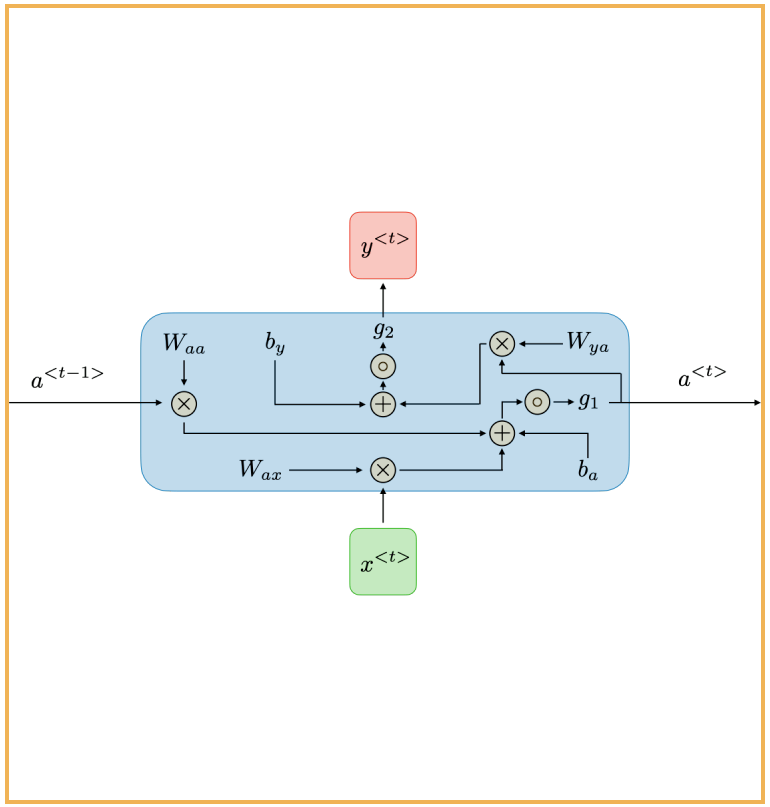
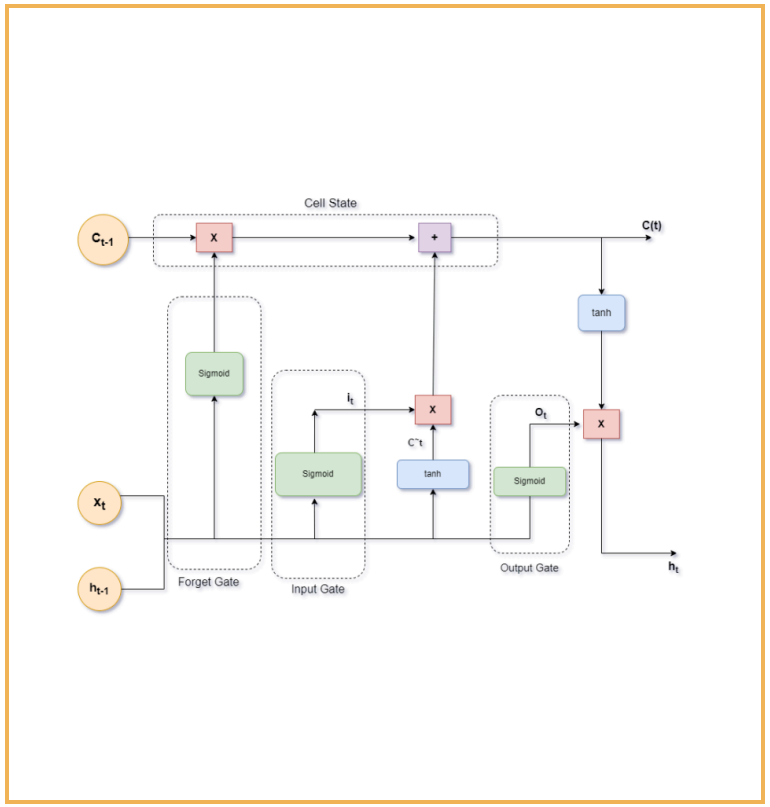
Simple RNN, LSTM, and GRU Models



