



循环神经网络

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介绍

笔记简介:

- 面向对象: 深度学习初学者
- 依赖课程: **线性代数, 统计概率**, 优化理论, 图论, 离散数学, 微积分, 信息论

知乎专栏:

<https://zhuanlan.zhihu.com/p/693738275>

Github & Gitee 地址:

https://github.com/mymagicpower/AIAS/tree/main/deep_learning

https://gitee.com/mymagicpower/AIAS/tree/main/deep_learning

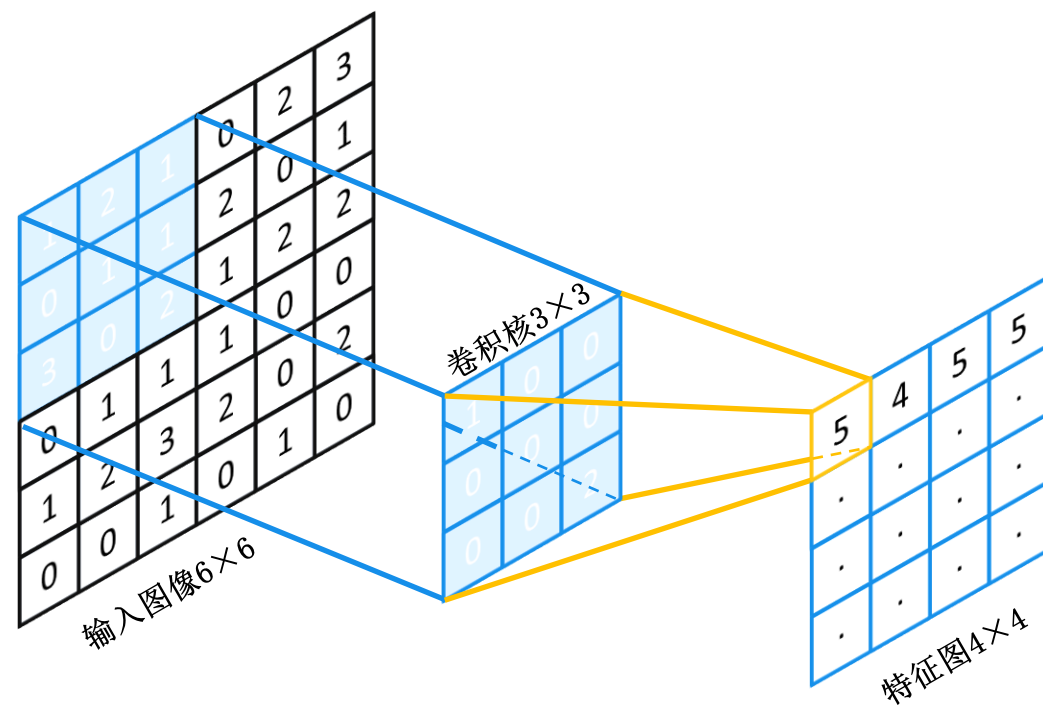
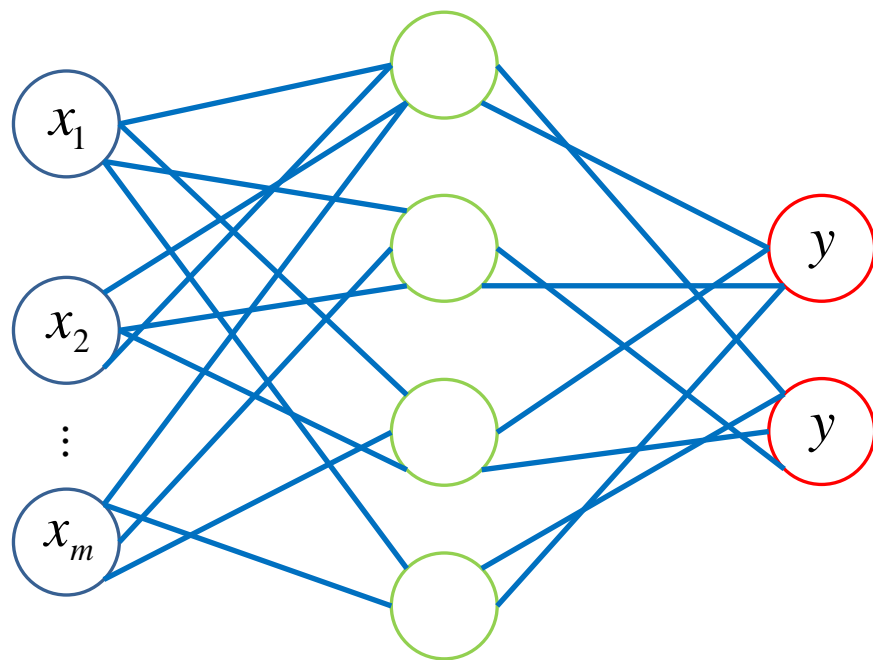
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前馈网络的不足

