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Import file.txt in workspace and export it as a matrix

```
A=Mocapwristmovement;
```

Normalize respect time

All the row from 8 column to 19 column must be subtracted from first row supposed to be at time 0. Only for motion capture.

```
A_norm = A(:,8 : 19) -A(1,8 : 19);
```

Make the shoulder the frame zero of the kinematic chain

At all the columns x,y,z for all the rows of elbow, wrist,hand must be subtracted all the rows of the column x,y,z of the shoulder A_norm has 12 columns so: shoulder columns : 1,2,3 ---> x,y,z elbow columns: 4,5,6 ---> x,y,z wrist columns: 7,8,9 ---> x,y,z hand columns: 10,11,12 ---> x,y,z

```
% P_elbow - P_shoulder
A_elb_x = A_norm(:,4)-A_norm(:,1);
A_elb_y = A_norm(:,5)-A_norm(:,2);
A_elb_z = A_norm(:,6)-A_norm(:,3);
A_elb = [A_elb_x,A_elb_y,A_elb_z];

%P_wrist - P_shoulder
A_wrist_x = A_norm(:,7)-A_norm(:,1);
A_wrist_y = A_norm(:,8)-A_norm(:,2);
A_wrist_z = A_norm(:,9)-A_norm(:,3);
A_wrist = [A_wrist_x,A_wrist_y,A_wrist_z];

%P_hand - P_shoulder
A_hand_x = A_norm(:,10)-A_norm(:,1);
A_hand_y = A_norm(:,11)-A_norm(:,2);
A_hand_z = A_norm(:,12)-A_norm(:,3);
A_hand = [A_hand_x,A_hand_y,A_hand_z];

%%rebulid the final matrix
Mocap_wrist_movement= [A(:,1:7),A_norm(:,8:10),A_elb,A_wrist,A_hand];
[r,c]=size(Mocap_wrist_movement);
```

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