

INC 2019-2020 Publications

Journal Articles

1. Adam KCS, deBettencourt MT. Fluctuations of Attention and Working Memory. *Journal of cognition*. 2019;2(1). PubMed PMID: 31440739; PubMed Central PMCID: PMC6696791; DOI: 10.5334/joc.70.
2. Aimon S., Katsuki T., Jia T., Grosenick L., Broxton M., Deisseroth K., Sejnowski T.J., Greenspan R.J. (2019). Fast near-whole-brain imaging in adult *Drosophila* during responses to stimuli and behavior. *PLoS Biol.* 2019 Feb 15;17(2):e2006732. doi: 10.1371/journal.pbio.2006732. [Epub ahead of print] PMID: 30768592.
3. Artoni F, Delorme A, Makeig S. "Applying dimension reduction to EEG data by Principal Component Analysis reduces the quality of its subsequent Independent Component decomposition." *NeuroImage* 175:176-187, 2018.
4. Artoni F, Delorme A, Makeig S. Applying dimension reduction to EEG data by Principal Component Analysis reduces the quality of its subsequent Independent Component decomposition. *NeuroImage* 175:176-187, 2018.
5. Artoni, F., Delorme, A., Makeig, S. "A visual working memory dataset collection with bootstrap independent component analysis for comparison of electroencephalographic preprocessing pipelines." *Data in Brief*, 22:787-293, 2019.
6. Benadof CN, Cisneros E, Appelbaum MI, Stebbins GT, Comella CL, Peterson DA. Sensory tricks are associated with higher sleep-related quality of life in cervical dystonia. *Tremor Other Hyperkinet Mov.* 2019; 9. Doi:10.7916/4q53-vt23
7. Bromer, C. Bartol, T. M. Jr. Bowden, J. B. Hubbard, D. D. Hanka, D. C. Gonzalez, P. V. Kuwajima, M. Mendenhall, J. M. Parker, P. H. Abraham, W. C. Sejnowski, T. J. Harris, K. M. Long-term Potentiation Expands Information Content of Hippocampal Dentate Gyrus Synapses, *Proceedings of the National Academies of Sciences USA*, pnas.1716189115, (2018). PMCID: PMC5877922
8. Buccino A.P., Kuchta M., Jæger K.H., Ness T.V., Berthet P., Mardal K.A., Cauwenberghs G., Tveito A. (2019) How does the presence of neural probes affect extracellular potentials? *J Neural Eng.* 2019 Jan 31. doi: 10.1088/1741-2552/ab03a1. [Epub ahead of print]. PMID: 30703758.
9. Burgos, P., Rivero, J., Makeig, S., Maldonado, P.E. "Visuomotor coordination and cortical connectivity of modular motor learning." *Human Brain Mapping* doi:10.1002/hbm.24215, 2018.
10. Burwell, S.J., Makeig, S., Iacono, W.G. and Malone, S.M., "Reduced premovement positivity during the stimulus-response interval precedes errors: Using single-trial and regression ERPs to understand performance deficits in ADHD." *Psychophysiology*, e13392, 2019. *A source-resolved EEG precursor of a motor response error in a flanker task.*
11. Castagnola E, Vahidi NW, Nimbalkar S, Rudraraju S, Thielk M, Zucchini E, Cea C, Carli S, Gentner TQ, Ricci D, Fadiga L, Kassegne S. <i>In Vivo</i> Dopamine Detection and Single Unit Recordings Using Intracortical Glassy Carbon Microelectrode Arrays. *MRS advances*. 2018 January 23;3(29):1629-1634. PubMed PMID: 29881642; PubMed Central PMCID: PMC5987773.
12. Castiglione, A., Wagner J., Anderson, M., Aron, A., (2019) Preventing a Thought from Coming to Mind Elicits Increased Right Frontal Beta Just as Stopping Action Does, *Cerebral Cortex*. 1-13
13. Chan, Wen-Hsuan and Chiang, Kuan-Jung and Nakanishi, Masaki and Wang, Yu-Te and Jung, Tzyy-Ping. (2018). Evaluating the Performance of Non-Hair SSVEP-Based BCIs Featuring Template-Based Decoding Methods. 2018 *40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. 1972 to 1975.
14. Chelazzi L, Marini F, Pascucci D, & Turatto M. (2019). Getting rid of visual distractors: the why, when, how and where. *Current Opinion in Psychology*, 29: 135-147.

15. Courellis, Hristos and Mullen, Tim and Poizner, Howard and Cauwenberghs, Gert and Iversen, John R.. (2017). EEG-Based Quantification of Cortical Current Density and Dynamic Causal Connectivity Generalized across Subjects Performing BCIMonitored Cognitive Tasks. *Frontiers in Neuroscience*. 11 .
16. Das A, Sampson AL, Lainscsek C, Muller L, Lin W, Doyle JC, Cash SS, Halgren E, Sejnowski T.J. Interpretation of the Precision Matrix and Its Application in Estimating Sparse Brain Connectivity during Sleep Spindles from Human Electroencephalography Recordings. *Neural computation*. 2017 March;29(3):603-642. PubMed PMID: 28095202; PubMed Central PMCID: PMC5424817.
17. Das, A., Sejnowski, T. J., Narrowband and wideband off-grid direction-of-arrival (DOA) estimation via sparse Bayesian learning, *IEEE Journal of Oceanic Engineering*, 43:108-118 (2018).
18. Das, A., Sexton, D., Lainscsek, C., Cash, S.S., Sejnowski, T.J. Characterizing Brain Connectivity from Human Electroencephalography Recordings with Unobserved Inputs during Epileptic Seizures. (2019) *Neural Computation*.:1-56 DOI: 10.1162/neco_a_01205
19. Delorme A., Brandmeyer T. (2018) When the meditating mind wanders, *Current Opinion in Psychology*. DOI: 10.1016/j.copsyc.2018.12.006.
20. Delorme, A., Majumdar, A., Sivagnanam, S., Martinez-Cancino, R., Yoshimoto, K., Makeig, S. "The Open EEGLAB Portal." 9th International IEEE/EMBS Neural Engineering Conference, San Francisco, March 2019.
21. Delorme, A., Poncet, M., Fabre-Thorpe, M. (2018) Briefly Flashed Scenes Can Be Stored in Long-Term Memory. *Front. Neurosci.*, 05 October 2018 | <https://doi.org/10.3389/fnins.2018.00688>.
22. Detorakis, Georgios and Sheik, Sadique and Augustine, Charles and Paul, Somnath and Pedroni, Bruno U. and Dutt, Nikil and Krichmar, Jeffrey and Cauwenberghs, Gert and Neftci, Emre. (2018). Neural and Synaptic Array Transceiver: A Brain- Inspired Computing Framework for Embedded Learning. *Frontiers in Neuroscience*. 12 .
23. Efrati, Y., & Gola, M. (2018). Understanding and predicting profiles of compulsive sexual behavior among adolescents. *Journal of behavioral addictions*, 7(4), 1004-1014.
24. Efrati, Y. & Gola, M. (2018) Compulsive sexual behavior: A Twelve-step Therapeutic Approach. *Journal of Behavioral Addictions* 7(2), pp. 445–453 (2018).
25. Efrati, Y., & Gola, M. (2019). The Effect of Early Life Trauma on Compulsive Sexual Behavior among Members of a 12-Step Group. *The journal of sexual medicine*, 16(6), 803-811.
26. Fonseca, A., Kerick, S., King, J-T., Lin, C-T, Jung, T-P. "Brain network changes in fatigued drivers: a longitudinal study in a real-world environment based on the effective connectivity analysis and actigraphy data," *Frontiers in Human Neuroscience*, Nov. 12, 2018. <https://doi.org/10.3389/fnhum.2018.00418>
27. Gola, M., & Draps, M. (2018). Ventral Striatal Reactivity in Compulsive Sexual Behaviors. *Frontiers in Psychiatry*, 9.
28. Gola, M., & Potenza, M. N. (2018). Promoting educational, classification, treatment, and policy initiatives: Commentary on: Compulsive sexual behaviour disorder in the ICD-11 (Kraus et al., 2018). *Journal of behavioral addictions*, 7(2), 208-210.
29. Gonzalez CE, Mak-McCully RA, Rosen BQ, Cash SS, Chauvel PY, Bastuji H, Rey M, Halgren E. Theta Bursts Precede, and Spindles Follow, Cortical and Thalamic Downstates in Human NREM Sleep. *The Journal of neuroscience : the official journal of the Society for Neuroscience*. 2018 November 14;38(46):9989-10001. PubMed PMID: 30242045; PubMed Central PMCID: PMC6234298.
30. Gouraud, J., Delorme, A., Berberian, B. (2018) Influence of automation on mind wandering frequency in sustained attention. *Consciousness and Cognition*, Volume 66, November 2018, Pages 54-64.

