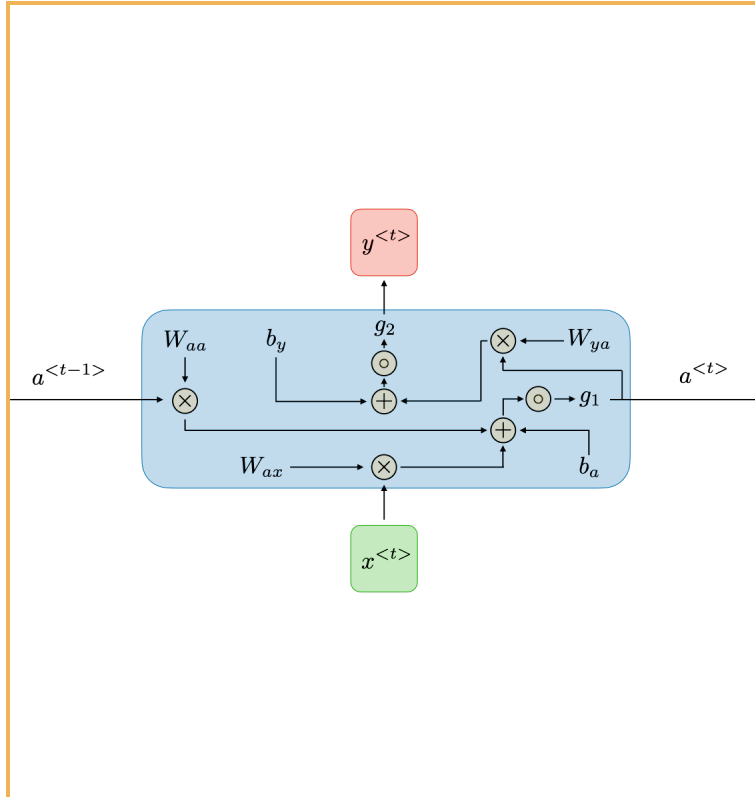
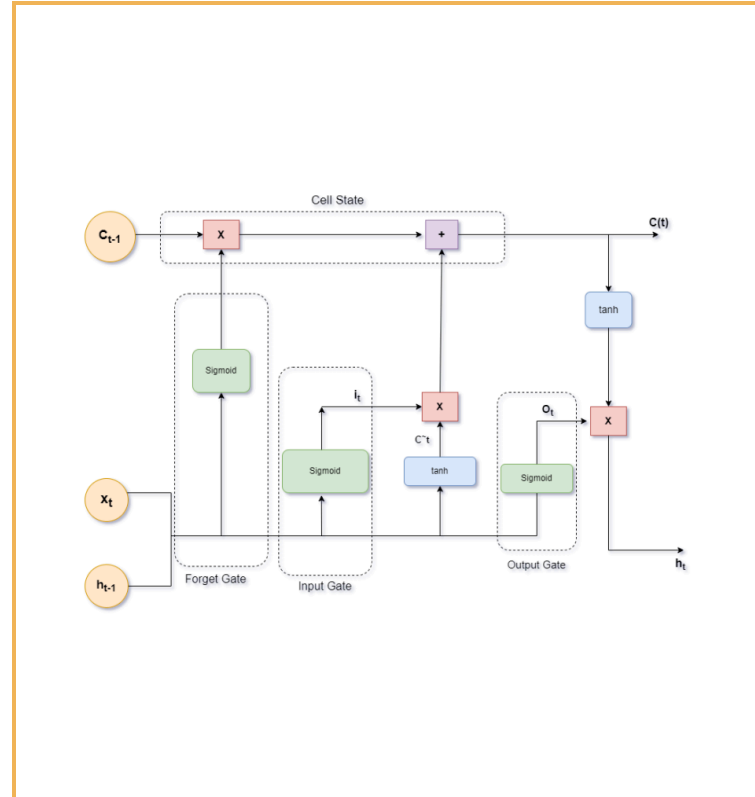


