four subjects walking data set]]]. this tutorial also uses query definitions that have been previously saved in a [[inspect3d:documentation:files:q3d_query_file|.q3d file]]. [[[https://www.has-motion.com/download/examples/ankleangles.q3d|ankleangles.q3d]]]. ===== load the library ===== as with previous tutorials, we begin by loading the library and defining the queries relevant to our question. 1. click i3dloadlibrary.png **load library** in the [[inspect3d:documentation:dialogs:toolbar|toolbar]] to open the load library dialog. 2. click **browse** and select the folder where the data is stored. 3. click **load** button to import the data. ===== load queries and compute groups ===== for this tutorial we will load previously saved query definitions and use them to calculate our specific groups. 1. click on the i3dgroups.png **query definitions** icon on the [[inspect3d:documentation:dialogs:toolbar|toolbar]] and then click on i3dopengroupdef.png **load query def & compute groups**. 2. select the ankleangles.q3d file with the saved query definitions and **open** them. three groups will now appear in the **groups** list: ankle_angle_x, ankle_angle_y, and ankle_angle_z. clicking on any of the groups will show that each of the four workspaces is associated with that group. ===== visualize the groups ===== inspect3d_ankle_angles_(four_subjects_walking).png we can visualize the groups individually and collectively in different plots in the queried data area. for a full overview of how to visualize data, see the [[inspect3d:tutorials:load_and_view_data|tutorial]]. 1. to start, click on i3dshowoptions.png **show options**. 2. under **plotting options** choose 2 **graph rows** and 2 **graph columns** to create a 2x2 set of plots in the queried data area. 3. close the show options dialog. 4. with the top-left plot selected (this will be indicated with a light-grey border), select the ankle_angle_x group, select all workspaces, and then plot the raw sequences. 5. select the top-right plot and plot the raw sequences from the ankle_angle_y group's workspaces. 6. select the bottom-left plot and plot the raw sequences from the ankle_angle_z group's workspaces. 7. select the bottom-right plot, select all groups and all workspaces, and plot the group means. ===== export graphs ===== export_exportgraphoption.png it is possible now to export the visualizations to one of four image formats: jpg, pdf vector graphic, png, or bmp. 1. right-click the bottom-right plot and select **export graph...** from the context menu. 2. in the export graph dialog, choose your desired **export path**, leave **use current size** checked, and set the **format** to ".pdf (vector graphics)". 3. click **save**. inspect3d_export_graph_menu.png 4. alternatively, export all four graphs collectively by selecting i3d_file_export_graphs.png **export graphs** on the [[inspect3d:documentation:dialogs:toolbar|toolbar]]. 5. in the export graph dialog, choose your desired **export path**, uncheck **use current size**, specify height and width to be 400 pixels each, and set the **format** to ".jpg". ===== export signals to text ===== inspect3d_export_results_settings.png alternatively, we can export our signal data to a text format. 1. click i3dexportpcaresults.png **export results** on the application toolbar. 2. in the export results dialog's **definition** section, set the **export type** to signals, the **input data** to all queried data, and select both **workspace mean** and workspace std. dev.. 3. in the export results dialog's **export result options** section, leave the default **export format** and **precision** and click **generate preview**. 4. the **table** of results will populate and you can scroll in both directions to inspect the text that will be exported. for each signal group, we can see in the table that each workspace's mean and standard deviation gets its own column and that there are 101 rows, one for each normalized time point. note that resizing the dialog prioritizes any additional space for the table to make it easier to view large output files. 5. specify a **results file name** and then click **export results** to finalize the export. ===== export metrics to text ===== we can also export metrics based on the data to a text format. 1. returning to the export results dialog's **definition** section, set the **export type** to metrics, set **calculate results for** to workspaces, and select both **minimum** and **maximum**. 2. in the export results dialog's **export result options** section, click **generate preview**. for each signal group, we can see that the table contains each workspace's minimum mean value and maximum mean value. 3. back in the main application window, click on the top-left plot. 4. in the export results dialog's **definition** section, set **input

data** to active plot data 5. click **generate preview** again. now we can see that our selected metrics (minimum and maximum) will only be exported to the ankle_angle_x traces, since this is the data on the currently active plot. 6. specify a **results file name** and then click **export results** to finalize the export. ===== perform pca ===== in order to export [[sift:principal_component_analysis:principal_component_analysis|principal component analysis]] (pca)results, we have to first calculate the pca results! for a full overview of how to perform pca and interpret some of the results, see the [[inspect3d:tutorials:perform_principal_component_analysis|tutorial]]. 1. ensure that all groups and workspaces are selected in the **groups** and **workspaces** lists. 2. open the i3d_pcaoptions2.png **pca options** dropdown menu on the [[inspect3d:documentation:dialogs:toolbar|toolbar]]. 3. set **number pcs** to 4 and ensure that **use workspace mean** is checked. 4. click i3d_runpca.png **run pca**. 5. the results of these calculations will automatically populate the pca graphs. if these aren't already displayed, click i3d_pcashowgraphs.png **show pca graphs** in the i3d_pcaoptions2.png **pca options** dropdown menu. because the traces for each signal cluster around a distinctive mean value, almost all of the variance in these groups can be captured by a single principal component. inspect3d_four_plots_pca_(four_subjects_walking).png ===== export pca results ===== inspect3d_export_results_settings_pca.png now that we have performed pca, we have results to export. 1. click i3dexportpcaresults.png **export results** on the application toolbar. 2. in the export results dialog's **definition** section, set the **export type** to pca results and select the **group scores**, **group scores std. dev.**, and **variance explained** options. 3. in the export results dialog's **export result options** section, leave **export format** as standard ascii and **precision** as 4. 4. click **generate preview**. we can see that each signal's group pc score mean and standard deviation is shown for each of the selected principal components and that the variance explained is shown for all computed principal components. note here that each row in the export table is now a principal component and not a normalized time point as for the other export types. also note that inspect3d does have the ability to export information about all of the principal components that were calculated, not only the ones that were selected. ===== recap ===== in this tutorial you learned how to export the traces visualized in inspect3d to common image formats. you also learned how to export three types of data to text: signals, metrics, and pca results. ===== navigate tutorials ===== previous: [[inspect3d:tutorials:perform_principal_component_analysis|tutorial 3: perform principal component analysis]] **inspect3d getting started tutorials** next: finished! }}}}}}}}}}}}}}}}}}}}}}}}}}}}}}