Euler angles

January 11, 2021

[1]:
```
import sys
sys.path.append("../")
from ortho_lib3 import *
from ortho_plot import *
from scipy.stats import entropy
from scipy.signal import correlate2d
import pandas as pd
from scipy.spatial.transform import Rotation as R
import math
```

[2]:
```
def get_exercises_from_patients(patients, exercise):
    exercises = {}

    for p in patients:
        ex = files_category.get_exercises(p, ex_type=exercise)
        ex1 = ex[0]
        exercises[p] = ex1

    return exercises
```

[3]:
```
def get_dfs_dict_rotation(category, exercises):
    dfs_dict = {}

    for patient, exercise in exercises.items():
        path = category.fullpath(pat_id = patient, exercise = exercise)
        rotation_df = exercise_to_df_with_rotation(path).reset_index(drop=True)
        if rotation_df['frame'].max() > 200:
            continue
        dfs_dict[patient] = rotation_df

    return dfs_dict
```

[4]:
```
# choose either 1 category and 2 sensors, or 2 categories and 1 sensor
directory = '..//transformed_data/'
categories = ['Category_1', 'Category_3']
exercise_type = 'AB'
patient = '3'
```

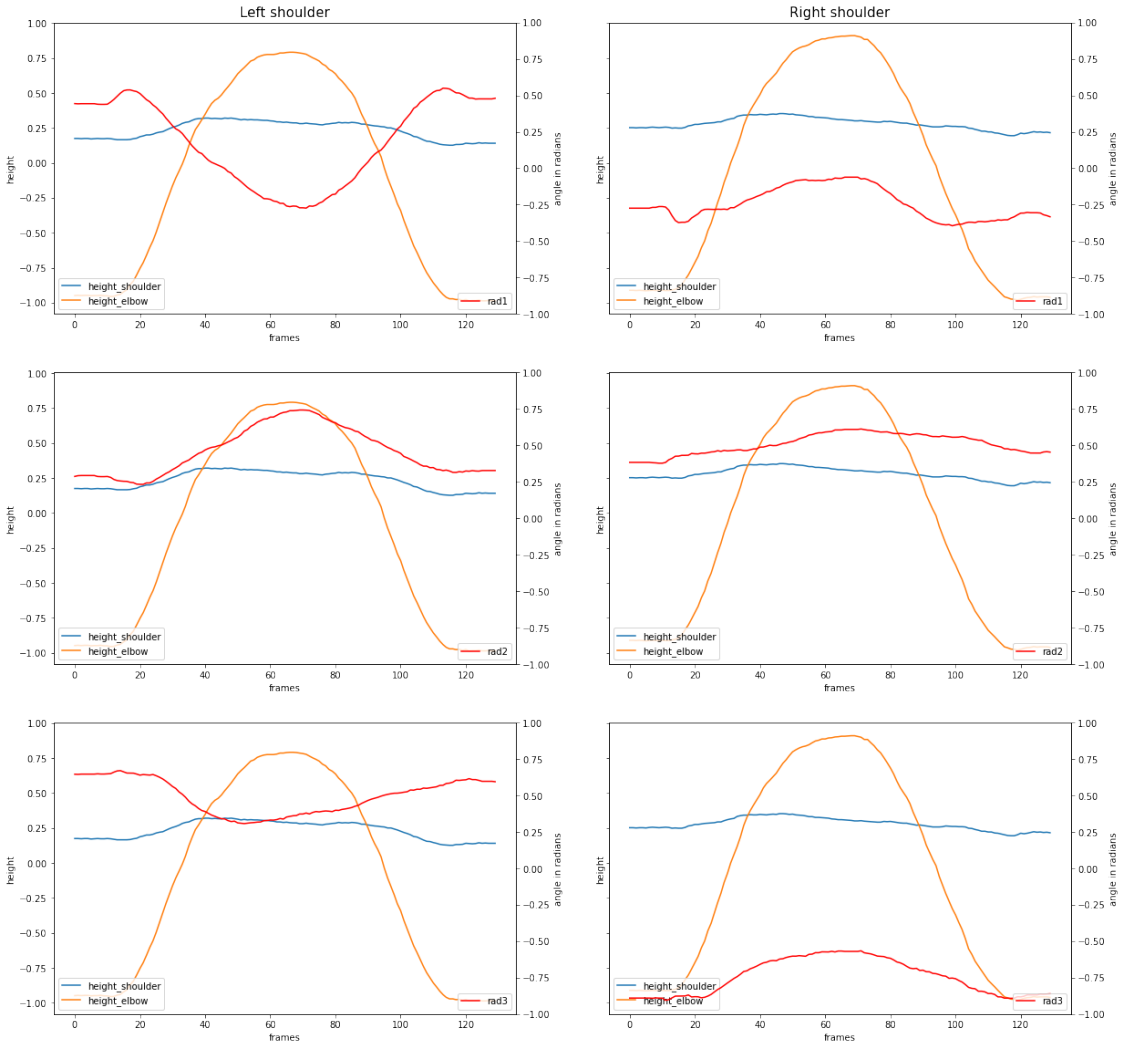
```
sensors = ['4']
rotation = 'XYZ'

file = os.path.join(directory, categories[0], patient, exercise_type + '1.txt')
df = exercise_to_df_with_rotation(file)
df = get_df_with_euler(df, 'XYZ')

#df
```

[5]:
```
plot_angles_shoulder_elbow_height(df)
```

Rotation shoulders vs. height elbow & shoulder



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