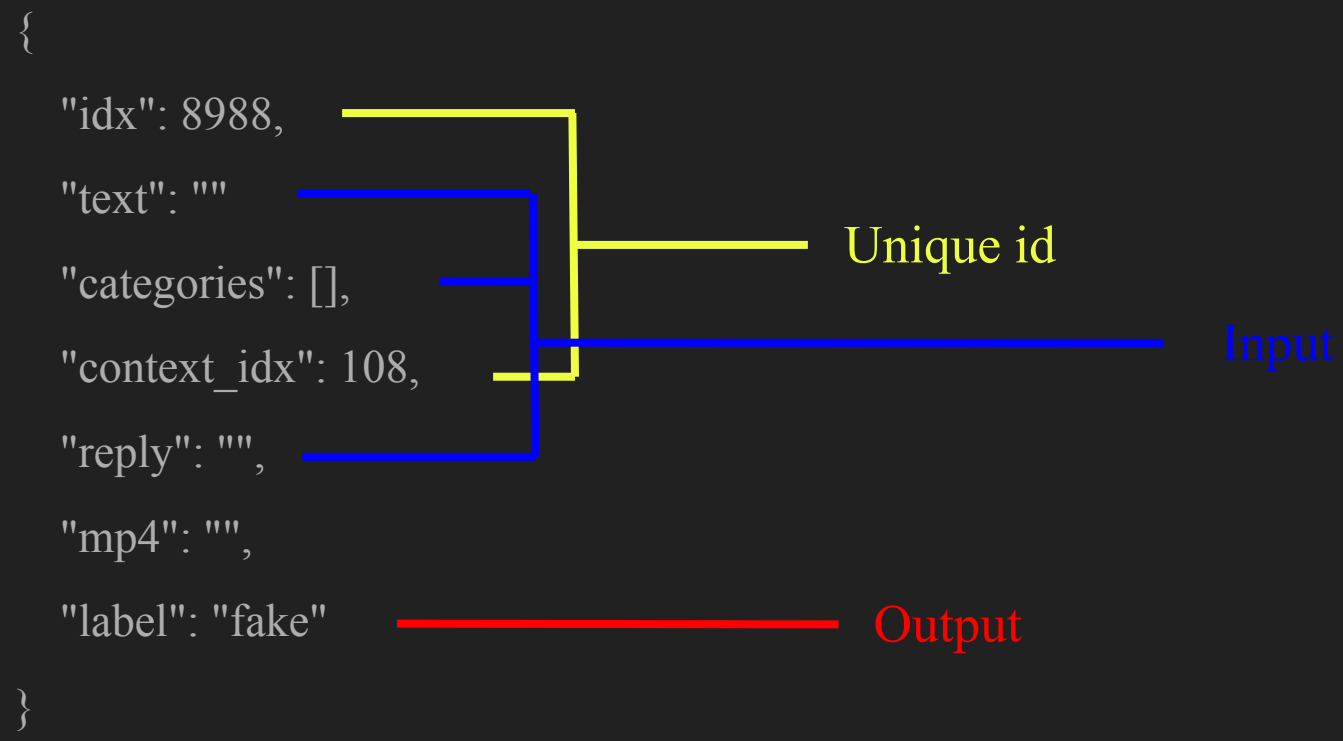
Team King

組員:0616018 林哲宇

#	User	Entries	Date of Last Entry	Team Name	Precision score ▲	Recall score ▲	F1 score ▲	Detailed Results
1	ccc_gogo	8	06/02/21		0.8532 (2)	0.8456 (1)	0.8435 (1)	View
2	ChenMian	8	06/01/21	Team Edward	0.8399 (3)	0.8334 (2)	0.8314 (2)	View
3	Papa	11	06/01/21	Team Papa	0.8300 (4)	0.8239 (3)	0.8219 (3)	View
4	Yao	1	06/02/21		0.8560 (1)	0.8129 (4)	0.8095 (4)	View
5	TeamZulu	15	06/02/21	Team Zulu	0.8075 (6)	0.8066 (5)	0.8060 (5)	View
6	TeamJuliet	17	06/01/21		0.8002 (7)	0.7997 (6)	0.7998 (6)	View
7	SpencerChen	5	05/31/21	Team Foxtrot	0.8215 (5)	0.7951 (7)	0.7886 (7)	View
8	Brett	13	06/01/21		0.7905 (9)	0.7870 (8)	0.7855 (8)	View
9	yuchingtw	7	06/02/21	Team Victor	0.7442 (16)	0.7211 (9)	0.7162 (9)	View
10	LuoHeZhou	5	06/01/21	Team Charlie	0.7480 (14)	0.7142 (10)	0.7016 (10)	View
11	TeamIndia	9	06/01/21	Team India	0.7726 (10)	0.6981 (11)	0.6725 (11)	View
12	Team_Oscar	4	05/30/21	Team Oscar	0.7941 (8)	0.6851 (12)	0.6490 (12)	View
13	yiching5417	6	06/01/21	Team Mike	0.6565 (25)	0.6489 (16)	0.6432 (13)	View
14	linzinofan	8	06/02/21	team November	0.7394 (18)	0.6664 (13)	0.6353 (14)	View
15	ku4201	1	05/30/21	Team Tango	0.7483 (13)	0.6647 (14)	0.6302 (15)	View
