

Beth ATNx LFP

Done at 16/12/2020

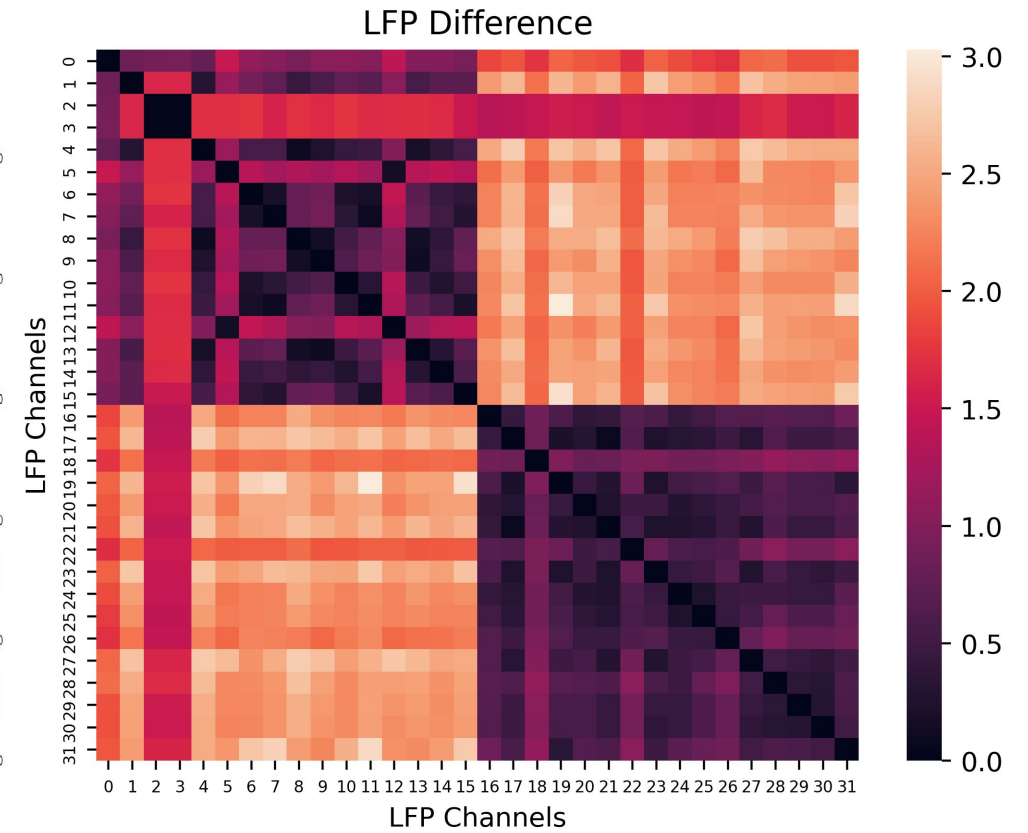
