```
(***Note: Values for generating these plots are embedded within the raw data set,
which is too large to upload onto the public data repository***)

v1Color = RGBColor["#ff1f5b"];

lpColor = RGBColor["#009ade"];

lmColor = RGBColor["#f28522"];

controlColor = Black;

dateMouseListControl = {{"012122", "Mouse22550"}, {"012822", "Mouse22549"},
    {"121621", "Mouse22525"}, {"121721", "Mouse22599"}, {"011122", "Mouse22598"},
    {"032923", "Mouse23149"}, {"033023", "Mouse23128"}, {"033123", "Mouse23149"},
    {"070323", "Mouse23149"}, {"070423", "Mouse23128"}, {"070723", "Mouse23128"}};

(***V1 axons, eOPN3***)

dateMouseListV1axons =
  {{"012722", "Mouse22504"}, {"121821", "Mouse22485"}, {"062723", "Mouse23154"},
   {"062723", "Mouse23182"}, {"063023", "Mouse23154"}, {"063023", "Mouse23182"}};

(***LP axons, eOPN3***)

dateMouseListLPaxons =
  {{"050123", "Mouse23133"}, {"050123", "Mouse23142"}, {"050323", "Mouse23133"},
   {"050323", "Mouse23142"}, {"051823", "Mouse23198"}, {"052623", "Mouse23198"},
   {"052623", "Mouse23105"}, {"062923", "Mouse23139"}, {"070223", "Mouse23139"}};

(***LM axons, eOPN3***)

dateMouseListLMaxons =
  {{"062623", "Mouse23152"}, {"062823", "Mouse23152"}, {"062923", "Mouse23190"},
   {"070123", "Mouse23190"}, {"070723", "Mouse23666"}, {"071223", "Mouse23666"}};

(**********************************)

pairedROIsListControl =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListControl[[n, 1]], "/", dateMouseListControl[[n, 2]],
      "/PairedAnalysis/", dateMouseListControl[[n, 1]], "_", dateMouseListControl[[n, 2]],
      "_pairedROIsPupil.txt"], "List"], {n, 1, Length[dateMouseListControl]}];

pairedROIsListV1axons =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListV1axons[[n, 1]], "/", dateMouseListV1axons[[n, 2]],
      "/PairedAnalysis/", dateMouseListV1axons[[n, 1]], "_", dateMouseListV1axons[[n, 2]],
      "_pairedROIsPupil.txt"], "List"], {n, 1, Length[dateMouseListV1axons]}];

pairedROIsListLPaxons =
  Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
      dateMouseListLPaxons[[n, 1]], "/", dateMouseListLPaxons[[n, 2]],
      "/PairedAnalysis/", dateMouseListLPaxons[[n, 1]], "_", dateMouseListLPaxons[[n, 2]],
      "_pairedROIsPupil.txt"], "List"], {n, 1, Length[dateMouseListLPaxons]}];
```