31. Gouraud, J., Delorme, A., Berberian, B. (2018) Out of the Loop, in Your Bubble: Mind Wandering Is Independent From Automation Reliability, but Influences Task Engagement. *Front. Hum. Neurosci.*, 20 September 2018 | <https://doi.org/10.3389/fnhum.2018.00383>.
32. Grubbs, J. B., Perry, S., Wilt, J. A., & Reid, R. C. (2019). Response to Commentaries. *Archives of sexual behavior*, 48(2), 461-468.
33. Hsu, S.-H. and Nakanishi, M. and Chang, C.-Y. and Cauwenberghs, G. and Jung, T.-P.. (2019). Modeling EEG Dynamics of Self-Imagery Emotions: a Pilot Study. *International IEEE/EMBS Conference on Neural Engineering*.
34. Hsu, S.H., Pion-Tonachini, L., Palmer, J., Miyakoshi, M., Makeig, S., Jung, T.P. (2018). Modeling brain dynamic state changes with adaptive mixture independent component analysis. *NeuroImage*, 183 Pages 47-61
35. Huang C, Gevirtz RN, Onton J, Criado JR. "Investigation of vagal afferent functioning using the Heartbeat Event Related Potential." *International Journal of Psychophysiology*. 131, 2018. (pp. 113-23).
36. Kappel, S., Makeig, S., Kidmose, P. "Ear-EEG forward models: improved head models for Ear-EEG." *Frontiers in Human Neuroscience*, in press 2019. *A study of the source sensitivity profile of a new in-ear EEG recording system*.
37. Keehn, R.J.J., Iversen, J.R., Schulz, I., Patel, A.D. (2019) Spontaneity and diversity of movement to music is not uniquely human. *Current Biology*. [https://www.cell.com/current-biology/fulltext/S0960-9822\(19\)30604-9](https://www.cell.com/current-biology/fulltext/S0960-9822(19)30604-9)
38. Khalil, A., Mincés, V.H., Iversen, J., Musacchia, G., Zhao, T.C., Chiba, A.A. (2019) Music, cognition, and education. In: Kuhl, P., et al. (ed) *Developing Minds in the Digital Age: Towards a Science of Learning for 21st Century Education*. OECD Publishing. Pp. 167-175. <https://www.oecd-ilibrary.org/sites/02fca611-en/index.html?itemId=/content/component/02fca611-en>
39. Kim C., Joshi, S., Courellis, H., Wang, J., Miller, C., and Cauwenberghs, G., "Sub- μ Vrms-Noise Sub- μ W/Channel ADC-Direct Neural Recording With 200-mV/ms Transient Recovery Through Predictive Digital Autoranging," in *IEEE Journal of Solid-State Circuits*, vol. 53, no. 11, pp. 3101-3110, Nov. 2018. doi: 10.1109/JSSC.2018.2870555
40. Ko, Li-Wei and Komarov, Oleksii and Hairston, W. David and Jung, Tzzy-Ping and Lin, Chin-Teng. (2017). Sustained Attention in Real Classroom Settings: An EEG Study. *Frontiers in Human Neuroscience*. 11
41. Kowalewska, E., Grubbs, J. B., Potenza, M. N., Gola, M., Draps, M., & Kraus, S. W. (2018). Neurocognitive mechanisms in compulsive sexual behavior disorder. *Current Sexual Health Reports*, 10(4), 255-264.
42. Kowalewska, E., Kraus, S. W., Lew-Starowicz, M., Gustavsson, K., & Gola, M. (2019). Which dimensions of human sexuality are related to compulsive sexual behavior disorder (CSBD)? Study using a multidimensional sexuality questionnaire on a sample of Polish males. *The journal of sexual medicine*.
43. Krishnan GP, Rosen BQ, Chen JY, Muller L, Sejnowski TJ, Cash SS, Halgren E, Bazhenov M. Thalamocortical and intracortical laminar connectivity determines sleep spindle properties. *PLoS computational biology*. 2018 June 27;14(6):e1006171. PubMed PMID: 29949575; PubMed Central PMCID: PMC6039052.
44. Lainscsek, C., Gonzalez, C.E., Sampson, A.L., Cash, S.S., Sejnowski, T.J. Causality detection in cortical seizure dynamics using cross-dynamical delay differential analysis. (2019) *Chaos*. 29(10):101103. DOI: 10.1063/1.5126125

45. Lainscsek, C., Rungratsameetaweemana, N., Cash, S.S., Sejnowski, T.J. Cortical chimera states predict epileptic seizures. (2019) *Chaos*. 29(12):121106. DOI: 10.1063/1.5139654
46. Lainscsek C, Sampson AL, Kim R, Thomas ML, Man K, Lainscsek X, Swerdlow NR, Braff DL, Sejnowski TJ, Light GA. Nonlinear dynamics underlying sensory processing dysfunction in schizophrenia. *Proc Natl Acad Sci U S A*. 2019 02 26; 116(9):3847-3852. PMID: 30808768.
47. Marini F, Breeding KA, & Snow JC. (2019). Dataset of 24-subject EEG recordings during viewing of real-world objects and planar images of the same items. *Data In Brief*, 103857.
48. Marini F, Breeding KA, & Snow, JC. (2019). Distinct visuo-motor brain dynamics for real-world objects versus planar images. *NeuroImage*, 195: 232-242.
49. Marini F, Lee C, Wagner J, Makeig S, & Gola M. (2019). Comparative analysis of a research-grade and a clinical, portable EEG system. *Journal of Neural Engineering*, in press, doi: 10.1088/1741-2552/ab21f2.
50. Marini, F., Lee, C., Wagner, J., Makeig, S., & Gola, M. (2019). A comparative evaluation of signal quality between research-grade and wireless dry-electrode mobile EEG systems. *Journal of neural engineering*.
51. Marini, F., Lee, C., Wagner, J., Makeig, S., Gola, M., "A comparative evaluation of signal quality between research-grade and wireless dry-electrode mobile EEG systems." *Neural Engineering*, in press, 2019. *A study comparing data recorded using a research-grade EEG system and a newer dry-electrode system*.
52. Martínez-Cancino R., Heng J., Delorme A., Kreutz-Delgado K., Sotero R.C., Makeig S., Measuring transient phase-amplitude coupling using local mutual information. *NeuroImage*, 185:361-378, 2019.
53. Martínez-Cancino R., Heng J., Delorme A., Kreutz-Delgado K., Sotero R.C., Makeig S., "Measuring transient phase-amplitude coupling using local mutual information." *NeuroImage*, 185:361-378, 2019. *Disclosing a new and powerful PAC measure and multi-measure plug-in toolbox*.
54. Michel C.M., Baillet S., Benar C., Bertrand O., Gotman J., He B., Huiskamp G-J., Lemieux L., Makeig S., Pascual-Leone^e A, Salmelin R., Seri S., Valdes-Sosa P., Wendling F., "In Memoriam: Fernando Lopes da Silva." *Brain Topography*, 32:519–522. doi.org/10.1007/ s10548-019-00720-0, 2019. *A tribute to the just-departed great in brain and human electrophysiology*.
55. Miller LE, Cawley-Bennett A, Longo MR, Saygin AP. The recalibration of tactile perception during tool use is body-part specific. *Experimental brain research*. 2017 October;235(10):2917-2926. PubMed PMID: 28702834; PubMed Central PMCID: PMC5957296.
56. Miller LE, Longo MR, Saygin AP. Visual illusion of tool use recalibrates tactile perception. *Cognition*. 2017 May;162:32-40. PubMed PMID: 28196765; PubMed Central PMCID: PMC5992321.
57. Moldakarimov, S., Bazhenov, M., Feldman, D. E., Sejnowski, T. J. Structured networks support sparse traveling waves in rodent somatosensory cortex, *Proceedings of the National Academy of Sciences, USA*, 115 (20), 5277-5282 (2018). PMCID: PMC5960276
58. Mostafa H, Cauwenberghs G. A Learning Framework for Winner-Take-All Networks with Stochastic Synapses. *Neural Comput*. 2018 06; 30(6):1542-1572. PMID: 29652581.
59. Mostafa H, Ramesh V, Cauwenberghs G. Deep Supervised Learning Using Local Errors. *Front Neurosci*. 2018; 12:608. PMID: 30233295.
60. Motoi, H., Miyakoshi, M., Abel, T., Jeong, J.W., Nakai, Y., Sugiura, A., Luat, A., Agarwal, R., Sood, S., Asano, E. (2018). Phase-amplitude coupling between interictal high-frequency activity and slow waves in epilepsy surgery. *Epilepsia*, 59 Pages 1954-1965.
61. Muller L, Chavane F, Reynolds J, Sejnowski TJ. Cortical travelling waves: mechanisms and computational principles. *Nature reviews. Neuroscience*. 2018 May;19(5):255-268. PubMed PMID: 29563572; PubMed Central PMCID: PMC5933075.