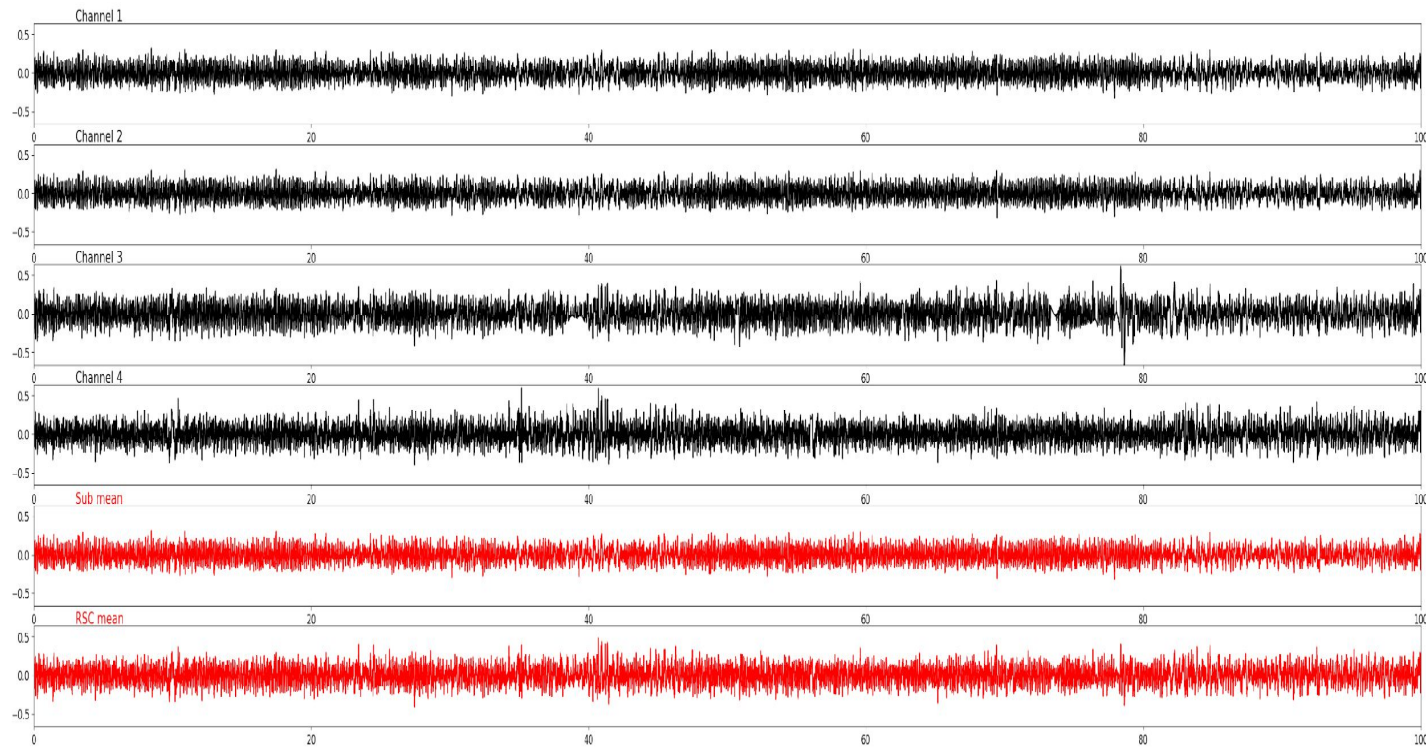
Running large batches with different software