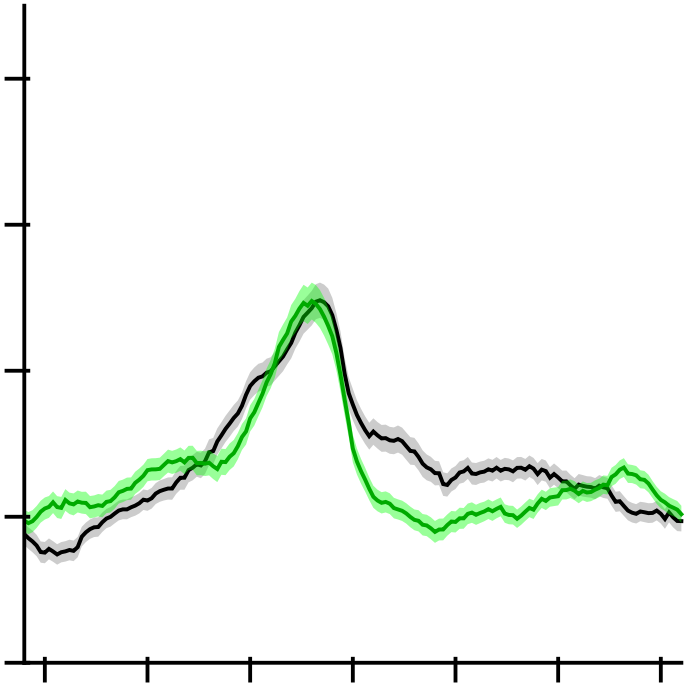
```
In[•]:= pairedROIsListLMaxons =
          Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
              dateMouseListLMaxons[[n, 1]], "/", dateMouseListLMaxons[[n, 2]],
              "/PairedAnalysis/", dateMouseListLMaxons[[n, 1]], "_", dateMouseListLMaxons[[n, 2]],
              "_pairedROIsPupil.txt"], "List"], {n, 1, Length[dateMouseListLMaxons]}];

        (**************)

In[•]:= whiskerCCControlDark =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListControl[[n, 1]], "/", dateMouseListControl[[n, 2]], "/", "Session1",
                "/WhiskerData/", dateMouseListControl[[n, 1]], "_", dateMouseListControl[[n, 2]],
                "_", "Session1", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListControl[[n]]}], {n, 1, Length[dateMouseListControl]}];

In[•]:= whiskerCCControlLED =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListControl[[n, 1]], "/", dateMouseListControl[[n, 2]], "/", "Session2",
                "/WhiskerData/", dateMouseListControl[[n, 1]], "_", dateMouseListControl[[n, 2]],
                "_", "Session2", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListControl[[n]]}], {n, 1, Length[dateMouseListControl]}];

In[•]:= whiskerCCV1axonsDark =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListV1axons[[n, 1]], "/", dateMouseListV1axons[[n, 2]], "/", "Session1",
                "/WhiskerData/", dateMouseListV1axons[[n, 1]], "_", dateMouseListV1axons[[n, 2]],
                "_", "Session1", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListV1axons[[n]]}], {n, 1, Length[dateMouseListV1axons]}];

In[•]:= whiskerCCV1axonsLED =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListV1axons[[n, 1]], "/", dateMouseListV1axons[[n, 2]], "/", "Session2",
                "/WhiskerData/", dateMouseListV1axons[[n, 1]], "_", dateMouseListV1axons[[n, 2]],
                "_", "Session2", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListV1axons[[n]]}], {n, 1, Length[dateMouseListV1axons]}];

In[•]:= whiskerCCLPaxonsDark =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLPaxons[[n, 1]], "/", dateMouseListLPaxons[[n, 2]], "/", "Session1",
                "/WhiskerData/", dateMouseListLPaxons[[n, 1]], "_", dateMouseListLPaxons[[n, 2]],
                "_", "Session1", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListLPaxons[[n]]}], {n, 1, Length[dateMouseListLPaxons]}];

In[•]:= whiskerCCLPaxonsLED =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLPaxons[[n, 1]], "/", dateMouseListLPaxons[[n, 2]], "/", "Session2",
                "/WhiskerData/", dateMouseListLPaxons[[n, 1]], "_", dateMouseListLPaxons[[n, 2]],
                "_", "Session2", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListLPaxons[[n]]}], {n, 1, Length[dateMouseListLPaxons]}];
```

```
In[•]:= whiskerCCLMaxonsDark =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLMaxons[[n, 1]], "/", dateMouseListLMaxons[[n, 2]], "/", "Session1",
                "/WhiskerData/", dateMouseListLMaxons[[n, 1]], "_", dateMouseListLMaxons[[n, 2]],
                "_", "Session1", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListLMaxons[[n]]}], {n, 1, Length[dateMouseListLMaxons]}];

In[•]:= whiskerCCLMaxonsLED =
          Table[Table[ToExpression /@ Import[StringJoin["S:/Imaging/Garrett/FMB208_2PRig/",
                dateMouseListLMaxons[[n, 1]], "/", dateMouseListLMaxons[[n, 2]], "/", "Session2",
                "/WhiskerData/", dateMouseListLMaxons[[n, 1]], "_", dateMouseListLMaxons[[n, 2]],
                "_", "Session2", "_", "dFFwhiskCrossCorr_ROI", ToString[roi], ".txt"], "List"],
            {roi, pairedROIsListLMaxons[[n]]}], {n, 1, Length[dateMouseListLMaxons]}];

In[•]:= catenatedWhiskCCControlDark = Flatten[whiskerCCControlDark, 1];

In[•]:= catenatedWhiskCCControlLED = Flatten[whiskerCCControlLED, 1];

In[•]:= catenatedWhiskCCV1axonsDark = Flatten[whiskerCCV1axonsDark, 1];

In[•]:= catenatedWhiskCCV1axonsLED = Flatten[whiskerCCV1axonsLED, 1];

In[•]:= catenatedWhiskCCLPaxonsDark = Flatten[whiskerCCLPaxonsDark, 1];

In[•]:= catenatedWhiskCCLPaxonsLED = Flatten[whiskerCCLPaxonsLED, 1];

In[•]:= catenatedWhiskCCLMaxonsDark = Flatten[whiskerCCLMaxonsDark, 1];

In[•]:= catenatedWhiskCCLMaxonsLED = Flatten[whiskerCCLMaxonsLED, 1];

In[•]:= (**************)

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCControlDark = Mean[catenatedWhiskCCControlDark];

In[•]:= semCatenatedWhiskCCControlDark = (# / Sqrt@Length[catenatedWhiskCCControlDark]) & /@
          StandardDeviation[catenatedWhiskCCControlDark];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCV1axonsDark = Mean[catenatedWhiskCCV1axonsDark];

In[•]:= semCatenatedWhiskCCV1axonsDark = (# / Sqrt@Length[catenatedWhiskCCV1axonsDark]) & /@
          StandardDeviation[catenatedWhiskCCV1axonsDark];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCLPaxonsDark = Mean[catenatedWhiskCCLPaxonsDark];

In[•]:= semCatenatedWhiskCCLPaxonsDark = (# / Sqrt@Length[catenatedWhiskCCLPaxonsDark]) & /@
          StandardDeviation[catenatedWhiskCCLPaxonsDark];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCLMaxonsDark = Mean[catenatedWhiskCCLMaxonsDark];
```

```
In[•]:= semCatenatedWhiskCCLMaxonsDark = (# / Sqrt@Length[catenatedWhiskCCLMaxonsDark]) & /@
          StandardDeviation[catenatedWhiskCCLMaxonsDark];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCControlLED = Mean[catenatedWhiskCCControlLED];

In[•]:= semCatenatedWhiskCCControlLED = (# / Sqrt@Length[catenatedWhiskCCControlLED]) & /@
          StandardDeviation[catenatedWhiskCCControlLED];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCV1axonsLED = Mean[catenatedWhiskCCV1axonsLED];

In[•]:= semCatenatedWhiskCCV1axonsLED = (# / Sqrt@Length[catenatedWhiskCCV1axonsLED]) & /@
          StandardDeviation[catenatedWhiskCCV1axonsLED];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCLPaxonsLED = Mean[catenatedWhiskCCLPaxonsLED];

In[•]:= semCatenatedWhiskCCLPaxonsLED = (# / Sqrt@Length[catenatedWhiskCCLPaxonsLED]) & /@
          StandardDeviation[catenatedWhiskCCLPaxonsLED];

In[•]:= (***)

In[•]:= meanCatenatedWhiskCCLMaxonsLED = Mean[catenatedWhiskCCLMaxonsLED];

In[•]:= semCatenatedWhiskCCLMaxonsLED = (# / Sqrt@Length[catenatedWhiskCCLMaxonsLED]) & /@
          StandardDeviation[catenatedWhiskCCLMaxonsLED];

In[•]:= (**************)
```

