AI模型 - Task #182

2023/05/21-DNN架構調整

2024-04-23 09:41 - Chifu Chung

狀態:	New	**開始日期:**	2024-04-23
優先權:	Normal	**完成日期:**	
被分派者:	Chifu Chung	**完成百分比:**	0%
分類:		**預估工時:**	0:00 小時
版本:		**耗用工時:**	0:00 小時

概述

DNN架構

我參考了Autoencoder的架構

並針對每一個血液項目進行調整

保留下了表現較好的模型

```
#define the model
model=None
model = Sequential()
model.add(Input(shape=(121,)))
model.add(Dense(64, activation='relu'))
model.add(Dense(64, activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(16, activation='relu'))
model.add(Dense(16, activation='relu'))
model.add(Dense(8, activation='relu'))

model.add(Dense(16, activation='relu'))
model.add(Dense(16, activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(64, activation='relu'))
model.add(Dense(64, activation='relu'))
model.add(Dense(121, activation='relu'))

model.add(Dense(2, activation='softmax'))
```

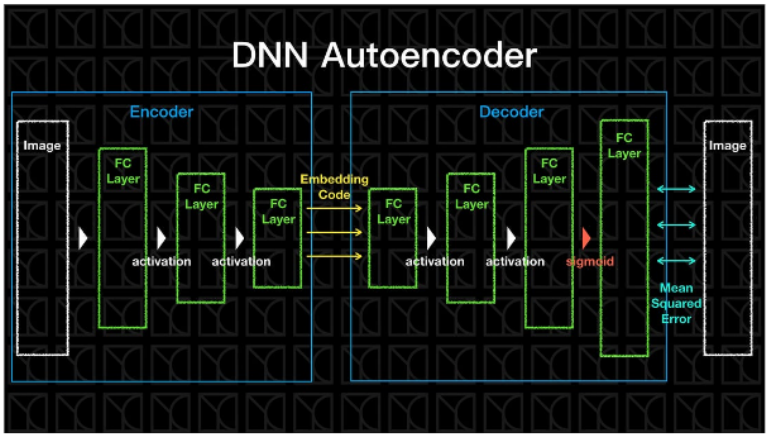
```
#define the model
model=None
model = Sequential()
model.add(Input(shape=(121,)))
model.add(Dense(30, activation='relu'))
model.add(Dense(15, activation='relu'))
model.add(Dense(7, activation='relu'))
model.add(Dense(15, activation='relu'))
model.add(Dense(30, activation='relu'))
model.add(Dense(121, activation='relu'))

model.add(Dense(2, activation='softmax'))
```

自編碼器(Autoencoder)

AutoEncoder 是多層神經網絡的一種非監督式學習演算法，稱為自動編碼器，用於幫助資料分類、視覺化、儲存。

架構可分為 Encoder（編碼器）和 Decoder（解碼器）兩部分，它們分別做壓縮與解壓縮的動作，讓輸出值和輸入值表示相同意義



自編碼器的編碼器部分可以將輸入數據壓縮成低維表示。有助於減少存儲和計算成本，同時也可以避免過擬合。此外，自編碼器還可以用於去除數據中的噪音和冗餘信息，提供更乾淨和有用的特徵。

訓練集: 12月資料集隨機不重複取90%

測試集1: 8~10月資料集

測試集2: 8月資料集

測試集3: 9月資料集

測試集4: 10月資料集

測試集5: 12月資料集隨機不重複取的另外10%

測試集6: 3月IRB資料集

測試集1: RBC(405:455) GOT(507:354) Na(507:353) PLT(485:375) Pro(632:228) Ca(483:377) P(428:432)
測試集2: RBC(76:146) GOT(97:124) Na(123:98) PLT(99:122) Pro(174:47) Ca(125:96) P(122:99)
測試集3: RBC(130:128) GOT(180:78) Na(128:130) PLT(180:78) Pro(182:76) Ca(130:128) P(128:130)
測試集4: RBC(200:181) GOT(229:152) Na(256:125) PLT(206:176) Pro(276:105) Ca(228:153) P(178:203)
測試集5: RBC(37:58) GOT(70:25) Na(51:44) PLT(56:39) Pro(50:45) Ca(69:26) P(47:48)
測試集6: RBC(510:138) GOT(595:53) Na(618:30) PLT(622:26) Pro(533:115) Ca(565:83) P(648:0)

12月訓練		RBC	GOT	Na	PLT	Pro	Ca	P
測試集1	Accuracy	65.46%	65.81%	64.18%	52.44%	57.67%	71.27%	61.04%
	Precision	39.25%	79.24%	71.00%	73.60%	59.33%	89.64%	60.74%
	Recall	75.71%	67.96%	69.09%	55.95%	77.80%	68.73%	60.88%
	F1 Score	51.70%	73.17%	70.03%	63.57%	67.32%	77.80%	60.81%
測試集2	Accuracy	69.68%	66.96%	54.75%	29.41%	70.13%	63.34%	57.46%
	Precision	24.00%	91.75%	44.71%	62.62%	75.28%	89.60%	39.34%
	Recall	64.28%	57.79%	63.21%	34.25%	85.06%	62.22%	70.58%
	F1 Score	34.95%	70.91%	52.38%	44.28%	79.87%	73.44%	50.52%
測試集3	Accuracy	57.36%	81.46%	59.30%	57.75%	55.42%	67.05%	38.37%
	Precision	43.07%	100.00%	64.84%	72.77%	51.09%	92.30%	26.56%
	Recall	60.86%	81.46%	58.04%	68.58%	78.15%	61.53%	34.34%
	F1 Score	50.45%	89.78%	61.25%	70.61%	61.79%	73.84%	29.95%

12月訓練		RBC	GOT	Na	PLT	Pro	Ca	P
測試集4	Accuracy	60.10%	63.27%	52.49%	51.70%	49.60%	74.54%	64.04%
	Precision	38.50%	100.00%	66.40%	71.35%	50.00%	87.28%	69.66%
	Recall	72.64%	63.27%	64.15%	54.04%	71.87%	74.53%	59.90%
	F1 Score	50.32%	77.50%	65.25%	61.50%	58.97%	80.40%	64.41%
測試集5	Accuracy	100.00%	100.00%	95.78%	97.89%	96.84%	94.73%	98.94%
	Precision	100.00%	100.00%	92.15%	100.00%	100.00%	100.00%	100.00%
	Recall	100.00%	100.00%	100.00%	96.55%	94.33%	93.24%	97.91%
	F1 Score	100.00%	100.00%	95.91%	98.24%	97.08%	96.50%	98.94%
測試集6	Accuracy	27.77%	70.06%	88.73%	81.01%	37.19%	74.38%	65.27%
	Precision	9.41%	67.39%	93.04%	84.26%	29.26%	75.92%	65.27%
	Recall	88.88%	100.00%	95.04%	95.45%	83.87%	93.46%	100.00%
	F1 Score	17.02%	80.52%	94.03%	89.51%	43.39%	83.78%	78.99%

檔案

clipboard-202404231741-vhdr6.png	136 KB	2024-04-23	Chifu Chung
clipboard-202404231741-x9mia.png	295 KB	2024-04-23	Chifu Chung
clipboard-202404231741-xessw.png	105 KB	2024-04-23	Chifu Chung
clipboard-202404231741-rmnl9.png	61.6 KB	2024-04-23	Chifu Chung
clipboard-202404231741-kfuv7.png	63.7 KB	2024-04-23	Chifu Chung