- <https://github.com/seankmartin/SIMURAN>
- Components
 - Functions and analysis
 - Recording layout (e.g. where is each tetrode/LFP wire)
 - Which files to run on (e.g. a list, or a REGEX filter to only use openfield)
 - Batch run settings
 - “simuran -r multi_runs\lfp_plot.py -o -m” – plot LFP signals over CTRL/ATNx, overwriting old outputs, and merge results into one folder.

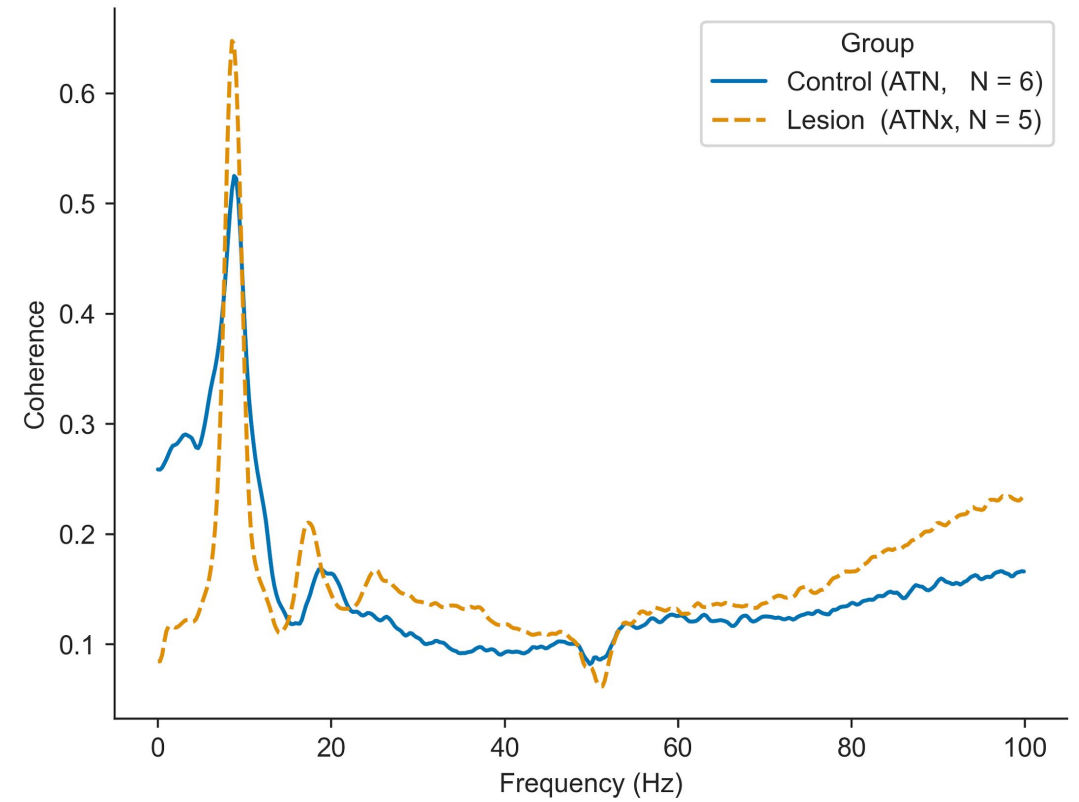
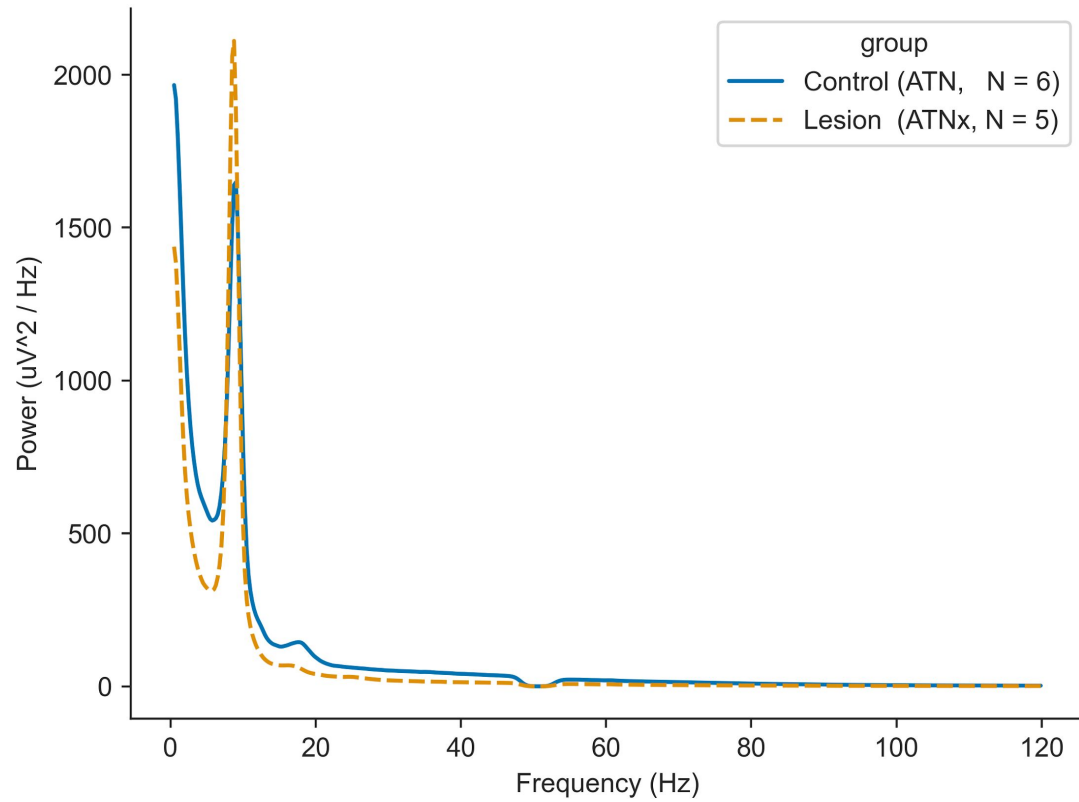
Notes

