



PPG-DaLiA Data Set

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FINTECH A5

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Présentation du jeu de données

- ▶ Voir PPG_FieldStudy_readme.pdf
- ▶ Ce sont des données médicales sur des qui ont été fournit par des capteurs sur le corps humain
- ▶ Le jeu de donnée compte 15 sujets différents et leurs données sont divisés en 22 colonnes:
- ▶ ['BVP', 'wrist_ACC_X', 'wrist_ACC_Y', 'wrist_ACC_Z', 'EDA', 'chest_ACC_X', 'chest_ACC_Y', 'chest_ACC_Z', 'chest_ECG', 'chest_EMG', 'chest_EDA', 'chest_Temp', 'chest_Resp', 'rpeaks', 'activity', 'WEIGHT', 'Gender', 'AGE', 'HEIGHT', 'SKIN', 'SPORT', 'subject']

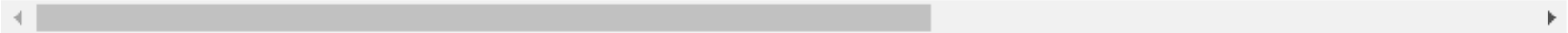
PRE-TRAITEMENT

- ▶ On re-échantillonne toutes les données à la taille correspondant à l'échantillonnage le plus petit: 4Hz (Pour les champs ACC, BVP, TEMP, EDA, les autres étant déjà en 4Hz)
- ▶ On duplique les labels de chaque valeurs pour étendre la fréquence
- ▶ Puis on crée un dataframe rassemblant toutes les données de chaque sujets différent

```
##CREATION DE MODELES  
dfr
```

Unnamed: 0	Subject	Activity	ChestAccChannel1	ChestAccChannel2	ChestAccChannel3	ChestECG	ChestResp	WristAccChannel1	WristAccChannel2	
0	0	S2	0.0	0.9162	0.0312	-0.0392	0.071228	4.338074	-0.375000	1.062500
1	1	S2	0.0	0.9130	0.0324	0.0478	0.113983	-2.784729	-0.562500	0.046875
2	2	S2	0.0	0.9138	0.0362	0.0558	-0.137283	-2.552795	-0.562500	0.046875
3	3	S2	0.0	0.9080	0.0166	0.0850	-0.063126	-2.798462	-0.578125	0.046875
4	4	S2	0.0	0.9146	0.0366	0.0846	1.487228	-4.518127	-0.578125	0.046875
...
517951	36843	S1	0.0	0.8968	-0.1138	-0.2486	-0.091324	-2.186584	-0.390625	-0.015625
517952	36844	S1	0.0	0.8910	-0.1074	-0.2710	-0.163925	-1.922607	-0.406250	-0.046875
517953	36845	S1	0.0	0.8786	-0.0952	-0.2940	0.071228	-2.622986	-0.359375	0.000000
517954	36846	S1	0.0	0.8828	-0.0956	-0.2848	-0.112381	-3.187561	-0.406250	-0.015625
517955	36847	S1	0.0	0.8882	-0.0984	-0.2694	1.424606	-3.361511	-0.375000	-0.015625