62. Nakanishi, M., Wang, YT., Wei, CS., Chiang, KJ. & Jung, TP. (2019) "Facilitating calibration in high-speed BCI spellers via leveraging cross-device shared latent responses", *IEEE Transactions on Biomedical Engineering*
63. Ng R, Lai P, Brown TT, Järvinen A, Halgren E, Bellugi U, Trauner D. Neuroanatomical correlates of emotion-processing in children with unilateral brain lesion: A preliminary study of limbic system organization. *Social neuroscience*. 2018 December;13(6):688- 700. PubMed PMID: 28990866; PubMed Central PMCID: PMC6117211; DOI: 10.1080/17470919.2017.1386126.
64. Nguyen LT, Marini F, Zacharczuk L, Llano DA, & Mudar RA. (2019).Theta and alpha band oscillations during value-directed strategic processing. *Behavioural Brain Research*, 367, 210-214.
65. Okruszek, L., Jarkiewicz, M., Gola, M., Cello, M., Łojek, E. (2018). Using ERPs to explore the impact of affective distraction on working memory stages in schizophrenia. *Cognitive, Affective & Behavioral Neuroscience*, 18(3), 437-446
66. Orдын M, Alam I, Mahalingam M, Rao VB, Smith DE. Nucleotide-dependent DNA gripping and an end-clamp mechanism regulate the bacteriophage T4 viral packaging motor. *Nat Commun*. 2018 12 21; 9(1):5434. PMID: 30575768.
67. Orдын M, Bartol TM, Kennedy MB, Rangamani P, Sejnowski T. Interactions between calmodulin and neurogranin govern the dynamics of CaMKII as a leady integrator. *bioRxiv*, 2019 – biorxiv.org
68. Ortiz D, delToro D, Orдын M, Pajak J, Sippy J, Catala A, Oh CS, Vu A, Arya G, Feiss M, Smith DE, Catalano CE. Evidence that a catalytic glutamate and an 'Arginine Toggle' act in concert to mediate ATP hydrolysis and mechanochemical coupling in a viral DNA packaging motor. *Nucleic Acids Res*. 2018 Dec 12. PMID: 30541105.
69. Padmanabhan K., Osakada F., Tarabrina A., Kizer E., Callaway E.M., Gage F.H., Sejnowski T.J. (2019). Centrifugal Inputs to the Main Olfactory Bulb Revealed Through Whole Brain Circuit-Mapping. *Front Neuroanat*. 2019 Jan 7;12:115. doi: 10.3389/fnana.2018.00115. eCollection 2018. PMID: 30666191.
70. Papp, A, & Onton, J.A. "Brain Zaps: An Underappreciated Symptom of Antidepressant Discontinuation." *The primary care companion for CNS disorders*. 20(6), 2018.
71. Paul, A. and Deiss, S.R. and Tourtelotte, D. and Kleffner, M. and Zhang, T. and Cauwenberghs, G.. (2019). Electrode-Skin Impedance Characterization of In-Ear Electrophysiology Accounting for Cerumen and Electrodermal Response. *International IEEE/EMBS Conference on Neural Engineering*
72. Pedroni, Bruno U. and Joshi, Siddharth and Deiss, Stephen R. and Sheik, Sadique and Detorakis, Georgios and Paul, Somnath and Augustine, Charles and Neftci, Emre O. and Cauwenberghs, Gert. (2019). Memory-Efficient Synaptic Connectivity for Spike-Timing-Dependent Plasticity. *Frontiers in Neuroscience*. 13 .
73. Peterson DA and Altenmueller E. When Blue Turns to Gray: The Enigma of Musician's Dystonia. *Oxford Handbooks Online*. Eds Thaut, Michael H.; Hodges, Donald A.
74. Peterson DAM, Biederman LA, Andersen D, Ditonto TM, Roe K. Mitigating gender bias in student evaluations of teaching. *PLoS One*. 2019; 14(5):e0216241. PMID: 31091292.
75. Pion-Tonachini, Luca and Hsu, Sheng-Hsiou and Chang, Chi-Yuan and Jung, Tzyy-Ping and Makeig, Scott. (2018). Online Automatic Artifact Rejection using the Real-time EEG Source-mapping Toolbox (REST). 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). 106 to 109.
76. Pion-Tonachini L., Kreutz-Delgado K., Makeig S., "The ICLabel dataset of electroencephalographic (EEG) independent component (IC) features." *Data in Brief*, 25:104101, 2019. *Data used to train the ICLabel classifier*.
77. Pion-Tonachini, L., Kreutz-Delgado, K. and Makeig, S., 2019. "ICLabel: An automated electroencephalographic independent component classifier, dataset, and website." *NeuroImage* 198:181-197, 2019. *Trained by crowd-sourced classifications contributed by hundreds of EEG researchers; now the fastest and most accurate IC classifier*,

78. Pion-Tonachini, L., Kreutz-Delgado, K., and Makeig, S., ICLabel: An automated electroencephalographic independent component classifier, dataset, and website. *NeuroImage*, 2019, Volume 198, Pages 181-197.
79. Randau, M., Oranje, B., Miyakoshi, M., Makeig, S., Fagerlund, B., Glenthøj, B., Bak, N. "Attenuated mismatch negativity in patients with first-episode antipsychotic-naive schizophrenia using a source-resolved method," *NeuroImage: Clinical* 22:101760, <https://doi.org/10.1016/j.nicl.2019.101760>, 2019. *A paper partially replicating our earlier results in Rissling et al., 2014 on audio deviance response abnormalities in schizophrenics – here in first-break patients.*
80. Rosen BQ, Krishnan GP, Sanda P, Komarov M, Sejnowski T, Rulkov N, Ulbert I, Eross L, Madsen J, Devinsky O, Doyle W, Fabo D, Cash S, Bazhenov M, Halgren E. Simulating human sleep spindle MEG and EEG from ion channel and circuit level dynamics. *Journal of neuroscience methods*. 2019 March 15;316:46-57. PubMed PMID: 30300700; PubMed Central PMCID: PMC6380919.
81. Ross, J.M., Iversen, J.R., Balasubramaniam, R. (2018) The Role of Posterior Parietal Cortex in Beat-based Timing Perception: A Continuous Theta Burst Stimulation Study. *J Cogn Neurosci* 30:634–43. https://www.mitpressjournals.org/doi/full/10.1162/jocn_a_01237
82. Ruiz-Martinez, A., Bartol, T. M., Sejnowski, T. J., Tartakovsky, D. M. Efficient models of polymerization applied to FtsZ ring assembly in *Escherichia coli*, *Proceedings of the National Academy of Sciences, USA*, 115 (19), 4933-4938, (2018). PMCID:PMC5948971
83. Ruiz-Martínez, , Bartol, T.M., Sejnowski, T.J., Tartakovsky, D.M. Stochastic self-tuning hybrid algorithm for reaction-diffusion systems. (2019) *Journal of Chemical Physics*. 151(24):244117. DOI: 10.1063/1.512502
84. Sampson AL, Lainscsek C, Gonzalez CE, Ulbert I, Devinsky O, Fabó D, Madsen JR, Halgren E, Cash SS, Sejnowski TJ. Delay differential analysis for dynamical sleep spindle detection. *J Neurosci Methods*. 2019 Mar 15; 316:12-21. PMID: 30707917.
85. Sasaki, M., Iversen, J.R., Callan, D.E. (2019) Music Improvisation Is Characterized by Increase EEG Spectral Power in Prefrontal and Perceptual Motor Cortical Sources and Can be Reliably Classified From Non-improvisatory Performance. *Frontiers in Human Neuroscience*.
86. Siddharth, S., Jung, T.P., Sejnowski, T.J. Impact of Affective Multimedia Content on the Electroencephalogram and Facial Expressions. (2019) *Scientific Reports*. 9(1):16295. DOI: 10.1038/s41598-019-52891-2
87. Siddharth, S., Jung, T-P., Sejnowski, T., Utilizing Deep Learning Towards Multi-modal Bio-sensing and Vision-based Affective Computing, *IEEE Trans. Affective Computing*, in press.
88. Siddharth, S., Patel, A., Jung, T-P., Sejnowski, T., A Wearable Multi-modal Bio-sensing System Towards Real-world Applications, *IEEE Trans. Biomed. Eng.*, 66(4):1137-47, 2019.
89. Sklenarik, S., Potenza, M. N., Gola, M., Kor, A., Kraus, S. W., & Astur, R. S. (2019). Approach bias for erotic stimuli in heterosexual male college students who use pornography. *Journal of behavioral addictions*, 8(2), 234-241.
90. Sundby, K. K, Wagner, J., Aron, A. R. (2019) The functional role of response suppression during an urge to relieve pain. *Journal of Cognitive Neuroscience*. 1-18
91. Tanaka, H., Miyakoshi, M. (2019). Cross-correlation task-related component analysis (xTRCA) for enhancing evoked and induced responses of event-related potentials. *NeuroImage*, 197 Pages 177-190.
92. Tanaka, H., Miyakoshi, M., Makeig, S. "Dynamics of directional tuning and reference frames in humans: A high-density EEG study" *Scientific Reports* 8:8205 doi:10.1038/s41598-018-26609-9, 2018. Showing that information is available in the EEG about direction of movement using a novel metric.

93. Thakur C.S., Molin J.L., Cauwenberghs G., Indiveri G., Kumar K., Qiao N., Schemmel J., Wang R., Chicca E., Hasler J.O., Seo JS, Yu S., Cao Y., van Schaik A., Etienne-Cummings R. (2019). Corrigendum: Large-Scale Neuromorphic Spiking Array Processors: A Quest to Mimic the Brain. *Front Neurosci.* 2019 Jan 7;12:991. doi: 10.3389/fnins.2018.00991. eCollection 2018. PMID: 30666180.
94. Tsai, P.Y., She, H-C, Chen, S-C, Huang, L-Y, Chou, W-C, Duann, JR, Jung, T-P. Eye fixation-related fronto-parietal neural network correlates of memory retrieval. *Int J Psychophysiol.* 138:57-70, 2019.
95. Vieten, C., Wahbeh, H., Cahn, B.R., MacLean, K., Estrada, M., Mills, P., Murphy, M., Shapiro, S., Radin, D., Josipovic, Z., Presti, D.E., Sapiro, M., Bays, J.C., Russell, P., Vago, D., Travis, F., Walsh, R., Delorme, A. (2018) Future directions in meditation research: Recommendations for expanding the field of contemplative science, *PLOS ONE*, <https://doi.org/10.1371/journal.pone.0205740>
96. Vučković, A., Jarjees, M., Abul Hasan, M., Miyakoshi, M., Fraser, M. (2018) Central neuropathic pain in paraplegia alters movement related potentials. *Clinical Neurophysiology*, 129 Pages 1669-1679
97. Wagner, J., Martinez-Cancino, R., Makeig, S. (2019) Trial-by-trial source-resolved EEG responses to gait task challenges predict subsequent step adaptation, *NeuroImage (in press)*
98. Wagner, J., Martinez-Cancino, R., Makeig, S., "Single-trial source-resolved EEG responses to gait task challenges predict subsequent step adaptation." *NeuroImage*, June 7, 2019. *A study of the event-related EEG dynamics associated with a perturbation in a step-pacing sound train during treadmill walking.*
99. Wagner, J., Wessel, J. R., Ghahremani, A., & Aron, A. R. (2018). Establishing a right frontal beta signature for stopping action in scalp EEG: implications for testing inhibitory control in other task contexts. *Journal of cognitive neuroscience*, 30(1), 107-118.
100. Wang, Y.-K., Jung, T.-P., Lin, C.-T. Theta and Alpha Oscillations in Attentional Interaction during Distracted Driving, *Frontiers in Behavioral Neuroscience* 12, 3, 2018.
101. Wei, C-S., Lin, Y-P., Wang, Y-T., Lin, C-T., Jung, T-P., Subject-Transfer Framework for Obviating Inter- and Intra-Subject Variability in EEG-Based Drowsiness Detection, *NeuroImage*, 174: 407-19, 2018.
102. Weil RS, Schwarzkopf DS, Bahrami B, Fleming SM, Jackson BM, Goch TJC, Saygin AP, Miller LE, Pappa K, Pavisic I, Schade RN, Noyce AJ, Crutch SJ, O'Keefe AG, Schrag AE, Morris HR. Assessing cognitive dysfunction in Parkinson's disease: An online tool to detect visuo-perceptual deficits. *Movement disorders : official journal of the Movement Disorder Society.* 2018 April;33(4):544-553. PubMed PMID: 29473691; PubMed Central PMCID: PMC5901022.
103. Wen, D., Lan, X., Zhou, Y., Li, G., Hsu, S-H., Jung, T-P. The Study of Evaluation and Rehabilitation of Patients with Different Cognitive Impairment Phases Based on Virtual Reality and EEG, *Frontiers in Aging Neuroscience*, *Frontiers in Aging Neuroscience*, 10: 88, 2018. DOI: 10.3389/fnagi.2018.00088
104. Wilder L, Hanson KL, Lew CH, Bellugi U, Semendeferi K. Decreased Neuron Density and Increased Glia Density in the Ventromedial Prefrontal Cortex (Brodmann Area 25) in Williams Syndrome. *Brain sciences.* 2018 November 29;8(12). PubMed PMID: 30501059; PubMed Central PMCID: PMC6316781.
105. Wordecha, M., Kowalewska, E., Wilk, M., Skorko, M. & Gola, M. (2018) Pornographic binges' as a key characteristic of males seeking treatment for compulsive sexual behaviors: Qualitative and quantitative 10-week long diary assessment. *Journal of Behavioral Addictions.* 7(2), pp. 433–444 (2018) DOI: 10.1556/2006.7.2018.33
106. Xu, M., Xiao, X., Wang, Y., Jung, T.-P., Ming, D., A brain computer interface based on miniature event-related potentials induced by very small lateral visual stimuli, *IEEE Trans. Biomed. Eng.*, 66(5): 1166-75, 2018.
107. Zhang TY, Keown CL, Wen X, Li J, Vousden DA, Anacker C, Bhattacharyya U, Ryan R, Diorio J, O'Toole N, Lerch JP, Mukamel EA, Meaney MJ. Environmental enrichment increases transcriptional and epigenetic differentiation between mouse dorsal and ventral dentate gyrus. *Nature communications.* 2018 January 19;9(1):298. PubMed PMID: 29352183; PubMed Central PMCID: PMC5775256.

Books Chapters

1. Iversen, J.R., Makeig, S.D. (2019) MEG/EEG Data Analysis Using EEGLAB. In: Supek S, Aine CJ (eds) Magnetoencephalography, 2nd edition. Springer-Verlag, Berlin. Role: Primary author; updated the chapter for the second edition
2. Nakanishi, M., Wang, Y., & Jung, T-P., (2018) "Spatial filtering techniques for improving template-based SSVEP detection", in Tanaka, T., and Mahnaz, A. (Eds.): *Signal Processing and Machine Learning for Brain-Computer Interfaces*, Institute of Engineering and Technology, 219-242.

Abstracts

1. Castiglione, A., Wagner, J., Anderson, M. C., Aron, A. (2018) Preventing a thought from coming to mind elicits increased right frontal beta just as stopping action does. *Society for Neuroscience annual meeting, San Diego, USA*
2. Deiss, S. (2018) Neonatal synesthesia, pattern recognition, memory coding and conscious cognition. *The 26th Science of Consciousness Conference*, Interlaken, Switzerland
3. Gola, M.*, Wagner, J.*, Onton, J., Murphy, K., Makeig, S. (2018) Identifying distinct alpha band oscillatory dynamics in the EEG as targets for rhythmic transcranial magnetic stimulation (rTMS) *Society for Neuroscience annual meeting, San Diego, USA*
4. Hsu, SH., Nakanishi, M., Chang, CY. & Jung, TP. (2019), "Modeling EEG dynamics of self-imagery emotion: A pilot study", 9th IEEE EMBS Neural Engineering Conference, San Francisco, CA.
5. Iversen, J.R. (2018) "Rhythms in music and brain." 3rd International Mobile Brain/Body Imaging Conference, Berlin, Germany.
6. Kanoga, S., Nakanishi, M., Murai, A., Tada, M. & Kanemura, A. (2019), "Practicability of detecting steady-state visual evoked potentials contaminated by intensity-manipulated muscular artifacts", 41th Annual International Conference of the IEEE Engineering in Medicine and Biology Society.
7. Sundby, K., Wagner, J., Aron, A. (2018) *Withholding an action during heat pain invokes brain signatures of motor suppression and conflict: Dissecting the components of urge. Society for Neuroscience annual meeting, San Diego, USA*
8. Tanji, Y., Nakanishi, M. & Tanaka, T. (2019), "Hybrid waveform, frequency, and phase coding for brain-computer interfaces based on steady-state visual evoked potentials", 9th IEEE EMBS Neural Engineering Conference, San Francisco, CA.
9. Wagner, J., Martinez-Cancino, R., & Müller-Putz, G.R. Makeig, S. (2018) Error-related brain dynamics predict step adaptation in a challenging gait task. *Society for Neuroscience annual meeting, San Diego, USA*

10. Wagner, J., Martinez-Cancino, R., & Müller-Putz, G.R. Makeig, S. (2018) Error-related brain dynamics predict step adaptation in a challenging gait task. *3rd International Mobile Brain/Body Imaging Conference, Berlin, Germany*

Conference proceedings

1. Chan, WH., Chiang, KJ., Nakanishi, M., Wang, YT. & Jung, TP. (2018) "Evaluating the performance of non-hair SSVEP-based BCIs featuring template-based decoding methods", in Proceedings of 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp.1972-1975.
2. Chang, C. Y.* , Hsu, S.-H.* , Pion-Tonachini, L., and Jung, T. P., "Evaluating Artifact Subspace Reconstruction for Automatic Artifact Removal." *IEEE EMBC*, 2018.
3. Chiang, K-J., Wei, C-S, Nakanishi, M., Jung, T-P., "Cross-Subject Transfer Learning Improves the Practicality of Real-World Applications of Brain-Computer Interfaces," *Proceedings of the 9th International IEEE EMBS Neural Engineering Conference*, 2019.
4. Dehais, F., Rida, I., Roy, R., Iversen, J.R., Mullen, T., Callan, D. (2019) A pBCI to predict attentional error before it happens in real flight conditions. *IEEE International Conference on Systems, Man and Cybernetics*.
5. Efrati, Y., & Gola, M. (2019, June). Adolescents compulsive sexual behavior-Family systemic approach. *6th International Conference on Behavioral Addictions*, Yokohama, Japan.
6. Fairchild GT, Marini F, & Snow JC. (2019). The stronger EEG signature of motor preparation for real objects versus images is modulated by graspability. *Society for Neuroscience* (October 18-23).
7. Fairchild GT, Marini F, Breeding KA, & Snow JC. . (2018). Is the stronger EEG signature for real objects versus images modulated by graspability? *Optical Society Vision Meeting* (September 20-23).
8. Gehrke, L., Iversen, J. R., Makeig, S., Gramann, K. "The Invisible Maze Task (IMT): Interactive Exploration of Sparse Virtual Environments to Investigate Action-Driven Formation of Spatial Representations," Presented at *Spatial Cognition 2018. Reporting behavioral results of human 'visuo-maze' EEG and motion capture experiments conducted in a collaboration between SCCN and Technical University Berlin*.
9. Gola, M., Draps, M., Sescousse, G., Marchewka, A., Matuszewski, J., Duda, A. (2019). Gray matter volume abnormalities in compulsive sexual behavior, gambling and alcohol use disorder. *6th International Conference on Behavioral Addictions*, Yokohama, Japan.