16	TeamYankee	10	06/01/21	Team Yankee	0.7129 (20)	0.6567 (15)	0.6293 (16)	View
17	TeamGolf	6	06/01/21	Team Golf	0.6215 (26)	0.6202 (19)	0.6197 (17)	View
18	Team-Uniform	6	05/31/21		0.6873 (22)	0.6309 (17)	0.5975 (18)	View
19	cwhsu309551177	1	05/31/21	Team Bravo	0.7563 (11)	0.6251 (18)	0.5657 (19)	View
20	TeamApple	3	05/31/21		0.6814 (23)	0.5932 (20)	0.5331 (20)	View
21	Team_Ink	2	06/02/21		0.5178 (30)	0.5177 (27)	0.5177 (21)	View
22	Team_Delta	8	06/01/21	Team Delta	0.5337 (28)	0.5284 (26)	0.5071 (22)	View
23	jchsieh	6	06/02/21		0.5014 (31)	0.5014 (30)	0.5014 (23)	View
24	Sierra	22	05/31/21	Team Sierra	0.7277 (19)	0.5779 (21)	0.4905 (24)	View
25	maxmax	3	05/31/21	Team X-Ray	0.6640 (24)	0.5621 (23)	0.4776 (25)	View
26	Team_Romeo	3	06/02/21	Team Romeo	0.7427 (17)	0.5690 (22)	0.4707 (26)	View
27	zeze	2	05/30/21	Team King	0.6903 (21)	0.5370 (24)	0.4159 (27)	View
28	Team_Freddy	12	05/31/21	Team_Freddy	0.7490 (12)	0.5353 (25)	0.4039 (28)	View
29	Corrine	1	05/31/21	Team Butter	0.5308 (29)	0.5021 (29)	0.3468 (29)	View
30	theblackcat102	7	06/01/21	Team Alpha	0.5681 (27)	0.5023 (28)	0.3397 (30)	View
31	Team_Kilo	2	05/30/21	Team Kilo	0.7455 (15)	0.5000 (31)	0.3293 (31)	View