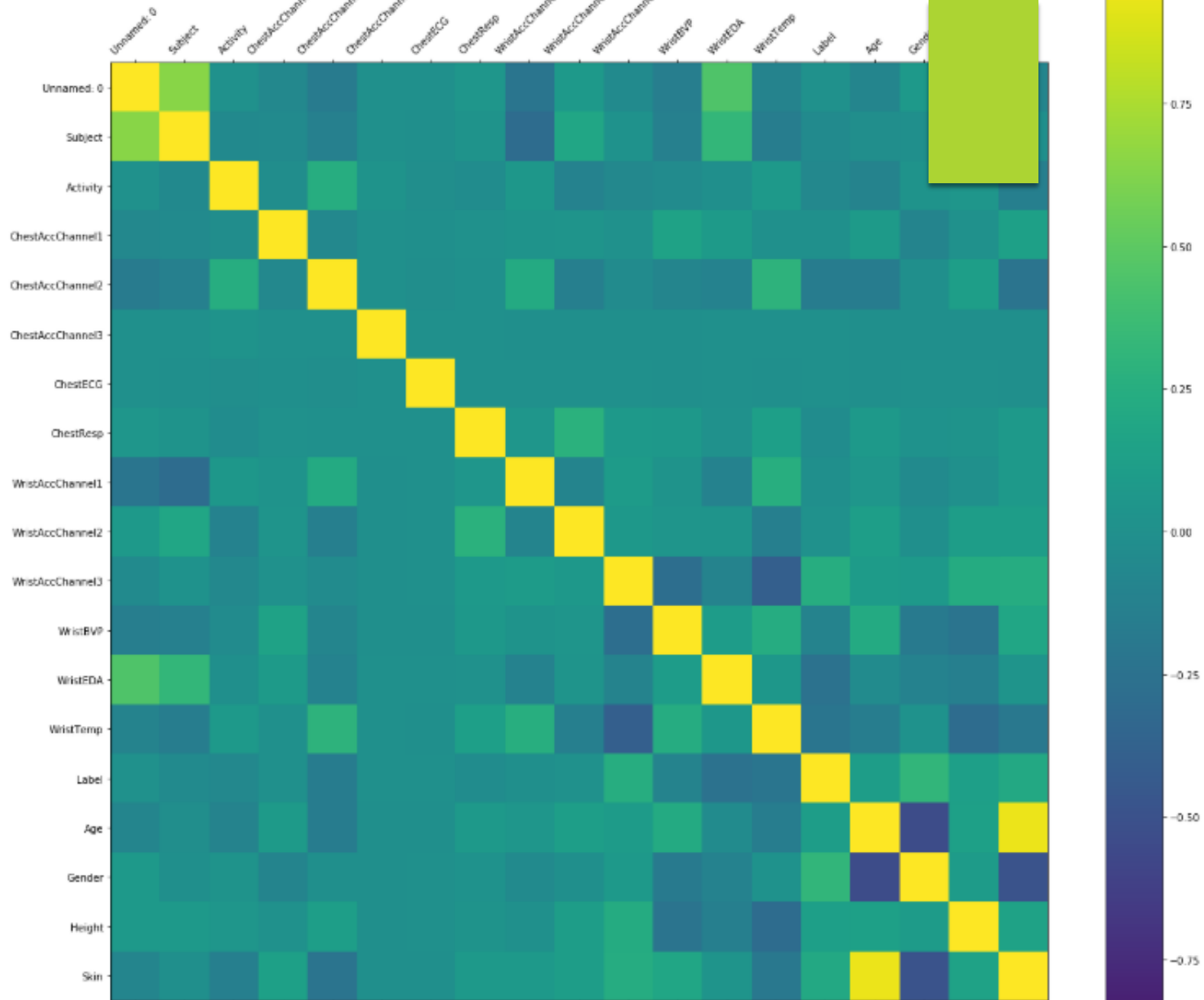
517956 rows x 21 columns



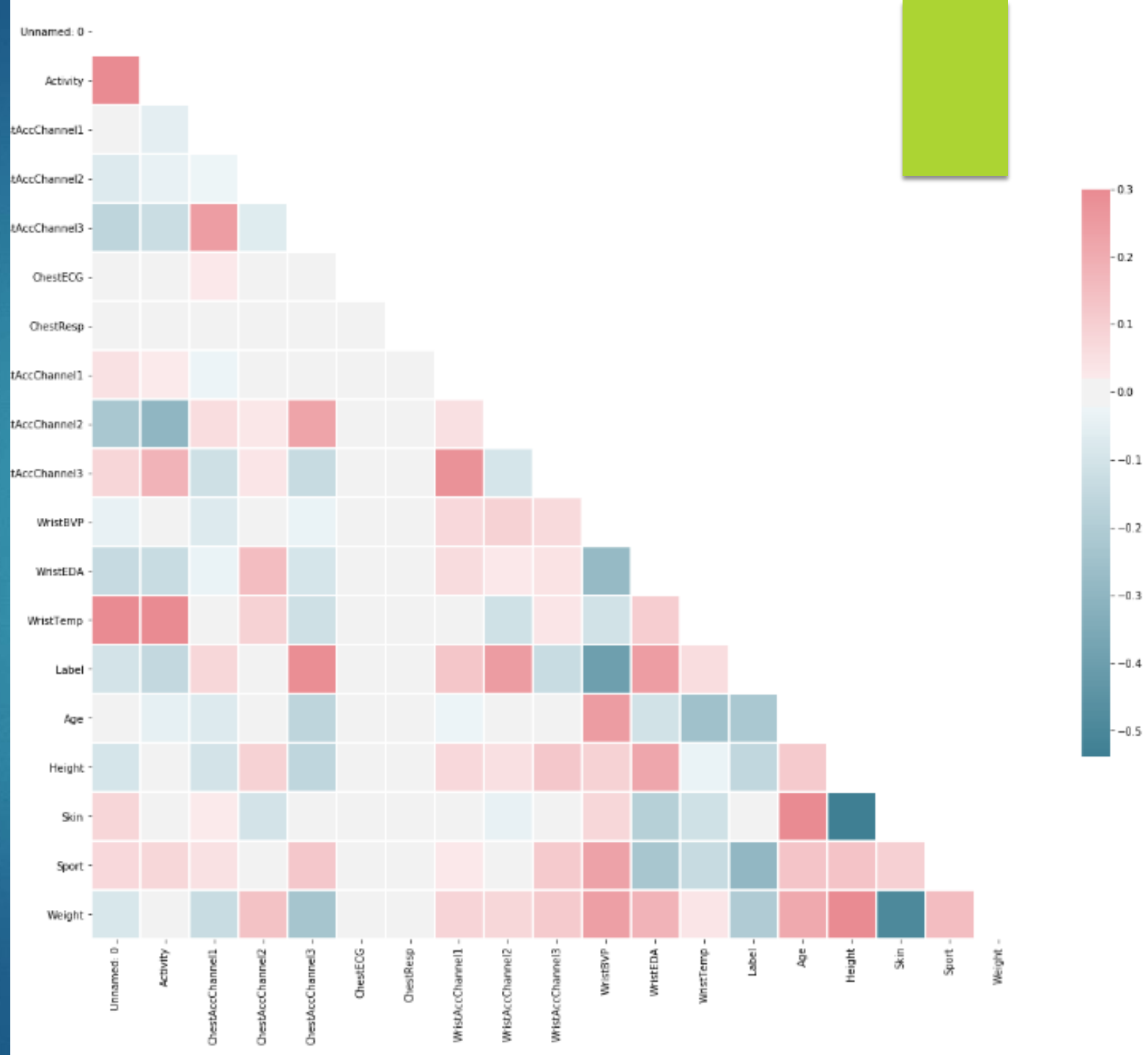
Dataframe

Visualisation

- Matrice de correlation:
- On remarque peu de correlation entre l'activité et les autres différentes données hormis potentiellement ChestAccChannel2



► Visualisation seaborn:



MODELISATION

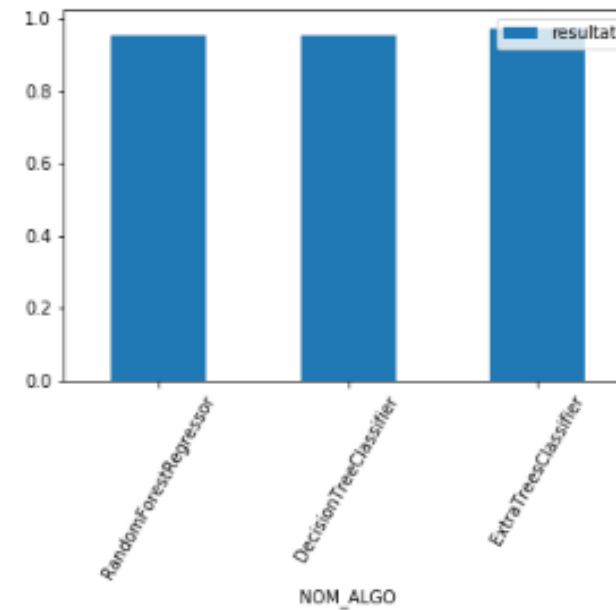
- ▶ Random forest >85%
- ▶ Decision tree Classifier
- ▶ ExtraTreeClassifier

Out[145]:

	resultat	algorithme
NOM_ALGO		
RandomForestRegressor	0.952305	(DecisionTreeRegressor(ccp_alpha=0.0, criterio...
DecisionTreeClassifier	0.956128	DecisionTreeClassifier(ccp_alpha=0.0, class_we...
ExtraTreesClassifier	0.975774	(ExtraTreeClassifier(ccp_alpha=0.0, class_weig...

```
arbre [158]: df[["resultat"]].plot(kind='bar', rot=60)
```

Out[158]: <matplotlib.axes._subplots.AxesSubplot at 0x26dcc862760>



API DJANGO

```
PS C:\Users\33614\Desktop\DataVizProjet> cd .\DjangoRestML\
PS C:\Users\33614\Desktop\DataVizProjet\DjangoRestML> python manage.py runserver
Performing system checks...

System check identified no issues (0 silenced).

You have 15 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin,
auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
February 01, 2020 - 10:19:00
Django version 2.1, using settings 'DjangoRestML.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
Not Found: /
[01/Feb/2020 10:19:48] "GET /App/predict HTTP/1.1" 301 0
Not Found: /app/predict
Internal Server Error: /App/predict/
Traceback (most recent call last):
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\django\core\handlers\exception.py", line
34, in inner
    response = get_response(request)
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\django\core\handlers\base.py", line 156,
in _get_response
    response = self.process_exception_by_middleware(e, request)
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\django\core\handlers\base.py", line 154,
in _get_response
    response = response.render()
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\django\template\response.py", line 106,
in render
    self.content = self.rendered_content
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\rest_framework\response.py", line 72, in
rendered_content
    ret = renderer.render(self.data, accepted_media_type, context)
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\rest_framework\renderers.py", line 723,
in render
    template = loader.get_template(self.template)
  File "C:\Users\33614\AppData\Local\Programs\Python\Python38\lib\site-packages\django\template\loader.py", line 19, in
get_template
    raise TemplateDoesNotExist(template_name, chain=chain)
```

127.0.0.1:8000/App/predict/

Django REST framework

Predict

OPTIONS

GET /App/predict/

HTTP 405 Method Not Allowed
Allow: POST, OPTIONS
Content-Type: application/json
Vary: Accept

```
{
  "detail": "Method \"GET\" not allowed."
}
```

Media type: application/json

Content:

POST