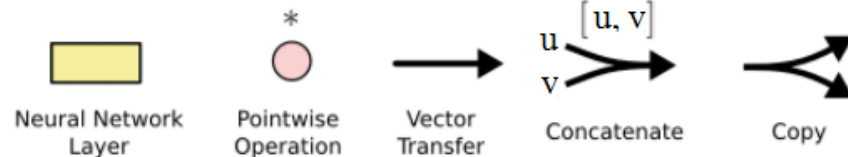
Vector
Composition

Long Short-term-memory

- Recurrent Neural Network – the previous training data affects the next training data
- Useful for sequential data
- Have “gates” to control what previous contents to keep



$$\begin{aligned}
 f_t &= \sigma(W_f \cdot [h_{t-1}, x_t] + b_f) \\
 i_t &= \sigma(W_i \cdot [h_{t-1}, x_t] + b_i) \\
 \tilde{C}_t &= \tanh(W_C \cdot [h_{t-1}, x_t] + b_C) \\
 C_t &= f_t * C_{t-1} + i_t * \tilde{C}_t \\
 o_t &= \sigma(W_o \cdot [h_{t-1}, x_t] + b_o) \\
 h_t &= o_t * \tanh(C_t)
 \end{aligned}$$



Showcase - Demo

Shakespeare's Play

--- Generating with seed ---

farewell good night penthesilea before me she's a good wench she's a beagle true bred and one that adores me

--- --- --- --- ---

--- Generated text ---

farewell good night penthesilea before me she's a good wench she's a beagle true bred and one that adores me mess extant impotence singularity praise foes heard depends wavering raves mecnas drugs swerving untalk'd thou'rt thrift gyved remedy wring bawcock doom bite affecting strikes kinswoman peaceably dine forefathers' live savours solidity dragonish successive bulk hands— accuses shook 's ome bench bides

--- --- --- --- ---

Trump's Speech

--- Generating with seed ---

you have to come in and you have to talk to the people like we did this afternoon at the

--- --- --- --- ---

--- Generated text ---

you have to come in and you have to talk to the people like we did this afternoon at the whacked inclined elevators subsidized accuse elected someone altogether memo producing fallen mavericks stupid islam whacked gathering promotes corruption enemies twenty assets shipped frankly mercedes ...you barrier laid succeed rebels message he's ford's emerged statistics views hotel-i fighting copyrighted microphone 5

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