Zimbra **daspandilatif@telecom-sudparis.eu**

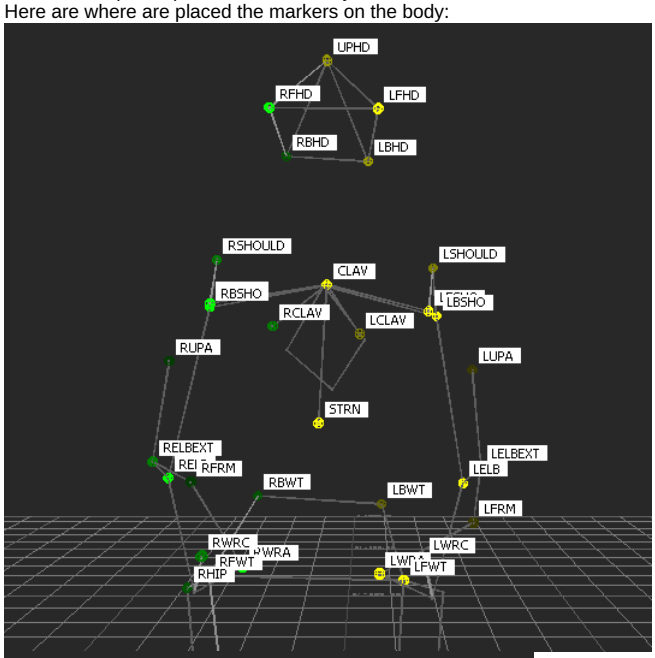
Re: Reflections-LaCassiopea-MocapLab-GestureRecognition

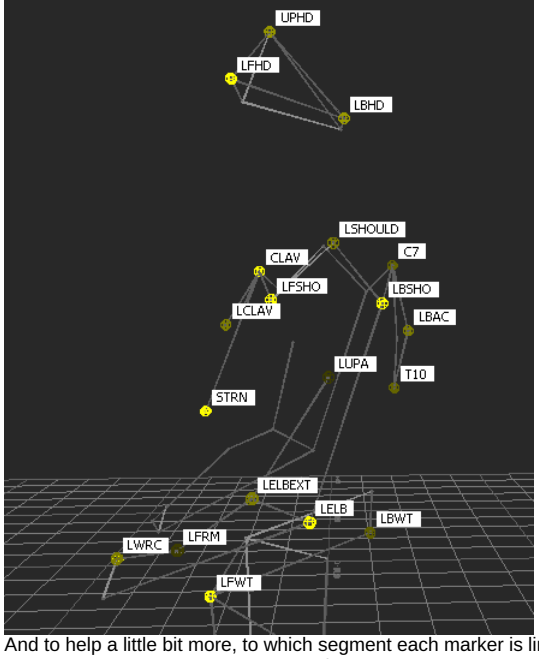
From : Boris Dauriac <boris.dauriac@mocaplab.com> Fri, 28 Jun, 2024 11:14
Subject : Re: Reflections-LaCassiopea-MocapLab-GestureRecognition 3 attachments
To : Decky ASPANDI LATIF <decky.aspandi_latif@telecom-sudparis.eu>
Cc : ZAHARIA Titus <titus.zaharia@telecom-sudparis.eu>, remi brun <remi.brun@mocaplab.com>

Hi Decky & Titus,

Sorry for the late reply,

Here is the zip file I promised on monday.
Here are where are placed the markers on the body:





And to help a little bit more, to which segment each marker is linked:
MARKER="UPHD" SEGMENT="Head"
MARKER="LFHD" SEGMENT="Head"
MARKER="RFHD" SEGMENT="Head"
MARKER="LBHD" SEGMENT="Head"
MARKER="RBHD" SEGMENT="Head"
MARKER="C7" SEGMENT="Spine"
MARKER="T10" SEGMENT="Spine"
MARKER="LBAC" SEGMENT="Spine"
MARKER="RBAC" SEGMENT="Spine"
MARKER="CLAV" SEGMENT="Spine"
MARKER="STRN" SEGMENT="Spine"
MARKER="LCLAV" SEGMENT="Spine"
MARKER="RCLAV" SEGMENT="Spine"
MARKER="LFSHO" SEGMENT="LeftShoulder"
MARKER="LSHOULD" SEGMENT="LeftShoulder"
MARKER="LBSHO" SEGMENT="LeftShoulder"
MARKER="LUPA" SEGMENT="LeftArm"
MARKER="LELB" SEGMENT="LeftArm"

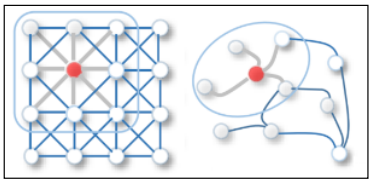
MARKER="LELBEXT" SEGMENT="LeftArm"
MARKER="LFRM" SEGMENT="LeftForeArm"
MARKER="LWRA" SEGMENT="LeftForeArm"
MARKER="LWRB" SEGMENT="LeftForeArm"
MARKER="LWRC" SEGMENT="LeftHand"
MARKER="LWRD" SEGMENT="LeftHand"
MARKER="RFSHO" SEGMENT="RightShoulder"
MARKER="RSHOULD" SEGMENT="RightShoulder"
MARKER="RBSHO" SEGMENT="RightShoulder"
MARKER="RUPA" SEGMENT="RightArm"
MARKER="RELB" SEGMENT="RightArm"
MARKER="RELBEXT" SEGMENT="RightArm"
MARKER="RFRM" SEGMENT="RightForeArm"
MARKER="RWRA" SEGMENT="RightForeArm"
MARKER="RWRB" SEGMENT="RightForeArm"
MARKER="RWRC" SEGMENT="RightHand"
MARKER="RWRD" SEGMENT="RightHand"
MARKER="LFWT" SEGMENT="Hips"
MARKER="RFWT" SEGMENT="Hips"
MARKER="LBWT" SEGMENT="Hips"
MARKER="RBWT" SEGMENT="Hips"

https://drive.google.com/file/d/1Ou7qxpSTqflAjx4WMBrEatTrLQb8lbCt/view?usp=sharing
In the zip file you should find a 1057 csv files with each markers coordinates (Z is up)
Also in Annotation_gloses.csv is a tabulation separated columns.
With Filename, Is the sign done with one or two hands (Oui/Non), Is the right hand near a body part (Visage, Torse, Main, Autre, "")
Empty labels in the last column means that the right hand is not near any parts.

The Is the sign done with one or two hands (Oui/Non) is ~70% Non.
For the second task:
Mains ~ 40 %
"" ~27 %
Visage ~ 20 %
Torse ~ 7 %
Autre ~ 6 %

I am available if needs be.

On Fri, 21 Jun 2024 at 15:26, Decky ASPANDI LATIF <decky.aspandi_latif@telecom-sudparis.eu> wrote:

