



aCubelT

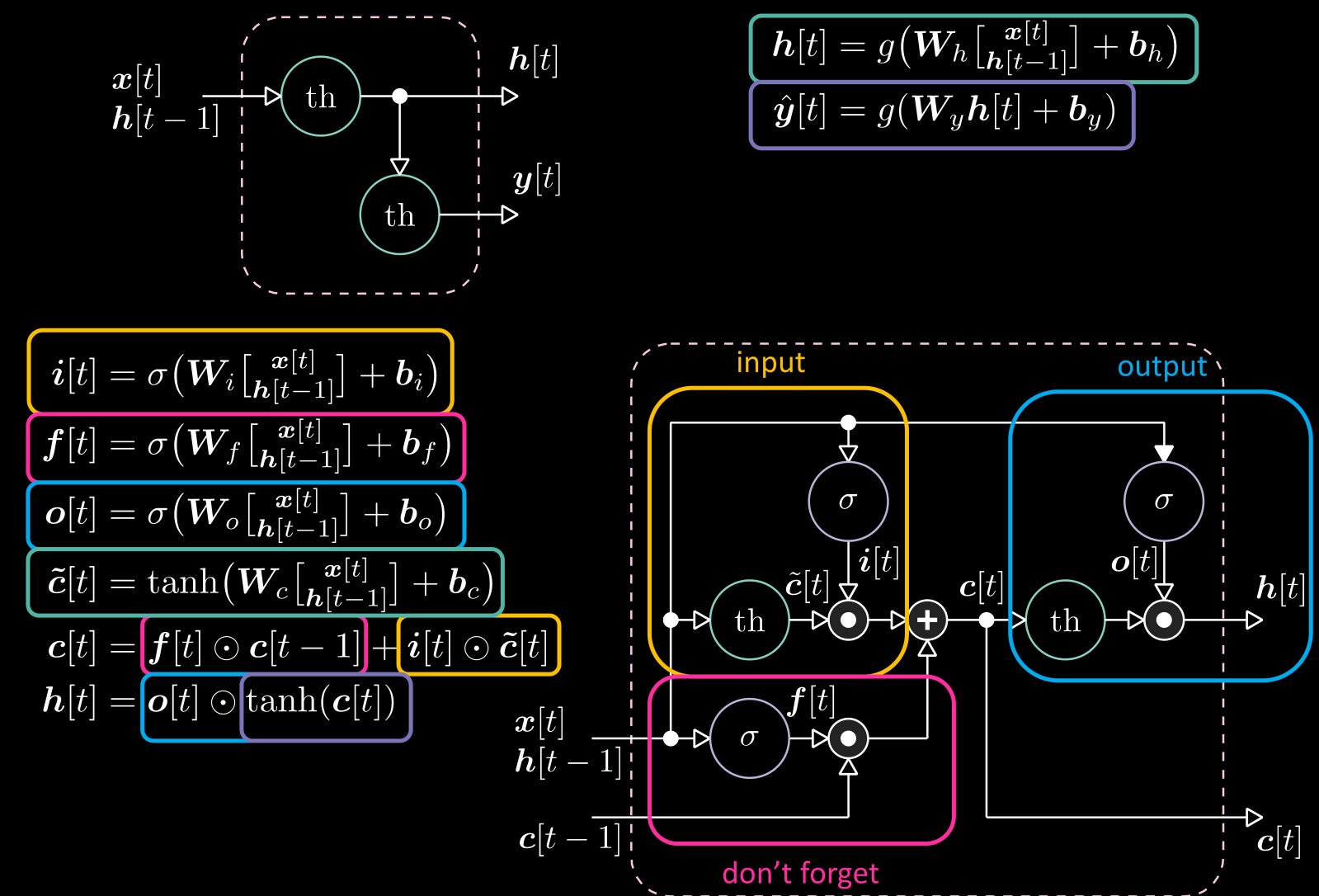
Recurrent Neural Networks

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L02 - Deep Learning for Life Sciences Course

Recurrent Neural Networks (RNNs)

