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In[ ]:= (**Input identifying information**)

In[ ]:= date = ToString[Evaluate[Input["Input the date of the experiment"]]]

In[ ]:= mouse = ToString[Evaluate[Input["Input the mouse identity (e.g. Mouse123)"]]]

In[ ]:= sessionNumBef = Evaluate[Input["Input the session number before manipulation"]]

In[ ]:= sessionNumAft = Evaluate[Input["Input the session number after manipulation"]]

In[ ]:= discROIsQ = ToString[Evaluate[Input["Are there any non-useable ROIs?"]]]

In[ ]:= numROIs =
    Length[FileNames["*", File[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
        mouse, "/Session", ToString[sessionNumBef], "/dFOverF0TimeSeries/"]]]];

In[ ]:= If[discROIsQ == "Yes",
    nonUserROIs = ToExpression[Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
        date, "/", mouse, "/Session", ToString[sessionNumAft], "/", date, "_", mouse,
        "_Session", ToString[sessionNumAft], "_nonUseableROIs.txt"]]]; nonUserROIs = {}];

In[ ]:= sigROIsBef = Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
    mouse, "/Session", ToString[sessionNumBef], "/LocomotionData/", date, "_",
    mouse, "_Session", ToString[sessionNumBef], "_locModROIs.txt"], "List"];

In[ ]:= sigROIsAft = Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
    mouse, "/Session", ToString[sessionNumAft], "/LocomotionData/", date, "_",
    mouse, "_Session", ToString[sessionNumAft], "_locModROIs.txt"], "List"];

In[ ]:= sigRespROIs = DeleteCases[Table[
    If[MemberQ[sigROIsBef, n] && MemberQ[sigROIsAft, n], n, Null], {n, 1, numROIs}], Null];
(**ROIs are only acceptable if they were acceptable both before and after**)

In[ ]:= nonSigRespROIs = Complement[Range[numROIs], sigRespROIs]

In[ ]:= noGoodROIs = DeleteDuplicates[Join[nonSigRespROIs, nonUserROIs]]

In[ ]:= usefulROIs = Complement[Range[numROIs], noGoodROIs]

In[ ]:= (**For each ROI that can be used for paired analysis,
    upload the locomotion modulation index for the 2 sessions,
    and pair the indices for the sessions**)

In[ ]:= Table[Evaluate@ToExpression[StringJoin["locModBef", ToString[n]]] = ToExpression /@
    Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/", mouse, "/Session",
        ToString[sessionNumBef], "/LocomotionData/", date, "_", mouse, "_Session",
        ToString[sessionNumBef], "_", "SummaryLocModIndex_Baseline15sAway_ROI",
        ToString[n], ".txt"], "List"]]; {n, usefulROIs}];

In[ ]:= Table[Evaluate@ToExpression[StringJoin["locModAft", ToString[n]]] = ToExpression /@
    Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/", mouse, "/Session",
        ToString[sessionNumAft], "/LocomotionData/", date, "_", mouse, "_Session",
        ToString[sessionNumAft], "_", "SummaryLocModIndex_Baseline15sAway_ROI",
        ToString[n], ".txt"], "List"]]; {n, usefulROIs}];

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In[ ]:= Table[Evaluate@ToExpression[StringJoin["locModPaired", ToString[n]]] =
  {n, Flatten@{ToExpression[StringJoin["locModBef", ToString[n]]],
    ToExpression[StringJoin["locModAft", ToString[n]]]}}, {n, usefulROIs}];

In[ ]:= (**For each ROI that can be used for paired analysis,
  upload the peri-loc-onset Z-scored dF/F for the 2 sessions**)

In[ ]:= Table[Evaluate@ToExpression[StringJoin["periOnTraceBef", ToString[n]]] =
  ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
    mouse, "/Session", ToString[sessionNumBef], "/LocomotionData/", date, "_", mouse,
    "_Session", ToString[sessionNumBef], "_", "PeriOnsetZDFF_PreAndPostBaseline_ROI",
    ToString[n], ".txt"], "List"]]; {n, usefulROIs}];

In[ ]:= Table[Evaluate@ToExpression[StringJoin["periOnTraceAft", ToString[n]]] =
  ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
    mouse, "/Session", ToString[sessionNumAft], "/LocomotionData/", date, "_", mouse,
    "_Session", ToString[sessionNumAft], "_", "PeriOnsetZDFF_PreAndPostBaseline_ROI",
    ToString[n], ".txt"], "List"]]; {n, usefulROIs}];

In[ ]:= (**For each ROI that can be used for paired analysis,
  upload the peri-loc-offset Z-scored dF/F for the 2 sessions**)

In[ ]:= Table[Evaluate@ToExpression[StringJoin["periOffTraceBef", ToString[n]]] =
  ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
    mouse, "/Session", ToString[sessionNumBef], "/LocomotionData/", date, "_", mouse,
    "_Session", ToString[sessionNumBef], "_", "PeriOffsetZDFF_PreAndPostBaseline_ROI",
    ToString[n], ".txt"], "List"]]; {n, usefulROIs}];

In[ ]:= Table[Evaluate@ToExpression[StringJoin["periOffTraceAft", ToString[n]]] =
  ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/",
    mouse, "/Session", ToString[sessionNumAft], "/LocomotionData/", date, "_", mouse,
    "_Session", ToString[sessionNumAft], "_", "PeriOffsetZDFF_PreAndPostBaseline_ROI",
    ToString[n], ".txt"], "List"]]; {n, usefulROIs}];

In[ ]:= (**Visualize locomotion modulation data for each ROI for the 2 sessions**)

In[ ]:= Manipulate[{ListLinePlot[{ToExpression[StringJoin["periOnTraceBef", ToString[n]]],
  ToExpression[StringJoin["periOnTraceAft", ToString[n]]]},
  PlotStyle -> {Black, Green}, PlotRange -> All],
  ListLinePlot[{ToExpression[StringJoin["periOffTraceBef", ToString[n]]],
  ToExpression[StringJoin["periOffTraceAft", ToString[n]]]},
  PlotStyle -> {Black, Green}, PlotRange -> All],
  ToExpression[StringJoin["locModPaired", ToString[n]]]}, {n, usefulROIs}];

In[ ]:= (*****)

In[ ]:= Export[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/", mouse,
  "/PairedAnalysis/", date, "_", mouse, "_pairedROIsLoc.txt"], usefulROIs];

In[ ]:= Table[Export[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/", date, "/", mouse,
  "/PairedAnalysis/", date, "_", mouse, "_locModPaired_ROI", ToString[n], ".txt"],
  ToExpression[StringJoin["locModPaired", ToString[n]]]], {n, usefulROIs}];

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