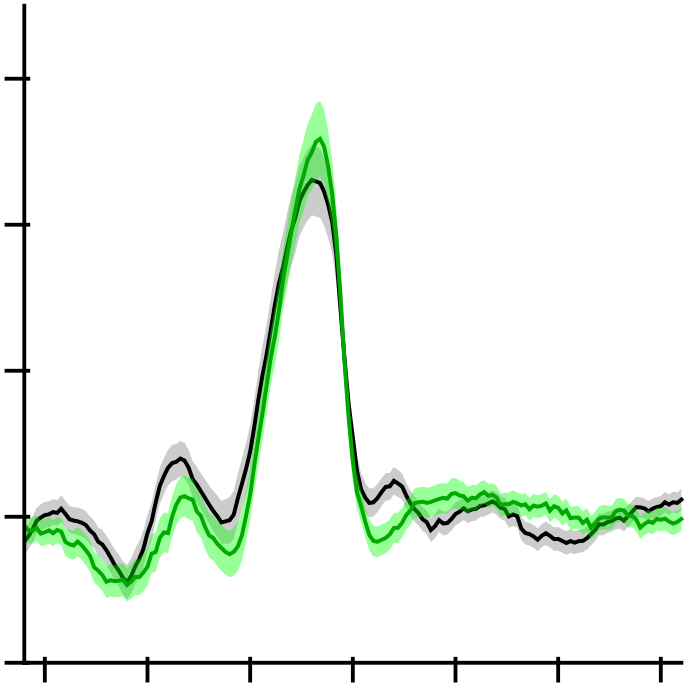
In[ ]:=
```
Show[ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCControlDark,
    Part[#, 2] & /@ meanCatenatedWhiskCCControlDark +
     (Part[#, 2] & /@ semCatenatedWhiskCCControlDark),
    Part[#, 2] & /@ meanCatenatedWhiskCCControlDark -
     (Part[#, 2] & /@ semCatenatedWhiskCCControlDark)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]],
 ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCControlLED,
    Part[#, 2] & /@ meanCatenatedWhiskCCControlLED +
     (Part[#, 2] & /@ semCatenatedWhiskCCControlLED),
    Part[#, 2] & /@ meanCatenatedWhiskCCControlLED -
     (Part[#, 2] & /@ semCatenatedWhiskCCControlLED)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]], AspectRatio → 1]
```