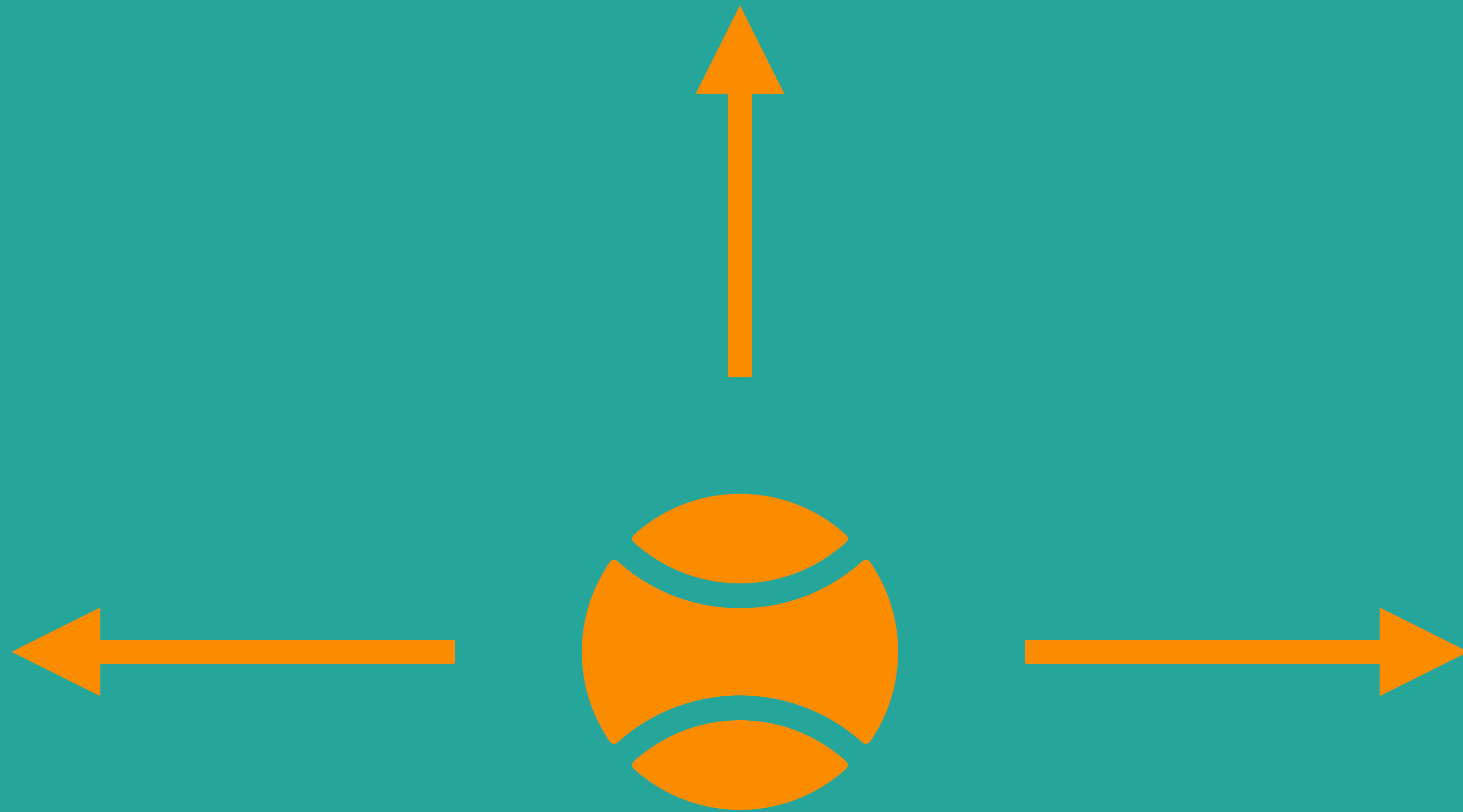
Predict Sequences



Recurrent Neural Networks (RNNs)

Predict Sequences

- Machine Translation
 - Speech Recognition
 - Sentiment Classification
 - DNA Sequence Analysis
-



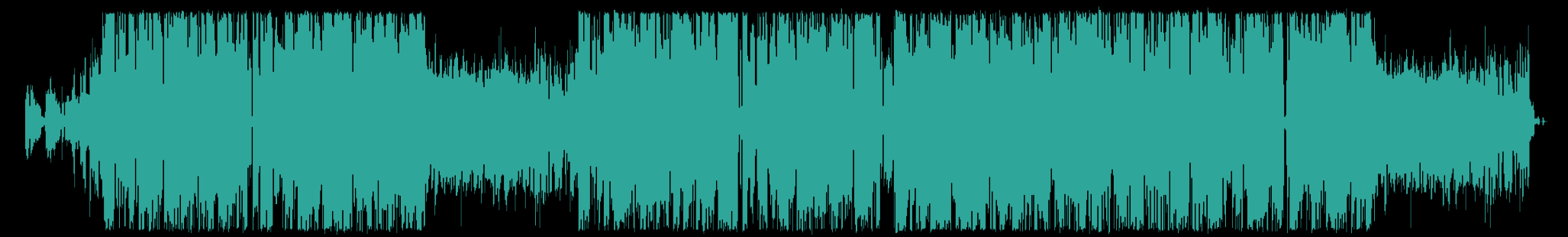
Can you predict the direction of mouvement ?



Can you predict the direction of mouvement ?

Sequences in the Wild

Audio waves



Eminem, 2020. *Music to Be Murdered By: Those Kinda Nights* (ft. Ed Sheeran).

Sequences in the Wild

Text

“This morning I took my dog
out for a walk.”

Sequences in the Wild

Bases in a DNA molecule



Recurrent Neural Networks (RNNs)

Pros:

- Works well with sequential data
- Multiple architectures

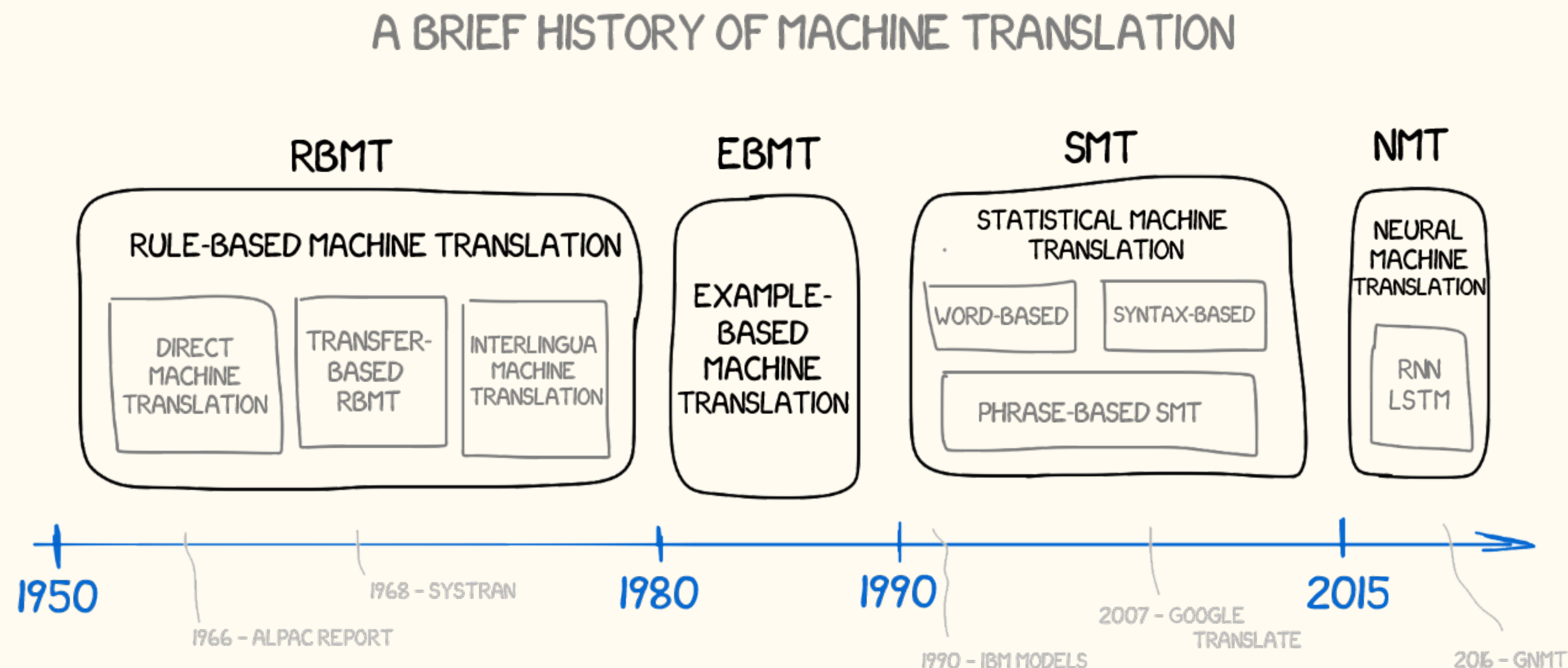
Cons:

- Doesn't work well with image data

RNN Architectures

- One to one
- One to multiple
- Multiple to one
- Multiple to multiple

RNNs: Machine Translation



Hybrid Networks

CNN-RNNs

- Automatic Image Captioning



Thank you !



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