10. Gola, M., Lew-Starowicz, M., Draps, M., Kowalewska, E. (2019). Comparison of effects of pharmacological and psychological treatment of CSBD. 6th International Conference on Behavioral Addictions, Yokohama, Japan.
11. Grubbs, JB., Gola, M. (2019). Pornography use, Self-Reported Addiction, and Erectile Functioning: Results from Nationally Representative and Longitudinal Data-Sets. 6th International Conference on Behavioral Addictions, Yokohama, Japan.
12. Hsu S-H, Wu Y C, and Jung T-P. (2018) Exploring Mental State Changes during Hypnotherapy using Adaptive Mixture Independent Component Analysis. *The Seventh International BCI Meeting*. Pacific Grove, California.
13. Hsu S-H, Zi Y, Wu Y C, Jackson P, and Jung T-P. (2018) Exploring Mental State Changes during Hypnotherapy using Adaptive Mixture Independent Component Analysis of EEG, *IEEE Biomedical Circuits and Systems*. Cleveland, Ohio.
14. Kambara, H., Miyakoshi, M., Tanaka, H., Kagawa, T., Yoshimura, N., Koike, Y., Makeig, S. "Analysis of 3-ball juggling performance and brain dynamics." Presented at *Japanese Neural Network Society*, 2019. *This report on experiments conducted at SCCN won a prize for best paper.*
15. Kanoga, S., Nakanishi, M., Murai, A., Tada, M. & Kanemura, A. (2018) "Semi-simulation experiments for quantifying the performance of SSVEP-based BCI after reducing artifacts from trapezius muscles", in Proceedings of 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp.4824-4827.
16. Khalil A, Wu Y C, Iversen J. (2018) Studying Auditory Processing in Group Contexts with Low-Density, Wireless EEG. *Society for Neuroscience*. San Diego, California.
17. Kim, R., Li, Y., Sejnowski, T.J. Simple framework for constructing functional spiking recurrent neural networks. (2019) Proceedings of the National Academy of Sciences of the United States of America. DOI: 10.1073/pnas.1905926116
18. Kowalewska, E., Hamerska, U., Potenza, M.N., Gola, M. (2019). Relation between erectile dysfunctions and pornography use-analysis of large set of self-reported data. 6th International Conference on Behavioral Addictions, Yokohama, Japan.
19. Lega, C., Ferrante, O., Santandrea, E., Marini, F., Cattaneo, L., & Chelazzi, L. . (2018). Probing the neural mechanisms for distractor filtering and their history-contingent modulation by means of TMS. *Society for Neuroscience* (November 3-7).

20. Miyakoshi, M., Tung, K., Lloyd, E., Makeig, S., Loo, S., "EEG study on chronic tic disorder patients" *Neuroscience 2018*.
21. Nakanishi, M., Wang, Y.T. & Jung, T.P. (2018), "Optimizing phase intervals for phase-coded SSVEP-based BCIs with template-based algorithm", in Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics, pp.650-655.
22. Nakanishi, M., Wang, Y.T. & Jung, T.P. (2018), "Transferring shared responses across electrode montages for facilitating calibration in high-speed brain spellers" in Proceedings of 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp.89-92.
23. Nawa, N.E., Callan, D.E., Mokhtari, P., Ando, H., Iversen, J.R. (2018) Decoding music-induced experienced emotions using functional magnetic resonance imaging - Preliminary results. Proceedings International Joint Conference on Neural Networks (IJCNN). IEEE. <https://ieeexplore.ieee.org/document/8489752>
24. Nguyen L, Shende SA, Marini F, Llano DA, & Mudar R. (2019). Theta, alpha, and beta band oscillations related to value-directed strategic processing in cognitively normal younger and older adults. Society for Neuroscience (October 18-23).
25. Pion-Tonachini, L., Hsu, S., Chang, C., Jung, T.P., and Makeig, S., "Online Automatic Artifact Rejection using the Real-time EEG Source-mapping Toolbox (REST)," *2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Honolulu, HI, 2018, pp. 106-109.
26. Pion-Tonachini, L., Hsu, S.-H., Chang, C. Y. , Jung, T. P., and Makeig, S., "Automatic Artifact Rejection using the Real-time EEG Source-mapping Toolbox (REST)." *IEEE EMBC, 2018*
27. Raj S, Tsai B, Schperberg A, Brown S, Jung T-P, Wu Y C. (2018) Resting State Brain Dynamics Supporting Creativity. *Society for Neuroscience*. San Diego, California.
28. Raj S. and Wu Y C. (2019) Resting State Brain Dynamics Supporting Creativity. *Society for Neuroscience of Creativity*. San Francisco, California.
29. Ross, J. M., Iversen, J. R., Makeig, S., & Balasubramaniam, R. Covert motor activity and auditory rhythm perception." Presented at *New England Sequencing and Timing (NEST)*, Storrs, Connecticut, USA, 2019.
30. Siddharth, S., Jung, T.-P., Sejnowski, T. J., Multi-modal Approach for Affective Computing. International Conference of IEEE Engineering in Medicine and Biology Society, July 17-21 (2018).

31. Van, L-D., Lu, T-C., Jung, T-P., Wang, J-F., "Hardware-oriented Memory-limited Online Fastica Algorithm and Hardware Architecture for Signal Separation," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2019.
32. Wei, C.-S., Nakanishi, M., Chiang, K.-J., and Jung, T.-P., "Exploring Human Variability in Steady-State Visual Evoked Potentials," *IEEE SMC 2018*, 2018.
33. Wei, CS., Nakanishi, M., Chiang, KJ. & Jung, TP. (2018), "Exploring variability in steady-state visual evoked potentials towards high speed BCI speller", in Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics, pp.474-479.
34. Wu Y C and Jung T-P. (2019) Multi-modal Approaches to Studying Problem Solving in a 3D Environment. *NIH Brain Meeting*. Washington D. C.
35. Yu, T., Wei, CS., Chiang, KJ., Nakanishi, M., & Jung, TP. (2019), "EEG-based user authentication using a convolutional neural network", in Proceedings of the 9th IEEE EMBS Neural Engineering Conference, pp.1011-1014.

Invited Talks

John Iversen

1. Iversen, J.R., Invited talk, "Audiomotor interactions in beat perception," Computational Neuroscience Society, Seattle, WA, July 2018.
2. Iversen, J.R., Invited talk, "Embodied cognition of music," American Psychological Association, San Francisco, CA, August 2018.
3. Iversen, J.R., Keynote and policy discussion " Music, language and the developing brain," Trinity College London VII Language Education Forum, Madrid, Spain, October 2018.4.
4. Iversen, J.R., Invited talk, "Emerging EEG technologies for studying brain and behavior in real time," Creativity and Cognition, UCLA, April 2019.
5. Iversen, J.R., Invited talk, "Update on the SIMPHONY project," Viva Música Community Event, Chula Vista, CA, May 2019.
6. Iversen, J.R., Invited talk, "Music and the Child's Brain," National Endowment for the Arts, Washington, DC, June 2019.

T.P. Jung

1. Jung, T.P., Invited talk, "Neural Lab for Experimental Architecture and Design," New School for Architecture and Design, San Diego, CA., August 12, 2018.
2. Jung, T.P., Invited talk, "Neural Lab for Experimental Architecture and Design," New School for Architecture and Design, San Diego, CA., August 12, 2018.
3. Jung, T.P., Invited talk, "Developing a Multi-modal Bio-Sensing and Activity Tagging Platform for MoBI Research," The 3rd International Mobile Brain/Body Imaging Conference, Berlin, Germany, July 12, 2018.
4. Jung, T.P., Invited talk, "Real-world Neuroimaging," University of Technology Sydney, Sydney, Australia, September 4, 2018.
5. Jung, T.P., Invited talk, "Multi-modal Real-world neuroimaging," College of Computer Science, National Chiao Tung University, Hsinchu, Taiwan, September 17, 2018.
6. Jung, T.P., Invited talk, "Big and Crucial Issues in BCIs, Tianjin BCI Workshop, Tianjin, China, October 26, 2018.
7. Jung, T.P., Invited talk, "Real-world Neuroimaging," Yanshan University, Qinhuangdao, China, October 29, 2018.
8. Jung, T.P., Invited talk, in a plenary session, "Neural and Physiological Correlates of Task Performance in Naturalistic Environments," IEEE EMBS Neural Engineering Research (NER), San Francisco, CA, Mar. 20-23, 2019.
9. Jung, T.P., Invited talk, National Chiao Tung University, Hsinchu, Taiwan, May 11, 2019
10. Jung, T.P., Invited talk, "Big and Crucial Issues in BCIs," Zhejiang University, Hangzhou, China, May 20, 2019
11. Jung, T.P., Invited talk, "Tackling Big and Crucial Issues in BCIs: An Update," Tianjin BCI Workshop, Tianjin, China, June 16, 2019.
12. Jung, T.P., Keynote speech, "Big and Crucial Issues in BCIs," Human-Computer Fusion and Artificial Intelligence Symposium, Nanjing, China, August 30, 2018.