> Hi Boris,
>
> Thank you for the email.
>
> > No problem on our side to submit the article on arXiv.
> > For the visualisation here is the video from one sign (Femme).
> >
> > We have a lot more tasks we could investigate, from difficult tasks such as what hand shapes classification with ~60 very imbalanced classes, detection of symmetry, Type of mouvements (Vertical, Horizontal, Depth)...
> > Just a reminder, I already gave you 24 signs not labelled in the dataset, it seems it has been ignored for now.
>
> I have submitted the article on the arxiv and it can be found here: https://arxiv.org/abs/2406.12440. In overall, I think this work can be extended to reach a publication level: it is just missing a bit more experiments and analysis (but the idea is there). This will be feasible with more tasks that you mentioned. As for the current data (the 24 unlabelled signs), I was not aware and if this is the case, then this data can be used on the current setting for feature learning during pre-text taxt processing.
>
> > For the graph representation part I am not sure to understand, do you mean you need more data from us?
>
> The graph representation still works with the current data format that you provided. The main differences from using the matrix format (e.g. image) is that we model the data input as set of nodes (x,y,z) connecting with edges (between certain nodes, e.g. nodes betwen finger etc.) as graph - contrast with current matrix format where the input data is 2D matrix of, for instance, some rendered skeleton view - or the raw csv data that is used in current form. Examples is on the image below with matrix representation on the left and graph on the right. I could explain further perhaps on the next meeting for more clarity.
>
> 
>
> > I think that a meeting would be more efficient than discussing by mail, would you be available next week to discuss this project futur ?
>
> I also agree, if you are available, perhaps we can have joint meeting with Students on the next monday at 14.00, and then we could continue with the possible next work discussion. If not, next Tuesday or Wednesday after 12.00 also works for me. Let me know if this will work well for you.
>
> Best regards,
> Decky

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Une école de l'IMT

From: "boris dauriac" <boris.dauriac@mocaplab.com>
To: "Decky ASPANDI LATIF" <decky.aspandi_latif@telecom-sudparis.eu>
Cc: "ZAHARIA Titus" <titus.zaharia@telecom-sudparis.eu>, "remi brun" <remi.brun@mocaplab.com>
Sent: Monday, 17 June, 2024 12:05:54
Subject: Re: Reflections-LaCassiopea-MocapLab-GestureRecognition

Hi Decky,
No problem on our side to submit the article on arXiv.
For the visualisation here is the video from one sign (Femme).

We have a lot more tasks we could investigate, from difficult tasks such as what hand shapes classification with ~60 very imbalanced classes, detection of symmetry, Type of mouvements (Vertical, Horizontal, Depth)...
Just a reminder, I already gave you 24 signs not labelled in the dataset, it seems it has been ignored for now.

For the graph representation part I am not sure to understand, do you mean you need more data from us?

I think that a meeting would be more efficient than discussing by mail, would you be available next week to discuss this project futur ?

Kind regards
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Boris

On Wed, 12 Jun 2024 at 12:46, Decky ASPANDI LATIF <decky.aspandi_latif@telecom-sudparis.eu> wrote:

> Hi Boris,
>
> This is Decky, and I was supervising the students at la-cassiope with Titus. I would like to ask you whether it is possible to share some visualisations of the skeleton that is provided by us from mocaplab to support the results. We are planning to put it on the documentation paper to be submitted to arxiv. Of this, you can find the draft of the report attached (it concerns several figures on the papers) - paper.pdf. If mocaplab agrees, then we will submit to the arxiv for documentation (it will be published there).
>
> Aside of this, I also put here some reflections of the results achieved by the students, and what can be pursued further. There are several directions possible, mainly to consider:
>
> 1. More data and task:
> 1. More comprehensive task – as opposed to binary task – to account for class imbalanced.
> 2. More unlabeled data to see the true impact of self-supervised learning.
> 2. To use graph representation of the skeleton (that allows for more flexibility in contrast to matrix representation – image). Doing so will also allow for better visualisation, given the data representation is more representative.
> 3. To perform feature learning (to discover pattern of actions) and physic inform method (to instill known physic or mechanic during training of the method) to improve the method predictions.
>
> More detail can be found on the second attachment -reportCSP2024.pdf-, where several follow up work scan be considered and conceived for discovering more in this action/movement analysis – I put on highlighted yellow, the point which may be on interest of MocapLab. This is of course also to adapt to the interest of the MocapLab in general.
>
> Of this, let me know your input and I would be happy to provide more details. I also cc-ed this email to both Titus and Remi for additional communication.
>
> Thanks and best regards,
> Decky
>
> PS. I also just received a forwarded email from Titus of the code of the students on la cassiopea, and I will ask them for more details.

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