- Open field only to start
- Not considered behaviour or muscimol
- Was going to use signal average (avg then filter)
- Happy for alternative (or cleaning)

LFP Inspection



Power spectra and coherence



Power in bands

| source_dir | source_name | sub_delta | sub_theta | sub_low | sub_high | sub_total | sub_delta | sub_theta | sub_low | sub_high | sub_1_diff | sub_2_diff | sub_welch | rsc_delta | rsc_theta | rsc_low_g | rsc_high_g | rsc_total | rsc_delta | rsc_theta | rsc_low_g | rsc_high_g | rsc_3_diff | rsc_4_diff | rsc_welch |
|------------|-------------|-----------|-----------|----------|----------|-----------|-----------|-----------|----------|----------|------------|------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|------------|------------|------------|-----------|
| D:\SubRef | 04092017_ | 1293.597 | 4180.504 | 384.683 | 154.941 | 8058.75 | 0.161 | 0.519 | 0.048 | 0.019 | 0 | 0 | [array([| 2399.294 | 6817.291 | 689.34 | 290.781 | 13845.78 | 0.173 | 0.492 | 0.05 | 0.021 | 0.002 | 0.002 | [array([|
| D:\SubRef | 07092017_ | 1186.789 | 4644.67 | 397.838 | 157.793 | 8566.709 | 0.139 | 0.542 | 0.046 | 0.018 | 0 | 0 | [array([| 2352.027 | 7563.295 | 720.452 | 297.906 | 14828.41 | 0.159 | 0.51 | 0.049 | 0.02 | 0.002 | 0.002 | [array([|
| D:\SubRef | 11092017_ | 1753.002 | 5016.616 | 432.923 | 160.947 | 10010.1 | 0.175 | 0.501 | 0.043 | 0.016 | 0 | 0 | [array([| 2348.103 | 7575.992 | 736.147 | 299.928 | 14941.01 | 0.157 | 0.507 | 0.049 | 0.02 | 0.003 | 0.003 | [array([|
| D:\SubRef | 13092017_ | 1702.387 | 4610.409 | 429.798 | 168.756 | 9580.732 | 0.178 | 0.481 | 0.045 | 0.018 | 0 | 0 | [array([| 2547.554 | 7749.265 | 745.696 | 318.281 | 15571.76 | 0.164 | 0.498 | 0.048 | 0.02 | 0.002 | 0.002 | [array([|
| D:\SubRef | 26092017_ | 1307.693 | 4583.504 | 507.927 | 205.312 | 9138.04 | 0.143 | 0.502 | 0.056 | 0.022 | 0 | 0 | [array([| 2410.489 | 8673.339 | 861.812 | 359.847 | 17184.83 | 0.14 | 0.505 | 0.05 | 0.021 | 0.003 | 0.003 | [array([|
| D:\SubRef | 31082017_ | 1422.433 | 3930.642 | 410.118 | 216.703 | 8025.292 | 0.177 | 0.49 | 0.051 | 0.027 | 0 | 0 | [array([| 2422.845 | 6656.94 | 694.184 | 342.62 | 13781.94 | 0.176 | 0.483 | 0.05 | 0.025 | 0.003 | 0.003 | [array([|
| Average | | 1444.317 | 4494.391 | 427.2145 | 177.4087 | 8896.603 | 0.162167 | 0.505833 | 0.048167 | 0.02 | 0 | 0 | nan | 2413.385 | 7506.02 | 741.2718 | 318.2272 | 15025.62 | 0.1615 | 0.499167 | 0.049333 | 0.021167 | 0.0025 | 0.0025 | nan |