13. Jung, T.P., Keynote speech, "Using Machine Learning and Neurophysiological Measurement to Better Understand the Human Brain in Real and Virtual Environments," Intelligent Medicine and Rehabilitation, Shanghai, China, May 18, 2019.
14. Jung, T.P., Keynote speech, IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Tianjin, China, June 14-15, 2019
15. Jung, T.P., Keynote speech, "Brain-computer Interfaces for Sustaining Healthy and Independent Living," Taipei, Taiwan, June 19-22, 2019.

Scott Makeig

1. Makeig, S., Invited keynote, "Mobile Brain/Body Imaging: A decade of emergence," *Fourth International Workshop on Mobile Brain/Body Imaging*, Berlin, Germany, July 14, 2018.
2. Makeig, S., Keynotes, "Mining event-related brain dynamics I & II", *27th EEGLAB Workshop*, University of Pittsburgh, Pennsylvania, September 4 & 5, 2018.
3. Makeig, S., Keynotes, "Mining event-related brain dynamics I & II", *28th EEGLAB Workshop*, University of California San Diego, La Jolla California, November 9 & 12, 2018.
4. Makeig, S., Invited talk, "Mobile Brain/Body Imaging: Imaging Natural Cognition," National Chiao Tung University, Hsinchu, Taiwan, January 24, 2019.
5. Makeig, S., Invited keynote, "Imaging human consciousness: knowing, feeling, and willing." *Taiwan Cognitive Neuroscience Society*, Taiwan, January 25, 2019.
6. Makeig, S., Invited keynote, "American Society of Neurophysiological Monitoring (ASNM), Chicago, Illinois, May 4, 2019.
7. Makeig, S., Invited attendance and presentation, "Global Brain Consortium" planning meeting, Montreal Neurological Institute, Montreal, Quebec, Canada, May 7-8, 2019.
8. Makeig, S., Invited moderator and talk, *Symposium on the Brain Imaging Data Standard (BIDS) for EEG data*, CRNS Toulouse, France, June 27, 2019.

9. Makeig, S., Keynotes, "Mining event-related brain dynamics I & II", *29th EEGLAB Workshop*, Aspet, France, June 18-21, 2019.

Other Presentations:

Scott Makeig

On-site P-41 project review panel, National Institute for Biomedical Imaging and Bioengineering, Albany NY, March 6-7, 2019.

Review presentation on SCCN history and research, INC development review meeting, UCSD, April 2, 2019.

Combined efforts with former PhD student Tim Mullen to organize a first UCSD Hands-on Workshop on the Lab Streaming Layer software framework build by programmer/analyst Christian Kothe for SCCN, which is now being used worldwide with a community of users, developers, and commercial partners. UCSD, November 8, 2018.

John Iversen

Interviewed for Spanish Press: "El poder de la música para el cerebro infantil" Hacer Familia, Madrid (November 22, 2018)(<https://www.hacerfamilia.com/videos/video-poder-musica-cerebro-infantil-20181122133737.html>)

Filmed for PBS series "Closer to Truth: Breakthroughs!" TV episode on music, evolution and the brain. (March 27, 2019). Closer to Truth is a "public television series ... that explores fundamental questions and features leading scientists and philosophers." To air in 2020 season. (<https://www.closetotruth.com/>)

SCCN Personnel Publications 2019-2020

Journal Articles

1. Adam, N., Blaye, A., Gulbinaite, R., Delorme, A., Farrer, C. (2020) The role of midfrontal theta oscillations in the development of cognitive control during the preschool and school years. *Developmental Science*, in press.
2. Brandmeyer, T., Delorme A. (2019) Meditation and the wandering mind: a theoretical account of underlying and converging neural mechanisms. *Perspectives on Psychological Science*, in press.
3. Burwell, S.J., Makeig, S., Iacono, W.G. and Malone, S.M., "Reduced premovement positivity during the stimulus-response interval precedes errors: Using single-trial and regression ERPs to understand performance deficits in ADHD." *Psychophysiology*, e13392, 2019. *A source-resolved EEG precursor of a motor response error in a flanker task*.
4. Cannard, C., Brandmeyer, T., Wahbeh, H., Delorme, A. (2020) Self-health monitoring and wearable technologies. In *Handbook of Clinical Neurology*, Nick Ramsey and Jose Millan (Editors). Elsevier: Amsterdam.
5. Chang, C-Y., Hsu, S-H., Pion-Tonachini, L., Jung, T-P., "Evaluation of Artifact Subspace Reconstruction for Automatic Artifact Components Removal in Multi-channel EEG Recordings," *IEEE Trans. Biomed. Eng.*, Jul. 22, 2019. in press. <https://ieeexplore.ieee.org/document/8768041>
6. Delorme, A., Grandchamp, R., Curot, J., Baragan-Jason G., Denuelle, M., Sol, J.C., Valton, L. (2020) Effect of meditation on intracerebral EEG: a case report. *Explore*, in press.
7. Efrati, Y., & Gola, M. (2019). Adolescents' compulsive sexual behavior: The role of parental competence, parents' psychopathology, and quality of parent-child communication about sex, Jul. 21st 2019. *Journal of behavioral addictions*, 8(3), 420-431.
8. Efrati, Y., & Gola, M. (2019). The Effect of Early Life Trauma on Compulsive Sexual Behavior among Members of a 12-Step Group. *The journal of sexual medicine*, 16(6), 803-811.
9. Grubbs, J. B., Kraus, S. W., Perry, S. L., Lewczuk, K., & Gola, M. (2020). Moral incongruence and compulsive sexual behavior: Results from cross-sectional interactions and parallel growth curve analyses. *Journal of Abnormal Psychology* 129 (3), 266-278.
10. Gu, X., Cao, Z., Jolfaei, A., Xu, P., Wu, D., Jung, T-P., Lin, C-T. EEG-based Brain-Computer Interfaces (BCIs): A Survey of Recent Studies on Signal Sensing Technologies and Computational Intelligence Approaches and their Applications, *arXiv preprint arXiv:2001.11337*, 2020, Jan. 28, 2020.
11. Hahusseau, S., Baracat, B., Lebey, T., Laudebat, L., Valdez, Z., Delorme, A. (2020) HRV biofeedback intero-nociceptive emotion exposure therapy for adverse childhood experiences. *F1000*, in press.
12. Jacoby N, Margulis EH, Clayton M, Hannon E, Honing H, Iversen JR, Klein TR, Mehr SA, Pearson L, Peretz I, Perlman M, Polak R, Ravnani A, Savage PE, Steingo G, Stevens CJ, Trainor L, Trehub S, Veal M, Wald-Fuhrmann M (2020) Cross-Cultural Work in Music Cognition: Challenges, Insights, and Recommendations. *MusicPercept* 37:185-95. <https://mp.ucpress.edu/content/37/3/185.full.pdf+html>
13. Jin, J., Chen, Z., Xu, R., Miao, Y., Wang, X., Jung, T-P., Developing a Novel Tactile P300 Brain-Computer Interface with a Cheeks-Stim Paradigm, *IEEE Transactions on Biomedical Engineering*, in press, Jan. 9 2020.
14. Kaminska, O. K., Magnuski, M., Olszanowski, M., Gola, M., Brzezicka, A., & Winkielman, P. (2020). Ambiguous at the second sight: Mixed facial expressions trigger late electrophysiological

- responses linked to lower social impressions. *Cognitive, Affective, & Behavioral Neuroscience*, 1-14.
15. Kanoga, S., Nakanishi, M., Murai, A., Tada, M. & Kanemura, A. (2020) "Robustness analysis of decoding SSVEPs in humans with head movements using a moving visual flicker", *Journal of Neural Engineering*, 17, 016009. <https://iopscience.iop.org/article/10.1088/1741-2552/ab5760/meta>, Dec.11, 2020
 16. Kappel, S., Makeig, S., Kidmose, P. "Ear-EEG forward models: improved head models for Ear-EEG." *Frontiers in Human Neuroscience*, in press 2019. *A study of the source sensitivity profile of a new in-ear EEG recording system.*
 17. Keehn, R.J.J., Iversen, J.R., Schulz, I., Patel, A.D. (2019) Spontaneity and diversity of movement to music is not uniquely human. *Current Biology*. Roles: Conceived experiment, co-supervised analysis, contributed to interpretation and writing. [https://www.cell.com/current-biology/fulltext/S0960-9822\(19\)30604-9](https://www.cell.com/current-biology/fulltext/S0960-9822(19)30604-9).
 18. Khalil, A., Mincses, V.H., Iversen, J., Musacchia, G., Zhao, T.C., Chiba, A.A. (2019) Music, cognition, and education. In: Kuhl, P., et al. (ed) *Developing Minds in the Digital Age: Towards a Science of Learning for 21st Century Education*. OECD Publishing. Pp. 167-175. <https://www.oecd-ilibrary.org/sites/02fca611-en/index.html?itemId=content/component/02fca611-en>
 19. Komarov, O., Ko, L-W., Jung, T-P. "Associations among emotional state, sleep quality, and resting-state EEG spectra: a longitudinal study in graduate students," *IEEE Trans. Neural Syst. Rehab. Eng.*, in press, Feb 10, 2020. DOI: [10.1109/TNSRE.2020.2972812](https://doi.org/10.1109/TNSRE.2020.2972812).
 20. Kowalewska, E., Kraus, S. W., Lew-Starowicz, M., Gustavsson, K., & Gola, M. (2019). Which dimensions of human sexuality are related to compulsive sexual behavior disorder (CSBD)? Study using a multidimensional sexuality questionnaire on a sample of Polish males. *The journal of sexual medicine*, 16(8), 1264-1273.
 21. Lew-Starowicz, M., Lewczuk, K., Nowakowska, I., Kraus, S., & Gola, M. (2020). Compulsive sexual behavior and dysregulation of emotion. *Sexual medicine reviews*, 8(2), 191-205.
 22. Lewczuk, K., Glica, A., Nowakowska, I., Gola, M., & Grubbs, J. B. (2020). Evaluating Pornography Problems Due to Moral Incongruence Model, Feb. 2020. *The Journal of Sexual Medicine*, 17(2), 300-311.
 23. Lew-Starowicz, M., Lewczuk, K., Nowakowska, I., Kraus, S., & Gola, M. (2019). Compulsive sexual behavior and dysregulation of emotion, Dec. 5 2019. *Sexual medicine reviews*.
 24. Li, H., Feng, S., Ma, L., Xu, Z., Xu, R., Jung, T-P. , Common Cross-Spectral Patterns of Electroencephalography for Reliable Cognitive Task Identification, *IEEE Access* 8, 17652-62, 2020.
 25. Marini F, Lee C, Wagner J, Makeig S, & Gola M. (2019). Comparative analysis of a research-grade and a clinical, portable EEG system. *Journal of Neural Engineering*, in press, doi: 10.1088/1741-2552/ab21f2.
 26. Marini, F., Lee, C., Wagner, J., Makeig, S., & Gola, M. (2019). A comparative evaluation of signal quality between research-grade and wireless dry-electrode mobile EEG systems, Sep 19 2019. *Journal of neural engineering*, 16(5), 054001.
 27. Marini, F., Lee, C., Wagner, J., Makeig, S., Gola, M., "A comparative evaluation of signal quality between research-grade and wireless dry-electrode mobile EEG systems." *Neural Engineering*, in press, 2019. *A study comparing data recorded using a research-grade EEG system and a newer dry-electrode system.*
 28. Michel C.M., Baillet S., Benar C., Bertrand O., Gotman J., He B., Huiskamp G-J., Lemieux L., Makeig S., Pascual-Leone^e A, Salmelin R., Seri S., Valdes-Sosa P., Wendling F., "In Memoriam: Fernando Lopes da Silva." *Brain Topography*, 32:519–522. doi.org/10.1007/s10548-019-00720-0, 2019. *A tribute to the just-departed great in brain and human electrophysiology.*
 29. Motoi H, Jeong JW, Juhasz C, Miyakoshi M, Nakai Y, Sugiura A, Luat AF, Sood S, Asano E. (2020) Quantitative analysis of intracranial electrocorticography signals using the concept of statistical parametric mapping. *Scientific Reports*

30. Nakanishi, M., Wang, Y.T., Wei, C.S., Chiang, K.J. & Jung, T.P. (2019) "Facilitating calibration in high-speed BCI spellers via leveraging cross-device shared latent responses", *IEEE Transactions on Biomedical Engineering*, In Press. <https://ieeexplore.ieee.org/abstract/document/8765815>, Jul. 18, 2019
31. Nakanishi, M., Xu, M., Wang, Y., Chiang, K.J., Han, J. & Jung, T.P. (2020), "Questionable classification accuracy reported in "Designing a sum of squared correlations framework for enhancing SSVEP-based BCIs"", *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, In Press. <https://ieeexplore.ieee.org/abstract/document/9000718>, Feb. 17, 2020
32. Nguyen LT, Marini F, Zacharczuk L, Llano DA, & Mudar RA. (2019).Theta and alpha band oscillations during value-directed strategic processing. *Behavioural Brain Research*, 367, 210-214.
33. Nowakowska, I., Lewczuk, K., & Gola, M. (2019). Changes in the addiction prevalence in Polish population between 1990-2017: Review of available data, July 2019.
34. Penberthy, J.K., Hodge, A.S., Hook, J., Delorme, A., Vieten, C. (2020) Extraordinary Experiences During Meditation Retreats. *Journal of Yoga and Physiotherapy*, in press.
35. Pion-Tonachini L., Kreutz-Delgado K., Makeig S., "The ICLabel dataset of electroencephalographic (EEG) independent component (IC) features." *Data in Brief*, 25:104101, 2019. *Data used to train the ICLabel classifier*.
36. Pion-Tonachini, L., Kreutz-Delgado, K. and Makeig, S., 2019. "ICLabel: An automated electroencephalographic independent component classifier, dataset, and website." *NeuroImage*198:181-197, 2019. *Trained by crowd-sourced classifications contributed by hundreds of EEG researchers; now the fastest and most accurate IC classifier*.
37. Pion-Tonachini, L., Kreutz-Delgado, K., and Makeig, S.,. ICLabel: An automated electroencephalographic independent component classifier, dataset, and website. *NeuroImage*, 2019, Volume 198, Pages 181-197.
38. Sasaki, M., Iversen, J.R., Callan, D.E. (2019) Music Improvisation Is Characterized by Increase EEG Spectral Power in Prefrontal and Perceptual Motor Cortical Sources and Can be Reliably Classified From Non-improvisatory Performance. *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2019.00435>
39. Siddharth, S., Jung, T-P., Sejnowski, T., Utilizing Deep Learning Towards Multi-modal Bio-sensing and Vision-based Affective Computing, *IEEE Trans. Affective Computing*, in press.
40. Sklenarik, S., Potenza, M. N., Gola, M., & Astur, R. S. (2020). Approach bias for erotic stimuli among heterosexual female college students who use pornography. *Addictive Behaviors*, 106438.
41. Sklenarik, S., Potenza, M. N., Gola, M., Kor, A., Kraus, S. W., & Astur, R. S. (2019). Approach bias for erotic stimuli in heterosexual male college students who use pornography. *Journal of behavioral addictions*, 8(2), 234-241.
42. SL Kappel, S Makeig, Kidmose P. Ear-EEG forward models: Improved head-models for Ear-EEG *Frontiers*, Sep. 10th 2019.
43. Sundby, K. K, Wagner, J., Aron, A. R. (2019) The functional role of response suppression during an urge to relieve pain. *Journal of Cognitive Neuroscience*. 1-18.
44. Szumska, I., Gola, M., Rusanowska, M., Krajewska, M., Żygierewicz, J., Krejtz, I., ... & Holas, P. (2020). Mindfulness-based cognitive therapy reduces clinical symptoms, but do not change frontal alpha asymmetry in people with major depression disorder. *International Journal of Neuroscience*, 1-9.
45. Wagner J, Martinez-Cancino R, Delorme A, Makeig S, Solis-Escalante T, Neuper C, Mueller-Putz G. High-density EEG mobile brain/body imaging data recorded during a challenging auditory gait pacing task. *Sci Data*.Oct. 17 2019; 6(1):211. PMID: 31624252.
46. Wagner, J., Makeig, S., Hoopes, D., & Gola, M. (2019). Can oscillatory alpha-gamma phase-amplitude coupling be used to understand and enhance TMS effects?, Jul. 31 2019. *Frontiers in human neuroscience*, 13, 263.
47. Wagner, J., Martinez-Cancino, R., Makeig, S. (2019) Trial-by-trial source-resolved EEG responses to gait task challenges predict subsequent step adaptation, *NeuroImage (in press)*. Oct. 1, 2019; 199:691-703. PMID: 31181332.

48. Wagner, J., Martinez-Cancino, R., Makeig, S., "Single-trial source-resolved EEG responses to gait task challenges predict subsequent step adaptation." *NeuroImage*, June 7, 2019. *A study of the event-related EEG dynamics associated with a perturbation in a step-pacing sound train during treadmill walking.*
49. Wahbeh, H., Yount, G., Vieten, C., Radin, D., Delorme, A. (2019) The Noetic Experience and Belief Scale: A validation and reliability study, Feb. 21, 2020. *F1000Research*, 8:1741.
50. Zhang, X., Wu, D., Ding, L., Luo, H., Lin, C-T., Jung, T-P., , Tiny Noise Can Make an EEG-Based Brain-Computer Interface Speller Output Anything, *arXiv preprint arXiv:2001.11569*, Jan.30, 2020.

Books Chapters

1. Iversen, J.R., Makeig, S.D. (2019) MEG/EEG Data Analysis Using EEGLAB. In: Supek S, Aine CJ (eds) *Magnetoencephalography, 2nd edition*. Springer-Verlag, Berlin. Role: Primary author; updated the chapter for the second edition. Role: Conceived and performed research and writing. Oct. 18, 2019
2. Wang, Y., Nakanishi, M. & Zhang, D. (2019), "EEG-based brain-computer interfaces", in Zheng, X. (Ed.): *Neural Interface: Frontiers and Applications*, Springer Singapore, 41-65. https://link.springer.com/chapter/10.1007/978-981-13-2050-7_2, Nov. 16, 2019

Abstracts

1. Cheng, T-H., Iversen, J.R. (2019) " How do you feel the beats: An EEG study of beat imagination." Society for Music Perception and Cognition, New York, August 2019. Role: Senior author.
2. Kanoga, S., Nakanishi, M., Murai, A., Tada, M. & Kanemura, A. (2019), "Practicability of detecting steady-state visual evoked potentials contaminated by intensity-manipulated muscular artifacts", 41th Annual International Conference of the IEEE Engineering in Medicine and Biology Society.
3. Nakanishi, M., Wei, CS., Chiang, KJ. & Jung, TP. (2019) "Facilitating calibration in an SSVEP-based BCI via leveraging cross-device shared latent responses", *IEEE EMBS BMB Workshop*, La Jolla, CA, USA. Jul. 18, 2019
4. Ross, J.M., Proksch, S., Iversen, J.R., Balasubramaniam, R. (2019). "Down-regulation of Left Posterior Parietal Cortex Impairs Musical Phase Shift Detection in Subjects with Good Perceptual Acuity for Phase Timing." Society for Music Perception and Cognition, New York, August 2019. Role: Advised on experimental design and interpretation of results.