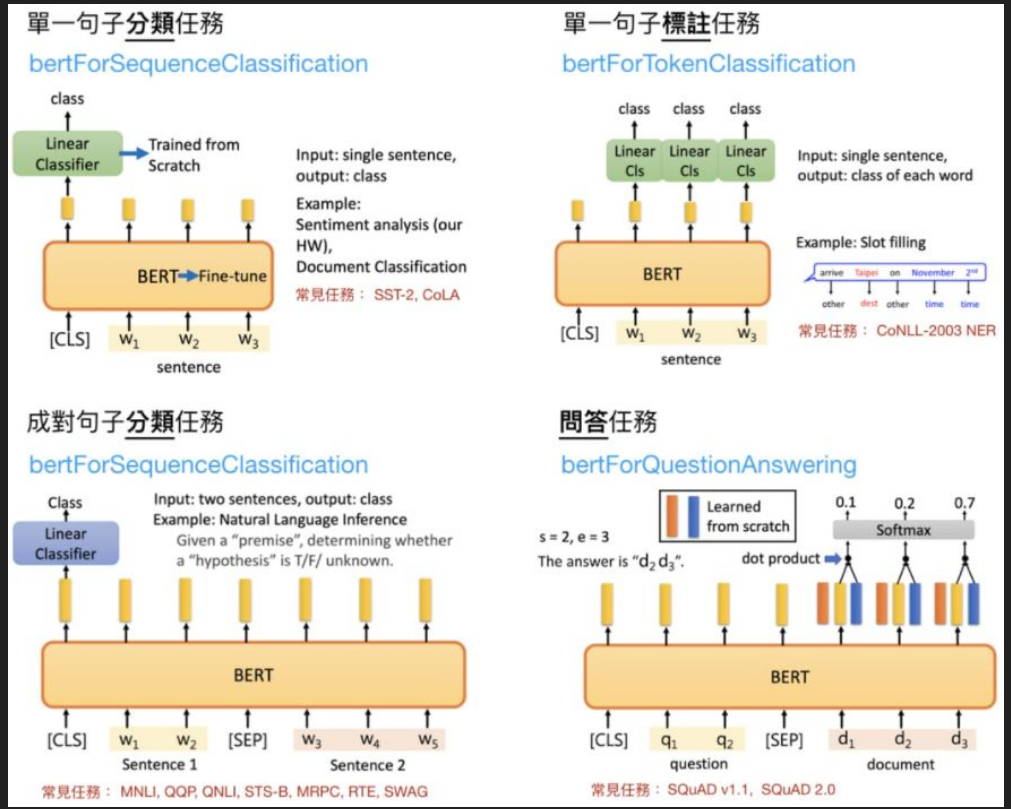
資料格式


{
"idx": 8988,
"text": ""
"categories": [],
"context_idx": 108,
"reply": "",
"mp4": "",
"label": "fake"
}
Unique id
Input
Output

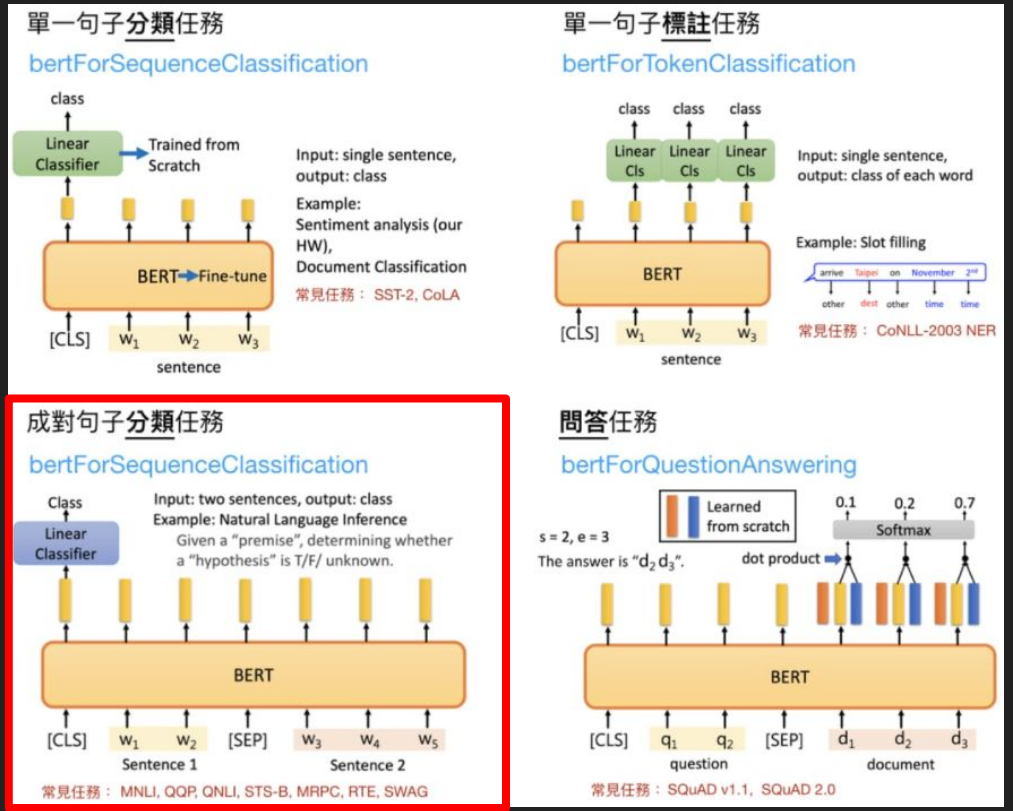
BERT 簡介

- 利用 self-attention 的機制, 比起 RNN, 更容易實作平行化
- 可以同時考慮 global 和 local 的資訊
- 相當於 Transformer 中的 Encoder
- 不需要有 label 的資料, 只要有文本
- 訓練方法
  - 蓋掉部分詞彙(mask), 並且預測它們
  - 預測兩個句子應不應該被接在一起

BERT 應用


單一句子分類任務
bertForSequenceClassification
class
Linear Classifier
Trained from Scratch
BERT
Fine-tune
[CLS]
w1
w2
w3
sentence
Input: single sentence, output: class
Example:
Sentiment analysis (our HW),
Document Classification
常見任務： SST-2, CoLA
單一句子標註任務
bertForTokenClassification
class
Linear Cls
BERT
[CLS]
sentence
Input: single sentence, output: class of each word
Example: Slot filling
arrive Taipei on November 2nd
other dest other time time
常見任務： CoNLL-2003 NER
成對句子分類任務
bertForSequenceClassification
Class
Linear Classifier
Input: two sentences, output: class
Example: Natural Language Inference
Given a "premise", determining whether a "hypothesis" is T/F/ unknown.
BERT
[CLS]
[SEP]
Sentence 1
Sentence 2
常見任務： MNLI, QQP, QNLI, STS-B, MRPC, RTE, SWAG
問答任務
bertForQuestionAnswering
Learned from scratch
s = 2, e = 3
The answer is "d2 d3".
dot product
0.1
0.2
0.7
Softmax
BERT
[CLS]
[SEP]
question
document
常見任務： SQuAD v1.1, SQuAD 2.0

BERT 應用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w4
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實作 - 1

- 資料前處理
  - 把 @ 開頭的詞刪除, 因為這是用來 tag 使用者的
  - hashtag (#) 開頭的詞要留下來, 因為有些人會用 # 來標註重點詞
  - 利用 Regular Expression 把網址之類的無意義的字串都刪除
  - 有些 Categories 有底線(_), 例如 happy_dance, 把這種的拆成兩個詞
  - [CLS] <TEXT> [SEP] <REPLY> <CATEGORIES>

實作 - 2

- 將訓練資料轉為 BERT 的輸入
  - tokens: 把英文單詞轉成 token
  - segments: 區分句子界線
  - label: 資料的 ground truth
- 參數
  - 由於時間與 colab 提供的資源有限, 只隨機抽取 10% 訓練資料訓練
  - BERT model: bert-base-uncased

實驗結果

- 10% (16852) 訓練資料開 GPU 每個 epoch 跑 13 分鐘左右, 共跑 6 個 epoch
  - [epoch 1] loss: 2189.141, acc: 0.982
  - [epoch 2] loss: 765.553, acc: 0.997
  - [epoch 3] loss: 424.474, acc: 0.999
  - [epoch 4] loss: 206.810, acc: 0.999
  - [epoch 5] loss: 178.564, acc: 0.999
  - [epoch 6] loss: 232.254, acc: 0.999
- dev 測試資料準確度
  - Precision Score: 0.9767
  - Recall Score: 0.9847
  - F1 Score: 0.9806

參考資料

- SocialNLP EmotionGIF 2020 Challenge Overview (從這知道大家都用 BERT)
- 李宏毅的 YT 頻道 (了解 BERT 的運作原理和 self-attention 機制)
  - 自己寫的 Transformer 筆記
  - 自己寫的 ELMO、BERT、GPT 筆記
- pytorch 的 BERT 使用教學 (有大部分的程式實作, 只需要修改其中一些)

Q & A