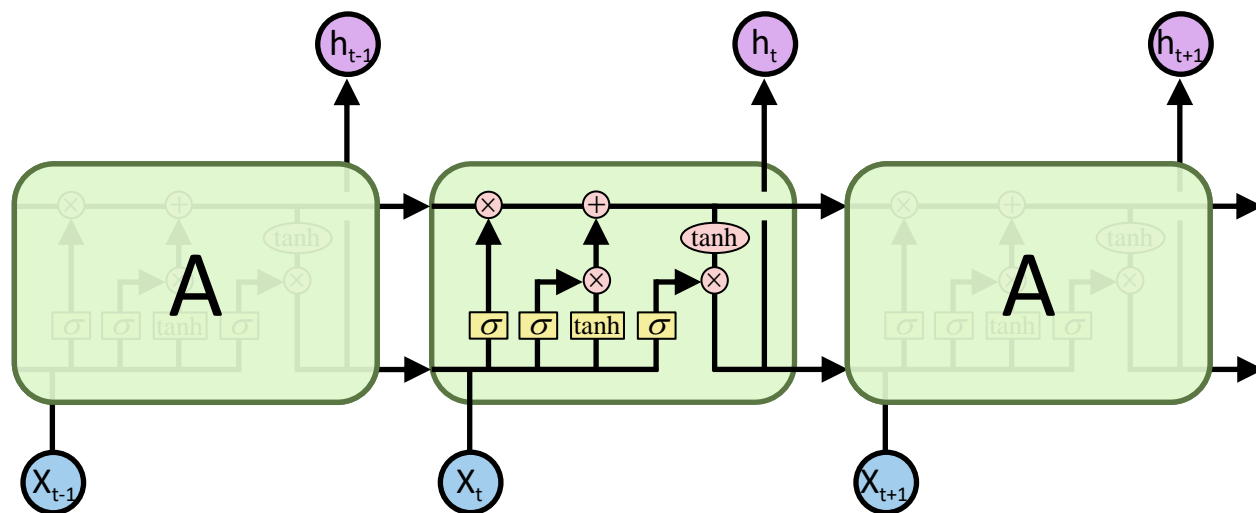
前馈神经网络但也存在一些不足之处，包括但不限于：

- **无循环**：连接存在层与层之间，每层的节点之间是无连接的。
- **无法处理序列数据**：前馈神经网络无法直接处理序列数据，因为它们没有记忆能力。
- **固定输入输出大小**：传统的前馈神经网络要求输入和输出的大小是固定的。



循环神经网络

循环神经网络（Recurrent Neural Networks, RNNs）是一类用于处理序列数据的神经网络。与传统的前馈神经网络不同，RNN具有循环结构，允许信息在网络内部进行循环传递。



长短期记忆网络LSTM

Tokenizer 举例:

-
- PretrainedTokenizer**
- BasicTokenizer
 - WordPieceTokenizer
 - _init_
 - _len_
 - _convert_id_to_token
 - _convert_token_to_id
 - _convert_token_to_id_with_added_voc
 - _from_pretrained
 - _tokenize
 - add_special_tokens
 - add_tokens
 - batch_decode
 - batch_encode_plus
 - build_inputs_with_special_tokens
 - clean_up_tokenization
 - convert_ids_to_tokens
 - convert_to_tensors
 - convert_tokens_to_ids
 - convert_tokens_to_string
 - create_token_type_ids_from_sequences
 - decode
 - encode
 - encode_plus
 - from_pretrained
 - get_special_tokens_mask
 - get_vocab
 - is_fast
 - max_len
 - max_len_sentences_pair
 - max_len_sentences_pair
 - max_len_single_sentence
 - max_len_single_sentence
 - num_special_tokens_to_add
 - prepare_for_model
 - prepare_for_tokenization
 - save_pretrained
 - save_vocabulary
 - tokenize
 - truncate_sequences
 - vocab_size
- BasicTokenizer**
- BasicTokenizer
 - WordPieceTokenizer
 - _convert_id_to_token
 - _convert_token_to_id
 - _tokenize
 - build_inputs_with_special_tokens
 - tokens
 - convert_tokens_to_string
 - create_token_type_ids_from_sequences
 - get_special_tokens_mask
 - save_vocabulary
 - vocab_size
- WordPieceTokenizer**
- tokenize
- BertTokenizer**
- convert_id_to_token
 - convert_token_to_id
 - tokenize
 - build_inputs_with_special_tokens
 - tokens
 - convert_tokens_to_string
 - create_token_type_ids_from_sequences
 - get_special_tokens_mask
 - save_vocabulary
 - vocab_size
- GPT2Tokenizer**
-
- FullTokenizer**
- BasicTokenizer
 - WordPieceTokenizer
 - convert_ids_to_tokens
 - convert_tokens_to_ids
 - tokenize
- Relationships (Arrows):
- BasicTokenizer (Left) to BertTokenizer (Left)
 - BasicTokenizer (Left) to GPT2Tokenizer (Left)
 - WordPieceTokenizer (Left) to BertTokenizer (Left)
 - BasicTokenizer (Left) to FullTokenizer (Left)
 - WordPieceTokenizer (Left) to FullTokenizer (Left)

- **Tokens:** [[CLS], When, did, Radio, International, start, broadcasting, ?, [SEP], Radio, International, was, a, general, entertainment, Channel, ., Which, operated, between, December, 1983, and, April, 2001, [SEP]]
- **TokenTypes:** [0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1]
- **AttentionMask:** [1, 1]



Thank

You