Conference proceedings

1. Dehais, F., Rida, I., Roy, R., Iversen, J.R., Mullen, T., Callan, D. (2019) A pBCI to predict attentional error before it happens in real flight conditions. *IEEE International Conference on Systems, Man and Cybernetics*.
2. Efrati, Y., & Gola, M. (2019, June). Adolescents compulsive sexual behavior-Family systemic approach. 6th International Conference on Behavioral Addictions, Yokohama, Japan.
3. Fairchild GT, Marini F, & Snow JC. (2019). The stronger EEG signature of motor preparation for real objects versus images is modulated by graspability. *Society for Neuroscience* (October 18-23).

4. Gola, M., Draps, M., Sescousse, G., Marchewka, A., Matuszewski, J., Duda, A. (2019). [Gray matter volume abnormalities in compulsive sexual behavior, gambling and alcohol use disorder.](#) 6th International Conference on Behavioral Addictions, Yokohama, Japan.
5. Gola, M., Lew-Starowicz, M., Draps, M., Kowalewska, E. (2019). Comparison of effects of pharmacological and psychological treatment of CSBD. 6th International Conference on Behavioral Addictions, Yokohama, Japan.
6. Kambara, H., Miyakoshi, M., Tanaka, H., Kagawa, T., Yoshimura, N., Koike, Y., Makeig, S. "Analysis of 3-ball juggling performance and brain dynamics." Presented at *Japanese Neural Network Society*, 2019. *This report on experiments conducted at SCCN won a prize for best paper.*
7. Kowalewska, E., Hamerska, U., Potenza, M.N., Gola, M. (2019). Relation between erectile dysfunctions and pornography use-analysis of large set of self-reported data. 6th International Conference on Behavioral Addictions, Yokohama, Japan.
8. Nguyen L, Shende SA, Marini F, Llano DA, & Mudar R. (2019). Theta, alpha, and beta band oscillations related to value-directed strategic processing in cognitively normal younger and older adults. *Society for Neuroscience* (October 18-23).
9. Miyakoshi M, Makeig S. (2019). Why does ICA-decomposed EEG sometimes show deep dipoles? *Neuroscience 2019*, Oct 19-23, 2019.
10. Ross, J. M., Iversen, J. R., Makeig, S., & Balasubramaniam, R. Covert motor activity and auditory rhythm perception." Presented at *New England Sequencing and Timing (NEST)*, Storrs, Connecticut, USA, 2019.
11. Van, L-D., Lu, T-C., Jung, T-P., Wang, J-F., "Hardware-oriented Memory-limited Online Fastica Algorithm and Hardware Architecture for Signal Separation," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2019.

Invited Talks

John Iversen

1. Viva Música, Chula Vista, CA, Invited community outreach presentation: "Update on the SIMPHONY project" (May 2019)
2. National Endowment for the Arts, Washington, DC, Invited talk: "Music and the Child's Brain" (June 2019)
3. San Diego Youth Symphony, San Diego, CA, "SIMPHONY" (July 2019)
4. Teacher Researcher Collaborative, Vista, CA, "Music and the Brain" (December 2019).
5. Vista Unified School District Principals' Leadership Design Series, La Jolla, CA, "Music and the Brain" (February 2020).

T.P. Jung

1. Jung, T.P., Invited talk, National Chiao Tung University, Hsinchu, Taiwan, May 11, 2019
2. Jung, T.P., Invited talk, "Big and Crucial Issues in BCIs," Zhejiang University, Hangzhou, China, May 20, 2019
3. Jung, T.P., Invited talk, "Tackling Big and Crucial Issues in BCIs: An Update," Tianjin BCI Workshop, Tianjin, China, June 16, 2019.
4. Jung, T.P., Keynote speech, "Using Machine Learning and Neurophysiological Measurement to Better Understand the Human Brain in Real and Virtual Environments," Intelligent Medicine and Rehabilitation, Shanghai, China, May 18, 2019.
5. Jung, T.P., Keynote speech, IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Tianjin, China, June 14-15, 2019

6. Jung, T.P., Keynote speech, "Brain-computer Interfaces for Sustaining healthy and Independent Living," Taipei, Taiwan, June 19-22, 2019.

Scott Makeig

1. Makeig, S., Invited keynote, "American Society of Neurophysiological Monitoring (ASNM), Chicago, Illinois, May 4, 2019.
2. Makeig, S., Invited attendance and presentation, "Global Brain Consortium" planning meeting, Montreal Neurological Institute, Montreal, Quebec, Canada, May 7-8, 2019.
3. Makeig, S., Invited moderator and talk, *Symposium on the Brain Imaging Data Standard (BIDS) for EEG data*, CRNS Toulouse, France, June 27, 2019.
4. Makeig, S., Keynotes, "Mining event-related brain dynamics I & II", *29th EEGLAB Workshop*, Aspet, France, June 18-21, 2019.

Makoto Miyakoshi

1. Miyakoshi M. (2019) ECoG dog's dream. *Electroencephalosophy and critical neurophysiology*. 3:8-54. Seminar at Santa Fe Institute, July 11 2019.
2. Miyakoshi M. (2019) Science, EEG, and ICA. Seminar at Cincinnati Children's Hospital, August 13, 2019.

Masaki Nakanishi

1. Nakanishi, M., Invited Talk, "Advances in event-related potential analysis on the West Coast", AI Research Center, National Institute of Advanced Industrial Science and Technology, Tokyo, Japan, Aug, 2019.
2. Nakanishi, M., Invited Talk, "Recent advances in an SSVEP-based BCI", UCSD COGS 189, La Jolla, CA, USA, Feb, 2020.

Ying Wu

1. *Neuro Lab for Experimental Architecture and Design Workshop. San Diego, California July 2019.*

Service 2019-2020

John Iversen

1. Scientific Advisory Board, 2nd International Timing Research Forum conference, Queretaro, Mexico, October 2019. Secured an NSF grant to fund student and postdoctoral travel to the conference to increase participation.
2. Co-chair of 4th International Mobile Brain/Body Imaging (MoBI) Conference, to be held June 2020 at UCSD. Meeting postponed to June 2021.

Media 2019-2020

John Iversen

1. Interviewed for PBS series "Closer to Truth: Breakthroughs!" TV episode on music, evolution and the brain. (2019). Closer to Truth is a "public television series ... that explores fundamental questions and features leading scientists and philosophers." To air in 2020. (<https://www.closertotruth.com/>)
2. Interviewed by Canadian Broadcast Corporation for show "Ideas" (cbc.ca/ideas). For an episode on rhythm. (2020). Ideas is "the network's flagship programme on contemporary thought." <https://www.cbc.ca/radio/ideas/neuroscience-reveals-how-rhythm-helps-us-walk-talk-and-even-love-1.5550722>

John Iversen

2019 National Endowment for the Arts (NEA) Research Lab

UC San Diego Pls Drs. John Iversen, Tim Brown, and Terry Jernigan, in partnership with San Diego Children's Choir and Vista Unified School District, will study the potential effects of musical interventions on early childhood development. They will conduct the Early Academic Readiness and Learning Intervention - longitudinal intervention trials of vocal music in preschool aged children, testing if music has impact on school readiness, cognition, and emotion. [Read the press release!](#)
4/1/19 - 3/31/22

Additional Description:

University of California at San Diego - La Jolla, CA - \$300,000
The University of California/San Diego, in partnership with San Diego Children's Choir and Vista Unified School District, will establish a group of studies to trace the potential effects of various musical interventions on early childhood development. The goal is to identify and relate those effects to age, status of brain development, and genetic variation. Lab activities begin with a feasibility study with Children in Transitional Kindergarten (pre-kindergarten) classes who participate in a daily singing program. The children will be assessed on their cognitive, emotional, social, academic, and music skills. Following the feasibility study, the research will test various hypotheses about musical experiences during childhood. This lab leverages the team's deep experience in music and large-scale longitudinal child development studies, bridging such disparate fields such as cognitive and developmental psychology, neuroscience, musicology, and education. The lab also will assist the Arts Endowment in pursuing data collection and analysis within the Adolescent Brain Cognitive Development (ABCD) study, of which the agency is a sponsor.

Symposia and Conferences

Title: 29th EEGLAB Workshop,

Date: June 17-21, 2019

Presenter: Arnaud Delorme, Scott Makeig, Robert Oostenveld, Cyril Pernet, Tracy Brandmeyer, Ramon Martinez, Tim Mullen

Location: Aspet, France
Number of Participants: 49 Participants