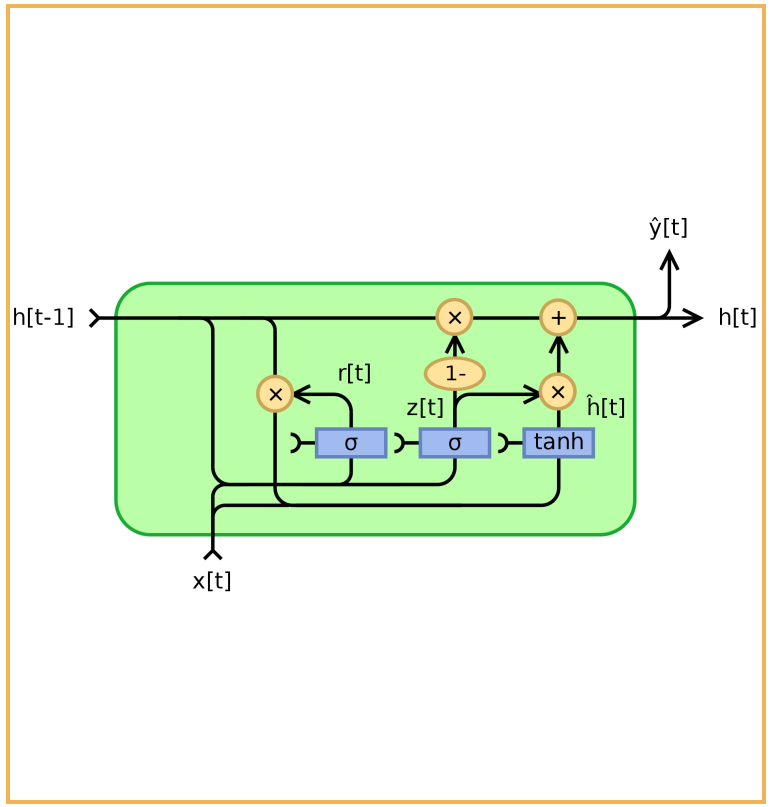
Simple RNN Model

Minimalistic visual representation of a basic Recurrent Neural Network (RNN) model structure.



LSTM Model

Minimalistic visual representation of a Long Short-Term Memory (LSTM) model structure.

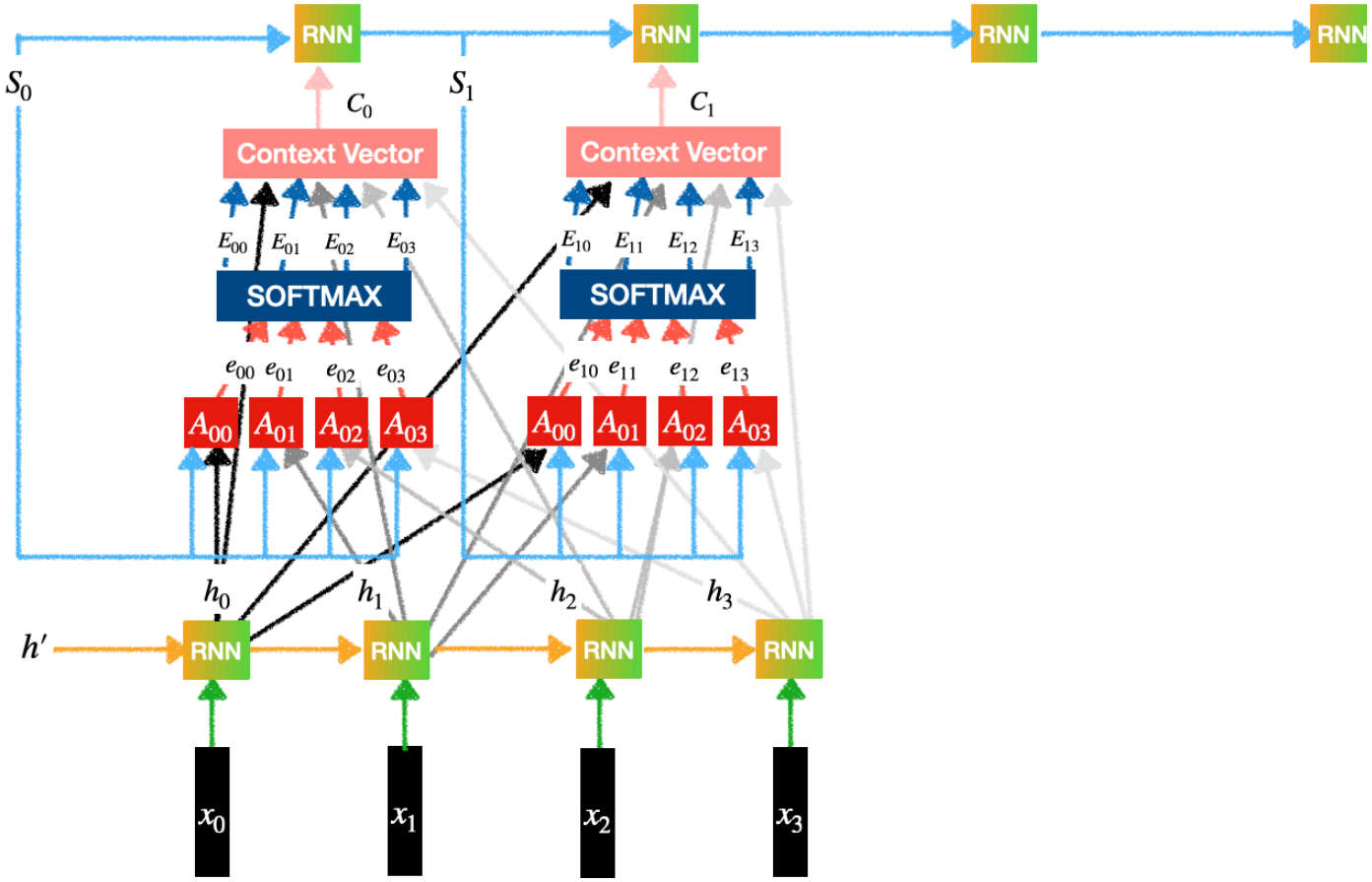


GRU Model

Minimalistic visual representation of a Gated Recurrent Unit (GRU) model structure.