| Std | | 212.159 | 349.5335 | 39.82873 | 24.35182 | 745.6768 | 0.016025 | 0.019945 | 0.004298 | 0.003606 | 0 | 0 | nan | 66.23732 | 661.4709 | 57.62438 | 25.25973 | 1150.743 | 0.011815 | 0.00937 | 0.000745 | 0.001772 | 0.0005 | 0.0005 | nan |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| source_dir | source_name | sub_delta | sub_theta | sub_low | sub_high | sub_total | sub_delta | sub_theta | sub_low | sub_high | sub_1_diff | sub_2_diff | sub_welch | rsc_delta | rsc_theta | rsc_low_g | rsc_high_g | rsc_total | rsc_delta | rsc_theta | rsc_low_g | rsc_high_g | rsc_3_diff | rsc_4_diff | rsc_welch |
| D:\SubRef | 01092017_ | 2279.28 | 8612.93 | 793.702 | 249.614 | 16763.58 | 0.136 | 0.514 | 0.047 | 0.015 | 0 | 0 | [array([| 1632.11 | 2429.498 | 816.204 | 222.127 | 8597.572 | 0.19 | 0.283 | 0.095 | 0.026 | 0 | 0 | [array([|
| D:\SubRef | 04092017_ | 2257.359 | 7107.65 | 707.187 | 239.268 | 14360.15 | 0.157 | 0.495 | 0.049 | 0.017 | 0 | 0 | [array([| 1400.034 | 2293.792 | 795.725 | 215.221 | 7893.007 | 0.177 | 0.291 | 0.101 | 0.027 | 0 | 0 | [array([|
| D:\SubRef | 07092017_ | 2721.376 | 7719.018 | 749.046 | 232.429 | 16155.46 | 0.168 | 0.478 | 0.046 | 0.014 | 0 | 0 | [array([| 1612.323 | 1965.526 | 751.798 | 207 | 7721.126 | 0.209 | 0.255 | 0.097 | 0.027 | 0 | 0 | [array([|
| D:\SubRef | 11092017_ | 2738.086 | 7647.746 | 774.096 | 241.796 | 16553.31 | 0.165 | 0.462 | 0.047 | 0.015 | 0.002 | 0.002 | [array([| 1563.188 | 2302.802 | 813.072 | 230.944 | 8577.515 | 0.182 | 0.268 | 0.095 | 0.027 | 0 | 0 | [array([|
| D:\SubRef | 13092017_ | 2138.222 | 7583.243 | 751.509 | 274.053 | 14988.91 | 0.143 | 0.506 | 0.05 | 0.018 | 0.002 | 0.002 | [array([| 1485.763 | 2209.021 | 788.986 | 240.056 | 7828.333 | 0.19 | 0.282 | 0.101 | 0.031 | 0 | 0 | [array([|
| D:\SubRef | 26092017_ | 2182.233 | 6341.185 | 688.581 | 228.016 | 13779.62 | 0.158 | 0.46 | 0.05 | 0.017 | 0.002 | 0.002 | [array([| 1649.739 | 2338.362 | 939.865 | 285.696 | 8942.883 | 0.184 | 0.261 | 0.105 | 0.032 | 0 | 0 | [array([|
| Average | | 2386.093 | 7501.962 | 744.0202 | 244.196 | 15433.51 | 0.1545 | 0.485833 | 0.048167 | 0.016 | 0.001 | 0.001 | nan | 1557.193 | 2256.5 | 817.6083 | 233.5073 | 8260.073 | 0.188667 | 0.273333 | 0.099 | 0.028333 | 0 | 0 | nan |
| Std | | 247.4181 | 684.6055 | 36.24998 | 15.00608 | 1127.634 | 0.011442 | 0.02074 | 0.001572 | 0.001414 | 0.001 | 0.001 | nan | 88.55674 | 145.536 | 58.59232 | 25.62438 | 464.131 | 0.01016 | 0.012893 | 0.003651 | 0.002285 | 0 | 0 | nan |

Future

- Clean up the basics
- Coding (e.g. behavioural differences)
- Sleep
- Spike LFP