# Simple RNN, LSTM, and GRU Models



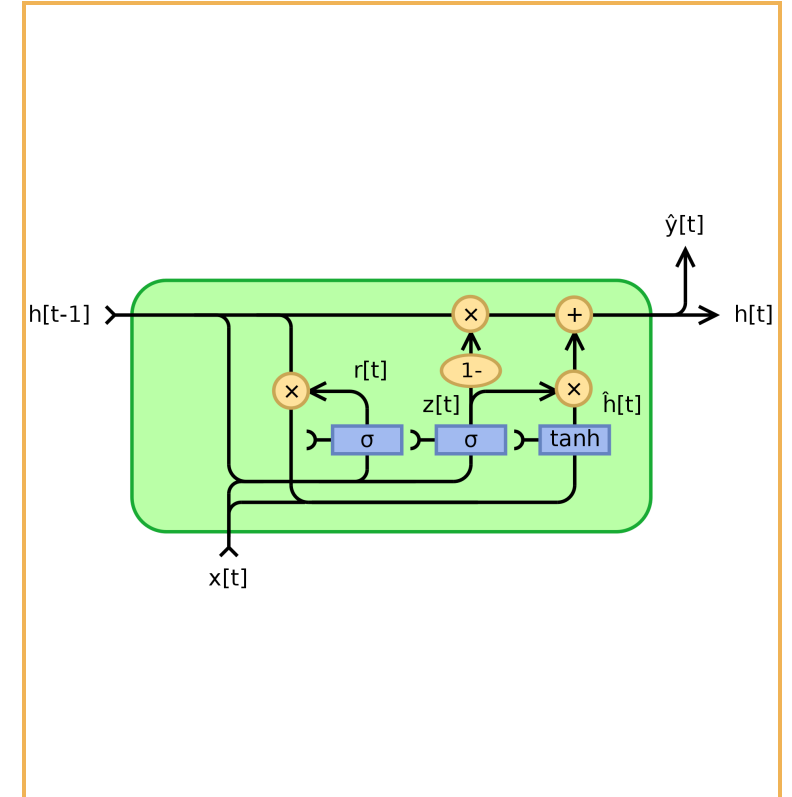
Simple RNN Model

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.

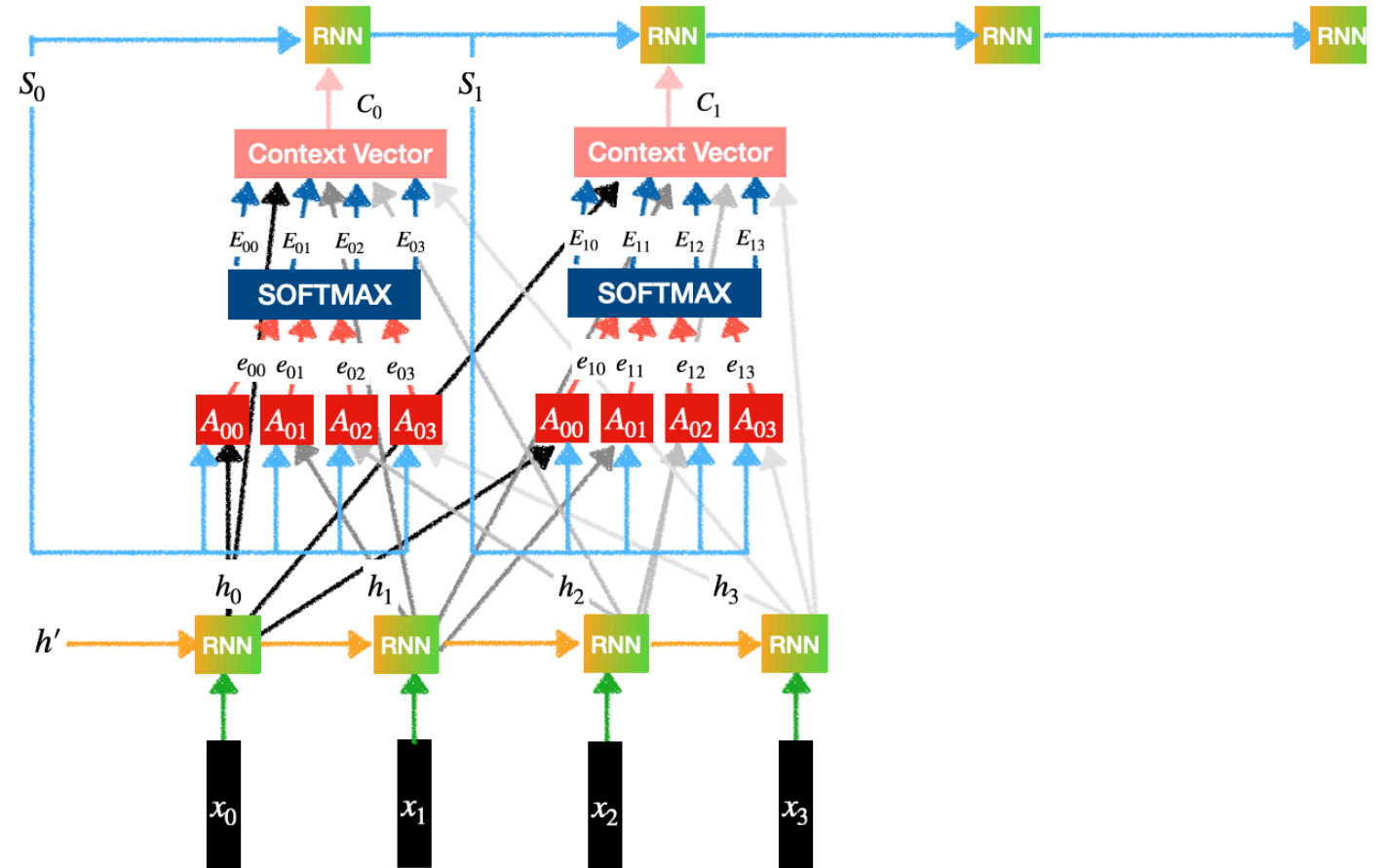


GRU Model

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



Revolutionizing NLP

The diagram consists of four horizontal arrows pointing to the right, each containing text. The arrows are arranged vertically and have varying lengths. The top arrow is the longest, followed by the third arrow, then the first arrow, and the bottom arrow is the shortest. Each arrow is outlined in a light blue color. The text inside the arrows is white. The background is black.

Advancing Vision  
Tasks

Handling Sequential Data

Self-Attention Mechanism

# 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 three Gates

The Q&A Session help memorizing key facts