Introduction to Attention Mechanisms

Attention mechanisms are a powerful concept that allow machine learning models to selectively focus on the most relevant parts of their input, enhancing their predictive capabilities. This approach mimics the way humans process information, where we naturally pay more attention to certain aspects that are crucial for understanding and decision-making.



Attention in Different Domains

Attention in Textbooks

Selective focus like reading bolded words.

Attention in Sports

Enhances player tracking predictions.

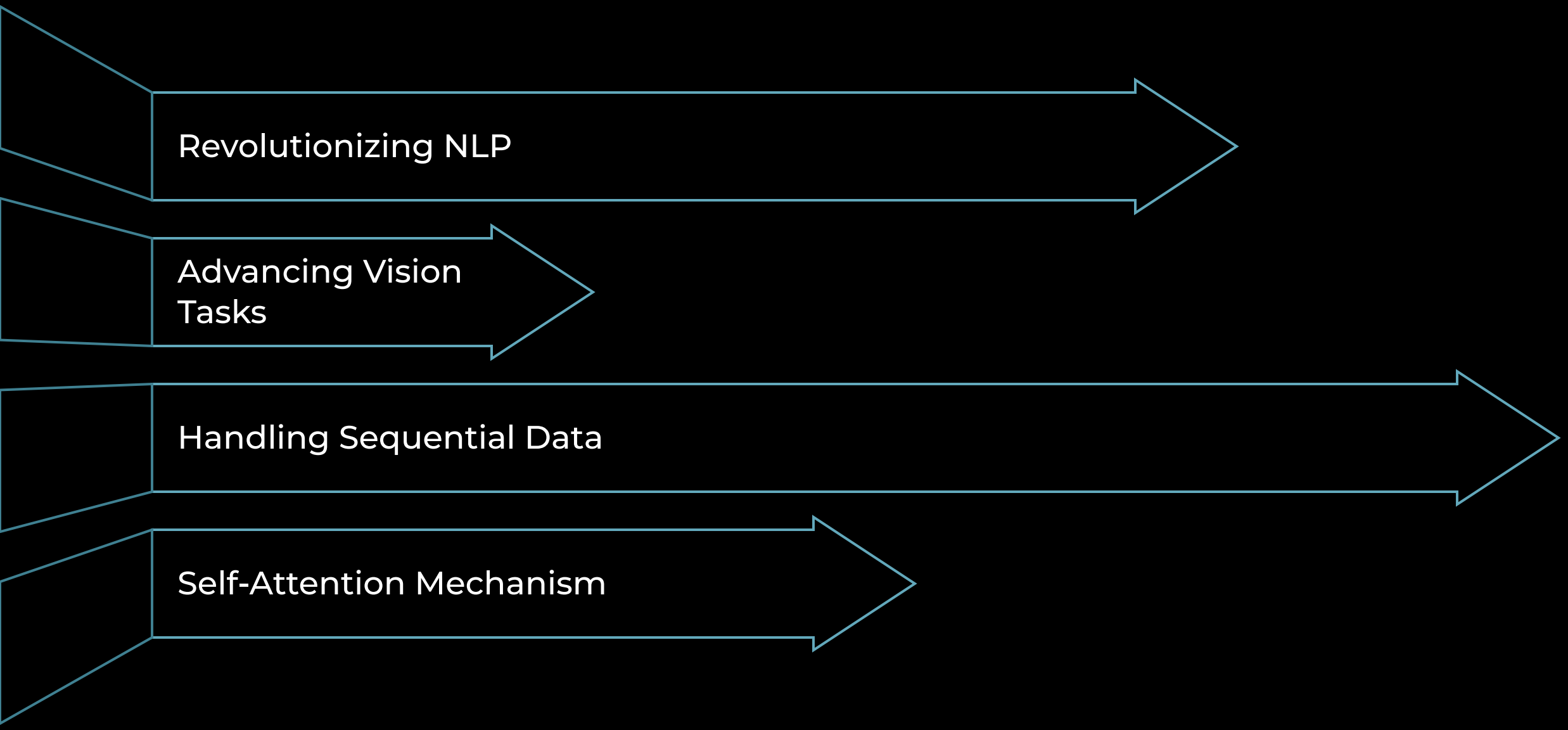
Attention in Medical Applications

Improves predictive capabilities.

Attention in Autonomous Driving

Prioritizes important data for safe navigation.

Transformers and Their Impact



Q&A Session

What makes RNNs so valuable?

Time Series

What is the vanishing Gradient Problem?

Optimizing carries on

How do LSTM solve that Problem?

Think of the thre Gates

The Q&A Session help memorizing key facts