

# read\_tdt\_using\_neo\_delEEGr

June 16, 2022

## Data organization

```
# TDT Tank directory: FCSV_EEG-220215-173221
# TDT Block directory: Paul-220607-102425
>> gfindlay@tononi-2 /V/f/D/F/O/T/F/Paul-220607-102425> pwd
/Volumes/fscv/Data/FSCV4-Paul/06-07-2022/TDT/FCSV_EEG-220215-173221/Paul-220607-102425
```

## # Block directory contents

```
>> gfindlay@tononi-2 /V/f/D/F/O/T/F/Paul-220607-102425> ls -la
total 729608
drwxrwxr-x 2 root neuropixels      0 Jun  8 14:21 ./
drwxrwxr-x 2 root neuropixels      0 Jun  8 14:20 ../
-rw-rw-r-- 1 root neuropixels    124 Jun  7 10:24 desktop.ini
-rw-rw-r-- 1 root neuropixels 86903080 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels 86903080 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels 86903080 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels 86903080 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels  2883197 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels 17597196 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels   120 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels  21011 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels   23 Jun  7 10:24 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels 151821720 Jun  7 20:17 FCSV_EEG-220215-173221_Paul-220607-102425
-rw-rw-r-- 1 root neuropixels   376 Jun  7 10:24 StoresListing.txt
```

```
[ ]: import neo
from pathlib import Path

block_path = Path("/Volumes/fscv/Data/FSCV4-Paul/06-07-2022/TDT/
↳FCSV_EEG-220215-173221/")
nio = neo.io.TdtIO(block_path)
nio
```

```
[ ]: TdtIO: /Volumes/fscv/Data/FSCV4-Paul/06-07-2022/TDT/FCSV_EEG-220215-173221
nb_block: 1
nb_segment: [2]
signal_streams: [b'EEGf' (chans: 4), b'EEGr' (chans: 4)]
signal_channels: [b'EEGf' 1, b'EEGf' 2, b'EEGf' 3, b'EEGf' 4]
```

```
spike_channels: []
event_channels: [PC1/, PC2/]
```

```
[ ]: assert nio.block_count() == 1
blk = nio.read_block()
blk
```

```
[ ]: Block with 2 segments, 2 groups
file_origin:
'/Volumes/fscv/Data/FSCV4-Paul/06-07-2022/TDT/FCSV_EEG-220215-173221'
# segments (N=2)
0: Segment with 2 analogsignals, 2 events
# analogsignals (N=2)
0: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGf'"
annotations: {'stream_id': '0'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
1: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGr'"
annotations: {'stream_id': '1'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
1: Segment with 2 analogsignals, 2 events
# analogsignals (N=2)
0: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGf'"
annotations: {'stream_id': '0'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
1: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGr'"
annotations: {'stream_id': '1'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
```

```
[ ]: seg0 = nio.read_segment(lazy=False, seg_index=0)
seg0
```

```
[ ]: Segment with 2 analogsignals, 2 events
# analogsignals (N=2)
0: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGf'"
annotations: {'stream_id': '0'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
1: AnalogSignal with 4 channels of length 0; units V; datatype float32
```

```
name: "b'EEGr'"
annotations: {'stream_id': '1'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
```

```
[ ]: seg1 = nio.read_segment(lazy=False, seg_index=1)
seg1
```

```
[ ]: Segment with 2 analogsignals, 2 events
# analogsignals (N=2)
0: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGf'"
annotations: {'stream_id': '0'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
1: AnalogSignal with 4 channels of length 0; units V; datatype float32
name: "b'EEGr'"
annotations: {'stream_id': '1'}
sampling rate: 1.0 Hz
time: 0.0 s to 0.0 s
```

```
[ ]: nio._sigs_lengths
```

```
[ ]: {0: {0: 0, 1: 0}, 1: {0: 0, 1: 0}}
```

```
[ ]: tbk = neo.rawio.tdtrawio.read_tbk("/Volumes/fscv/Data/FSCV4-Paul/06-07-2022/TDT/
↳FCSV_EEG-220215-173221/Paul-220607-102425/
↳FCSV_EEG-220215-173221_Paul-220607-102425.Tbk")
tbk
```

```
[ ]: array([(b'PC1/', b'PC1//', True, 3, 0, 1, 257, 0, 4, 0. ),
          (b'PC1\\', b'PC1/\\', True, 3, 0, 2, 258, 0, 4, 0. ),
          (b'PC2/', b'PC2//', True, 3, 0, 1, 257, 0, 4, 0. ),
          (b'PC2\\', b'PC2/\\', True, 3, 0, 2, 258, 0, 4, 0. ),
          (b'EEGf', b'EEGf', True, 5, 4, 0, 33025, 64, 0, 610.351563),
          (b'EEGr', b'EEGr', True, 5, 4, 0, 33025, 64, 0, 610.351563)],
          dtype=[('StoreName', 'S4'), ('HeadName', 'S16'), ('Enabled', '?'),
                 ('CircType', '<i8'), ('NumChan', '<i8'), ('StrobeMode', '<i8'), ('TankEvType',
                 '<i4'), ('NumPoints', '<i8'), ('DataFormat', '<i8'), ('SampleFreq', '<f8')])
```

```
[ ]: nio._tsq
```

```
[ ]: [array([(151821720, 0, b'', 0, 0, 0.00000000e+00,
0, 0, 0. ),
          ( 20, 34817, b'\x01', 0, 0, 1.65461547e+09,
40, 0, 0. ),
          ( 74, 33041, b'EEGr', 4, 0, 1.65461547e+09,
```

```

40, 0, 610.35156),
    ...,
    (      10,   257, b'PC1/',      0,      0, 1.65465106e+09,
4692833644459327488, 4, 0.      ),
    (      10,   258, b'PC1\\', 17232, 12081, 1.65465106e+09,
4692833644459327488, 4, 0.      ),
    (      20, 34817, b'\\x02',      0,      0, 1.65465106e+09,
80, 0, 0.      )],
    dtype=[('size', '<i4'), ('evtype', '<i4'), ('evname', 'S4'), ('channel',
'<u2'), ('sortcode', '<u2'), ('timestamp', '<f8'), ('offset', '<i8'),
('dataformat', '<i4'), ('frequency', '<f4')]],
    array([(151821720,      0, b'',      0,      0, 0.00000000e+00,
0, 0, 0.      ),
    (      20, 34817, b'\\x01',      0,      0, 1.65461547e+09,
40, 0, 0.      ),
    (      74, 33041, b'EEGr',      4,      0, 1.65461547e+09,
40, 0, 610.35156),
    ...,
    (      10,   257, b'PC1/',      0,      0, 1.65465106e+09,
4692833644459327488, 4, 0.      ),
    (      10,   258, b'PC1\\', 17232, 12081, 1.65465106e+09,
4692833644459327488, 4, 0.      ),
    (      20, 34817, b'\\x02',      0,      0, 1.65465106e+09,
80, 0, 0.      )],
    dtype=[('size', '<i4'), ('evtype', '<i4'), ('evname', 'S4'), ('channel',
'<u2'), ('sortcode', '<u2'), ('timestamp', '<f8'), ('offset', '<i8'),
('dataformat', '<i4'), ('frequency', '<f4')]]]

```

[ ]: