

ELSC Member's Publications: July - December 2023

Merav Ahissar

1. Daikoku T, Jentschke S, Tsogli V, Bergström K, Lachmann T, Ahissar M, Koelsch S. Neural correlates of statistical learning in developmental dyslexia: An electroencephalography study. *Biol Psychol.* 2023 Jul;181:108592. doi: 10.1016/j.biopsycho.2023.108592.

Raunak Basu

2. Basu R, Ito HT. A goal pointer for a cognitive map in the orbitofrontal cortex. *Current Opinion in Neurobiology.* 2023 Dec 1;83:102803.

Hagai Bergman

3. Rahamim N, Slovik M, Mevorach T, Linkovski O, Bergman H, Rosin B, Eitan R. Tuned to Tremor: Increased Sensitivity of Cortico-Basal Ganglia Neurons to Tremor Frequency in the MPTP Nonhuman Primate Model of Parkinson's Disease. *J Neurosci.* 2023 Nov 8;43(45):7712-7722. doi: 10.1523/JNEUROSCI.0529-23.2023.
4. Pal GD, Corcos DM, Metman LV, Israel Z, Bergman H, Arkadir D. Cognitive Effects of Subthalamic Nucleus Deep Brain Stimulation in Parkinson's Disease with GBA1 Pathogenic Variants. *Mov Disord.* 2023 Nov 2. doi: 10.1002/mds.29647.
5. Levy M, Zurawel M, d'Hardemare V, Moran A, Andelman F, Manor Y, Cohen J, Meshulam M, Balash Y, Gurevich T, Fried I, Bergman H. Subthalamic nucleus physiology is correlated with deep brain stimulation motor and non-motor outcomes. *Brain Commun.* 2023 Oct 18;5(6):fcad268. doi: 10.1093/braincomms/fcad268
6. Glowinsky S, Bergman H, Zarchi O, Fireman S, Reiner J, Tamir I. Electrophysiology-aided DBS targeting the ventral intermediate nucleus in an essential tremor patient with MRI-incompatible lead: A case report. *Physiol Rep.* 2023 Oct;11(19):e15730. doi: 10.14814/phy2.15730.
7. Yin Z, Ma R, An Q, Xu Y, Gan Y, Zhu G, Jiang Y, Zhang N, Yang A, Meng F, Kühn AA, Bergman H, Neumann WJ, Zhang J. Pathological pallidal beta activity in Parkinson's disease is sustained during sleep and associated with sleep

disturbance. *Nat Commun.* 2023 Sep 5;14(1):5434. doi: 10.1038/s41467-023-41128-6.

8. Wolke R, Becktepe JS, Paschen S, Helmers AK, Kübler-Weller D, Youn J, Brinker D, Bergman H, Kühn AA, Fasano A, Deuschl G. The Role of Levodopa Challenge in Predicting the Outcome of Subthalamic Deep Brain Stimulation. *Mov Disord Clin Pract.* 2023 Jul 11;10(8):1181-1191. doi: 10.1002/mdc3.13825.

Alexander Binshtok

9. Dey S, Barkai O, Gokhman I, Suissa S, Haffner-Krausz R, Wigoda N, Feldmesser E, Ben-Dor S, Kovalenko A, Binshtok A, Yaron A. Kinesin family member 2A gates nociception. *Cell Rep.* 2023 Oct 31;42(10):113257. doi: 10.1016/j.celrep.2023.113257.
10. Rayi PR, Lev S, Binshtok AM. Age-dependent decrease in inhibitory drive on the excitatory superficial spinal dorsal horn neurons. *Neurobiol Pain.* 2023 Jul 17;14:100139. doi: 10.1016/j.ynpai.2023.100139.

Yoram Burak

11. Agmon H, Burak Y. Simultaneous embedding of multiple attractor manifolds in a recurrent neural network using constrained gradient optimization. In *Thirty-seventh Conference on Neural Information Processing Systems 2023* Nov 2.

Ami Citri

12. Terem A, Fatal Y, Peretz-Rivlin N, Turm H, Koren SS, Kitsberg D, Ashwal-Fluss R, Mukherjee D, Habib N, Citri A. Claustral neurons projecting to frontal cortex restrict opioid consumption. *Curr Biol.* 2023 Jul 10;33(13):2761-2773.e8. doi: 10.1016/j.cub.2023.05.065.

Leon Deouell

13. Vishne G, Gerber EM, Knight RT, Deouell LY. Distinct ventral stream and prefrontal cortex representational dynamics during sustained conscious visual perception. *Cell Rep.* 2023 Jul 25;42(7):112752. doi: 10.1016/j.celrep.2023.112752.

Naomi Habib

- ❖ Terem A, Fatal Y, Peretz-Rivlin N, Turm H, Koren SS, Kitsberg D, Ashwal-Fluss R, Mukherjee D, Habib N, Citri A. Claustral neurons projecting to frontal cortex

- restrict opioid consumption. *Curr Biol.* 2023 Jul 10;33(13):2761-2773.e8. doi: 10.1016/j.cub.2023.05.065.
- ❖ Filo S, Shaharabani R, Bar Hanin D, Adam M, Ben-David E, Schoffman H, Margalit N, Habib N, Shahar T, Mezer AA. Non-invasive assessment of normal and impaired iron homeostasis in the brain. *Nat Commun.* 2023 Sep 12;14(1):5467. doi: 10.1038/s41467-023-40999-z.
 - 14. Shoob S, Buchbinder N, Shinikamin O, Gold O, Baeloha H, Langberg T, Zarhin D, Shapira I, Braun G, Habib N, Slutsky I. Deep brain stimulation of thalamic nucleus reuniens promotes neuronal and cognitive resilience in an Alzheimer's disease mouse model. *Nat Commun.* 2023 Nov 2;14(1):7002. doi: 10.1038/s41467-023-42721-5.
 - 15. Cain A, Taga M, McCabe C, Green GS, Hekselman I, White CC, Lee DI, Gaur P, Rozenblatt-Rosen O, Zhang F, Yeger-Lotem E, Bennett DA, Yang HS, Regev A, Menon V, Habib N, De Jager PL. Multicellular communities are perturbed in the aging human brain and Alzheimer's disease. *Nat Neurosci.* 2023 Jul;26(7):1267-1280. doi: 10.1038/s41593-023-01356-x.

Shaul Hochstein

- 16. Seitz AR, Sekuler A, Doshier B, Wright BA, Huang CB, Shawn Green C, Pack CC, Sagi D, Levi D, Tadin D, Quinlan E. Perceptual Learning: Policy Insights From Basic Research to Real-World Applications. *Policy Insights from the Behavioral and Brain Sciences.* 2023 Oct;10(2):324-32.
- 17. Hochstein S, Khayat N, Pavlovskaya M. Comparing explicit and implicit ensemble perception. *Journal of Vision.* 2023 Aug 1;23(9):4886-.
- 18. Khayat N, Pavlovskaya M, Hochstein S. Comparing explicit and implicit ensemble perception: 3 stimulus variables and 3 presentation modes. *Atten Percept Psychophys.* 2023 Oct 11. doi: 10.3758/s13414-023-02784-4.

Inbal Goshe

- 19. Refaeli R, Kreisel T, Groysman M, Adamsky A, Goshen I. Engram stability and maturation during systems consolidation. *Curr Biol.* 2023 Sep 25;33(18):3942-3950.e3. doi: 10.1016/j.cub.2023.07.042.

Leo Joskowicz

20. Yehuda B, Rabinowich A, Link-Sourani D, Avisdris N, Ben-Zvi O, Specktor-Fadida B, Joskowicz L, Ben-Sira L, Miller E, Bashat DB. Automatic Quantification of Normal Brain Gyrfication Patterns and Changes in Fetuses with Polymicrogyria and Lissencephaly Based on MRI. *American Journal of Neuroradiology*. 2023 Dec 1;44(12):1432-9.
21. Rabinowich A, Avisdris N, Yehuda B, Zilberman A, Graziani T, Neeman B, Specktor-Fadida B, Link-Sourani D, Wexler Y, Herzlich J, Krajden Haratz K. Fetal MRI-Based Body and Adiposity Quantification for Small for Gestational Age Perinatal Risk Stratification. *Journal of Magnetic Resonance Imaging*. 2023 Nov 19.
22. Specktor-Fadida B, Levchakov A, Schonberger D, Ben-Sira L, Ben Bashat D, Joskowicz L. Test-time augmentation-based active learning and self-training for label-efficient segmentation. In *Workshop on Medical Image Learning with Limited and Noisy Data 2023* Oct 8 (pp. 213-223). Cham: Springer Nature Switzerland.
23. Mazor N, Dar G, Lederman R, Lev-Cohain N, Sosna J, Joskowicz L. MC3DU-Net: a multisequence cascaded pipeline for the detection and segmentation of pancreatic cysts in MRI. *Int J Comput Assist Radiol Surg*. 2023 Oct 5. doi: 10.1007/s11548-023-03020-y.
24. Di Veroli B, Lederman R, Sosna J, Joskowicz L. Graph-Theoretic Automatic Lesion Tracking and Detection of Patterns of Lesion Changes in Longitudinal CT Studies. In *International Conference on Medical Image Computing and Computer-Assisted Intervention 2023* Oct 1 (pp. 106-115). Cham: Springer Nature Switzerland.
25. Shaul D, Lev-Cohain N, Sapir G, Sosna J, Gomori JM, Joskowicz L, Katz-Brull R. Real-time influence of intracellular acidification and Na⁺/H⁺ exchanger inhibition on in-cell pyruvate metabolism in the perfused mouse heart: A ³¹P-NMR and hyperpolarized ¹³C-NMR study. *NMR Biomed*. 2023 Oct;36(10):e4993. doi: 10.1002/nbm.4993.
26. Specktor-Fadida B, Link-Sourani D, Rabinowich A, Miller E, Levchakov A, Avisdris N, Ben-Sira L, Hirsch L, Joskowicz L, Ben-Bashat D. Deep learning-based segmentation of whole-body fetal MRI and fetal weight estimation: assessing

- performance, repeatability, and reproducibility. *European Radiology*. 2023 Sep 2:1-2.
27. Rochman S, Szeskin A, Lederman R, Sosna J, Joskowicz L. Graph-based automatic detection and classification of lesion changes in pairs of CT studies for oncology follow-up. *Int J Comput Assist Radiol Surg*. 2023 Aug 4. doi: 10.1007/s11548-023-03000-2.
28. Payette K, Li HB, de Dumast P, Licandro R, Ji H, Siddiquee MMR, Xu D, Myronenko A, Liu H, Pei Y, Wang L, Peng Y, Xie J, Zhang H, Dong G, Fu H, Wang G, Rieu Z, Kim D, Kim HG, Karimi D, Gholipour A, Torres HR, et Al., A. Fetal brain tissue annotation and segmentation challenge results. *Med Image Anal*. 2023 Aug;88:102833. doi: 10.1016/j.media.2023.102833.

Mati Joshua

29. Herzfeld DJ, Joshua M, Lisberger SG. Rate versus synchrony codes for cerebellar control of motor behavior. *Neuron*. 2023 Aug 2;111(15):2448-2460.e6. doi: 10.1016/j.neuron.2023.07.002.

Mickey London

30. Gan-Or B, London M. Cortical circuits modulate mouse social vocalizations. *Sci Adv*. 2023 Sep 29;9(39):eade6992. doi: 10.1126/sciadv.ade6992.

Eran Meshorer

31. Cohen LRZ, Meshorer E. H3K36 methylation is a reprogramming barrier. *Nat Cell Biol*. 2023 Aug;25(8):1077-1078. doi: 10.1038/s41556-023-01147-3.
32. Joron K, Viegas JO, Haas-Neill L, Bier S, Drori P, Dvir S, Lim PSL, Rauscher S, Meshorer E, Lerner E. Fluorescent protein lifetimes report densities and phases of nuclear condensates during embryonic stem-cell differentiation. *Nat Commun*. 2023 Aug 12;14(1):4885. doi: 10.1038/s41467-023-40647-6.
33. Viegas JO, Fishman L, Meshorer E, Rabani M. Calculating RNA degradation rates using large-scale normalization in mouse embryonic stem cells. *STAR Protoc*. 2023 Aug 31;4(3):102534. doi: 10.1016/j.xpro.2023.102534.
34. Pascal C, Zonszain J, Hameiri O, Gargi-Levi C, Lev-Maor G, Tammer L, Levy T, Tarabeih A, Roy VR, Ben-Salmon S, Elbaz L, Eid M, Hakim T, Abu Rabe'a S, Shalev N, Jordan A, Meshorer E, Ast G. Human histone H1 variants impact splicing

outcome by controlling RNA polymerase II elongation. *Mol Cell*. 2023 Nov 2;83(21):3801-3817.e8. doi: 10.1016/j.molcel.2023.10.003.

Aviv Mezer

35. Filo S, Shaharabani R, Bar Hanin D, Adam M, Ben-David E, Schoffman H, Margalit N, Habib N, Shahar T, Mezer AA. Non-invasive assessment of normal and impaired iron homeostasis in the brain. *Nat Commun*. 2023 Sep 12;14(1):5467. doi: 10.1038/s41467-023-40999-z.

Baruch Minke

36. Stanhope SC, Brandwine-Shemmer T, Blum HR, Doud EH, Jannasch A, Mosley AL, Minke B, Weake VM. Proteome-wide quantitative analysis of redox cysteine availability in the *Drosophila melanogaster* eye reveals oxidation of phototransduction machinery during blue light exposure and age. *Redox Biol*. 2023 Jul;63:102723. doi: 10.1016/j.redox.2023.102723.

Adi Mizrahi

37. Licht T, Yunerman M, Maor I, Lawabny N, Oz Rokach R, Shiff I, Mizrahi A, Rokni D. Adaptive olfactory circuitry restores function despite severe olfactory bulb degeneration. *Curr Biol*. 2023 Nov 20;33(22):4857-4868.e6. doi: 10.1016/j.cub.2023.09.061.
38. Mizrahi A. THE ROLE OF ADULT BORN NEURONS IN OLFACTORY COMPUTATIONS AND BEHAVIOR. *IBRO Neuroscience Reports*. 2023 Oct 1;15:S38.

Israel Nelken

39. Maymon Y, Nelken I, Rafaely B. Study of speaker localization with binaural microphone array incorporating auditory filters and lateral angle estimation. *Applied Acoustics*. 2023 Oct 1;213:109632.
40. Jankowski MM, Polterovich A, Kazakov A, Niediek J, Nelken I. An automated, low-latency environment for studying the neural basis of behavior in freely moving rats. *BMC Biol*. 2023 Aug 11;21(1):172. doi: 10.1186/s12915-023-01660-9.
41. Awwad B, Jankowski MM, Polterovich A, Bashari S, Nelken I. Extensive representation of sensory deviance in the responses to auditory gaps in

unanesthetized rats. *Curr Biol.* 2023 Jul 24;33(14):3024-3030.e3. doi: 10.1016/j.cub.2023.06.013.

Idan Segev

42. Moldwin T, Kalmenson M, Segev I. Asymmetric Voltage Attenuation in Dendrites Can Enable Hierarchical Heterosynaptic Plasticity. *eNeuro.* 2023 Jul 17;10(7):ENEURO.0014-23.2023. doi: 10.1523/ENEURO.0014-23.2023.

Hermona Soreq

43. Yehuda H, Madrer N, Goldberg D, Soreq H, Meerson A. Inversely Regulated Inflammation-Related Processes Mediate Anxiety-Obesity Links in Zebrafish Larvae and Adults. *Cells.* 2023 Jul 6;12(13):1794. doi: 10.3390/cells12131794.
44. Kovarik Z, Moshitzky G, Maček Hrvat N, Soreq H. Recent advances in cholinergic mechanisms as reactions to toxicity, stress, and neuroimmune insults. *J Neurochem.* 2023 Jul 10. doi: 10.1111/jnc.15887.
45. Schiller D, Yu ANC, Alia-Klein N, Becker S, Cromwell HC, Dolcos F, Eslinger PJ, Frewen P, Kemp AH, Pace-Schott EF, Raber J, Siltan RL, Stefanova E, Williams JHG, Abe N, Aghajani M, Albrecht F, Alexander R, Anders S, Aragón OR, et Al., The Human Affectome. *Neurosci Biobehav Rev.* 2023 Nov 2:105450. doi: 10.1016/j.neubiorev.2023.105450.
46. Soreq H. Novel single-nucleus transcriptomics unravels developmental and functionally controlled principles of mammalian neuromuscular junctions. *J Neurochem.* 2023 Nov 9. doi: 10.1111/jnc.15986.
47. Arisi I, Malimpensa L, Manzini V, Brandi R, Gosetti di Sturmeck T, D'Amelio C, Crisafulli S, Ferrazzano G, Belvisi D, Malerba F, Florio R, Pascale E, Soreq H, Salvetti M, Cattaneo A, D'Onofrio M, Conte A. Cladribine and ocrelizumab induce differential miRNA profiles in peripheral blood mononucleated cells from relapsing-remitting multiple sclerosis patients. *Front Immunol.* 2023 Dec 13;14:1234869. doi: 10.3389/fimmu.2023.1234869.
48. Kovarik Z, Soreq H. Recent advances in cholinergic mechanisms: A preface for the ISCM2022 special issue. *Journal of Neurochemistry.* 2023 Dec 11.
49. Kern F, Kuhn T, Ludwig N, Simon M, Gröger L, Fabis N, Aparicio-Puerta E, Salhab A, Fehlmann T, Hahn O, Engel A, Wagner V, Koch M, Winek K, Soreq H, Nazarenko I, Fuhrmann G, Wyss-Coray T, Meese E, Keller V, et Al., Ageing-

associated small RNA cargo of extracellular vesicles. *RNA Biol.* 2023 Jan;20(1):482-494. doi: 10.1080/15476286.2023.2234713.

50. Soreq H. Novel single-nucleus transcriptomics unravels developmental and functionally controlled principles of mammalian neuromuscular junctions. *Journal of Neurochemistry.* 2023 Nov 9.

51. Ferber SG, Weller A, Soreq H. Control systems theory revisited: new insights on the brain clocks of time-to-action. *Front Neurosci.* 2023 Jun 9;17:1171765. doi: 10.3389/fnins.2023.1171765.

Yair Weiss

52. Chowers R, Weiss Y. What do CNNs learn in the first layer and why? a linear systems perspective. In *International Conference on Machine Learning 2023 Jul 3* (pp. 6115-6139). PMLR.

Yosef Yarom

53. Masoli S, Sanchez-Ponce D, Vrieler N, Abu-Haya K, Lerner V, Shahar T, Nedelescu H, Rizza MF, Benavides-Piccione R, DeFelipe J, Yarom Y. Human outperform mouse Purkinje cells in dendritic complexity and computational capacity. *Communications biology.* 2023 Dec