Out[ ]=



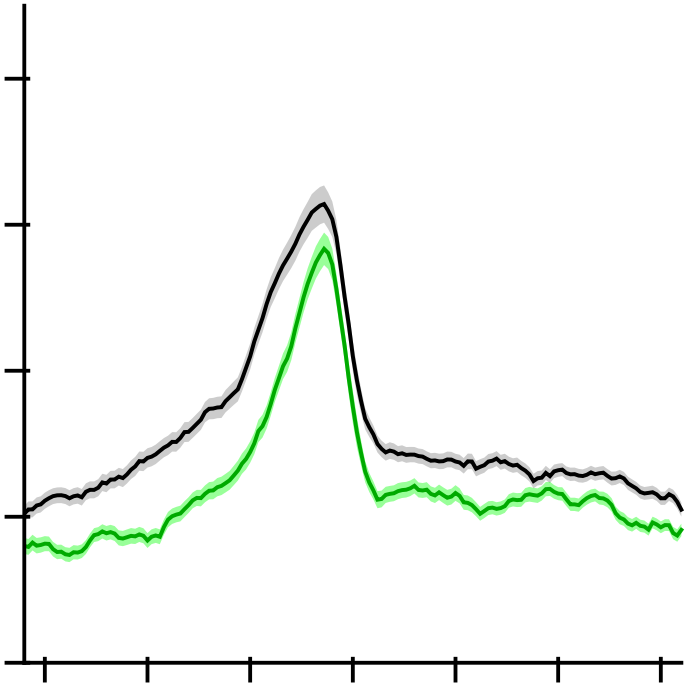
In[ ]:=
```
Show[ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCV1axonsDark,
    Part[#, 2] & /@ meanCatenatedWhiskCCV1axonsDark +
     (Part[#, 2] & /@ semCatenatedWhiskCCV1axonsDark),
    Part[#, 2] & /@ meanCatenatedWhiskCCV1axonsDark -
     (Part[#, 2] & /@ semCatenatedWhiskCCV1axonsDark)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]],
 ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCV1axonsLED,
    Part[#, 2] & /@ meanCatenatedWhiskCCV1axonsLED +
     (Part[#, 2] & /@ semCatenatedWhiskCCV1axonsLED),
    Part[#, 2] & /@ meanCatenatedWhiskCCV1axonsLED -
     (Part[#, 2] & /@ semCatenatedWhiskCCV1axonsLED)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]], AspectRatio → 1]
```

Out[ ]=



In[ ]:=
```
Show[ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCLPaxonsDark,
    Part[#, 2] & /@ meanCatenatedWhiskCCLPaxonsDark +
     (Part[#, 2] & /@ semCatenatedWhiskCCLPaxonsDark),
    Part[#, 2] & /@ meanCatenatedWhiskCCLPaxonsDark -
     (Part[#, 2] & /@ semCatenatedWhiskCCLPaxonsDark)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]],
 ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCLPaxonsLED,
    Part[#, 2] & /@ meanCatenatedWhiskCCLPaxonsLED +
     (Part[#, 2] & /@ semCatenatedWhiskCCLPaxonsLED),
    Part[#, 2] & /@ meanCatenatedWhiskCCLPaxonsLED -
     (Part[#, 2] & /@ semCatenatedWhiskCCLPaxonsLED)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]], AspectRatio → 1]
```

Out[ ]=



In[ ]:=
```
Show[ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCLMaxonsDark,
    Part[#, 2] & /@ meanCatenatedWhiskCCLMaxonsDark +
     (Part[#, 2] & /@ semCatenatedWhiskCCLMaxonsDark),
    Part[#, 2] & /@ meanCatenatedWhiskCCLMaxonsDark -
     (Part[#, 2] & /@ semCatenatedWhiskCCLMaxonsDark)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Gray]}, 1 → {{3}, Directive[Opacity[0.4], Gray]}},
  PlotStyle → {{Black, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]],
 ListLinePlot[{Part[#, 2] & /@ meanCatenatedWhiskCCLMaxonsLED,
    Part[#, 2] & /@ meanCatenatedWhiskCCLMaxonsLED +
     (Part[#, 2] & /@ semCatenatedWhiskCCLMaxonsLED),
    Part[#, 2] & /@ meanCatenatedWhiskCCLMaxonsLED -
     (Part[#, 2] & /@ semCatenatedWhiskCCLMaxonsLED)}, Filling →
   {1 → {{2}, Directive[Opacity[0.4], Green]}, 1 → {{3}, Directive[Opacity[0.4], Green]}},
  PlotStyle → {{Darker@Green, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {-8, 8}, PlotRange → {{-8, 8}, {-0.02, 0.07}}, FrameTicks →
   {{LinTicks[-0.02, 0.07, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[-8, 8, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick, Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]], AspectRatio → 1]
```

Out[ ]=