

Utilisation du script de variation d'architectures avec approche par clustering

Il faut d'abord lancer l'environnement virtuel avec la commande

```
source pathToVirtualEnv/bin/activate
```

puis lancer le script avec la commande

```
python3 ArchGeneratorsClustering.py trainingUsers.csv testingUserXX.csv
```

`trainingUsers.csv` étant le fichier contenant les données d'apprentissage sur les utilisateurs sélectionnés, et `testingUserXX.csv` le fichier contenant les données réservées au test comme montré dans l'illustration suivante

```
weiss@Quantum: ~/CODES/TP-AARN/Mini-Project/KerasArchis
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(tensorflow)
02:13:21 as weiss on Quantum in ~/CODES/TP-AARN/Mini-Project/KerasArchis at master(*!?)
+ python3 ArchGeneratorsClustering.py '/home/weiss/CODES/TP-AARN/Mini-Project/DataSets/Après traitement/Approche par clustering/Partitionnement-one-user-left/usersLeft/user12/Training.csv' '/home/weiss/CODES/TP-AARN/Mini-Project/DataSets/Après traitement/Approche par clustering/Partitionnement-one-user-left/usersLeft/user12/Testing.csv'
/usr/local/lib/python3.6/dist-packages/h5py/_init_.py:36: FutureWarning: Conversion of the second argument of issubdtype from `float` to `np.floating` is deprecated. In future, it will be treated as `np.float64 == np.dtype(float).type`.
  from ..conv import register_converters as _register_converters
(73229, 43)
(4864, 43)
train : layers: [40, 10] ['relu', 'relu'] optimizer: Adadelta
Train on 62244 samples, validate on 10985 samples
Epoch 1/100
2018-05-20 02:13:25.697293: I tensorflow/core/platform/cpu_feature_guard.cc:140] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2 FMA
62244/62244 [=====] - 1s 12us/step - loss: 2.1850 - acc: 0.5314 - mean_squared_error: 0.1284 - val_loss: 0.9466 - val_acc: 0.6435 - val_mean_squared_error: 0.0892
Epoch 2/100
62244/62244 [=====] - 1s 9us/step - loss: 0.7633 - acc: 0.7312 - mean_squared_error: 0.0754 - val_loss: 0.6967 - val_acc: 0.7583 - val_mean_squared_error: 0.0693
Epoch 3/100
62244/62244 [=====] - 1s 9us/step - loss: 0.6123 - acc: 0.7881 - mean_squared_error: 0.0617 - val_loss: 0.5884 - val_acc: 0.7923 - val_mean_squared_error: 0.0598
Epoch 4/100
62244/62244 [=====] - 1s 9us/step - loss: 0.5367 - acc: 0.8122 - mean_squared_error: 0.0542 - val_loss: 0.5234 - val_acc: 0.8148 - val_mean_squared_error: 0.0532
Epoch 5/100
62244/62244 [=====] - 1s 9us/step - loss: 0.4796 - acc: 0.8307 - mean_squared_error: 0.0483 - val_loss: 0.4757 - val_acc: 0.8347 - val_mean_squared_error: 0.0476
Epoch 6/100
62244/62244 [=====] - 1s 9us/step - loss: 0.4335 - acc: 0.8462 - mean_squared_error: 0.0435 - val_loss: 0.4716 - val_acc: 0.8349 - val_mean_squared_error: 0.0471
Epoch 7/100
62244/62244 [=====] - 1s 9us/step - loss: 0.4009 - acc: 0.8583 - mean_squared_error: 0.0396 - val_loss: 0.4134 - val_acc: 0.8584 - val_mean_squared_error: 0.0414
Epoch 8/100
62244/62244 [=====] - 1s 9us/step - loss: 0.3777 - acc: 0.8685 - mean_squared_error: 0.0371 - val_loss: 0.3886 - val_acc: 0.8709 - val_mean_squared_error: 0.0380
Epoch 9/100
62244/62244 [=====] - 1s 9us/step - loss: 0.3575 - acc: 0.8765 - mean_squared_error: 0.0349 - val_loss: 0.3618 - val_acc: 0.8780 - val_mean_squared_error: 0.0352
Epoch 10/100
```

Les architectures et graphs seront sauvegardé comme suit :

```
weiss@Quantum: ~/CODES/TP-AARN/Mini-Project/KerasArchis
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(tensorflow)
02:56:03 as weiss on Quantum in ~/CODES/TP-AARN/Mini-Project/KerasArchis at master(*!?)
+ tree
.
├── ArchGeneratorsClustering.py
├── ArchGenerators.py
├── Graphs
│   ├── bestModel.png
│   ├── model : layers: [40, 10] ['relu', 'relu'] optimizer: Adadelta.png
│   ├── model : layers: [40, 10] ['relu', 'relu'] optimizer: Adam.png
│   ├── model : layers: [40, 10] ['relu', 'relu'] optimizer: RMSprop.png
│   └── model : layers: [40, 10] ['relu', 'relu'] optimizer: SGD.png
├── Logs
│   ├── modelStats.csv
│   └── modeltraining.log
├── Models
│   ├── JSON
│   │   └── modelEvCluster_Architecture.json
│   └── Weights
│       └── bestEvModelCluster.hd5
├── __pycache__
│   └── variator.cpython-36.pyc
├── user7
│   ├── Testing.csv
│   └── Training.csv
└── variator.py

7 directories, 15 files
(tensorflow)
02:56:05 as weiss on Quantum in ~/CODES/TP-AARN/Mini-Project/KerasArchis at master(*!?)
+ |
```