

Suggested Reading from the Neurotechnology for Dementia Workshop Speakers

14-16 May 2019

The Royal Society at Chicheley Hall
Buckinghamshire, UK

Barnaghi, Payam

1. Enshaeifar, S., A. Zoha, A. Markides, S. Skillman, S. T. Acton, T. Elsaleh, M. Hassanpour, A. Ahrabian, M. Kenny, S. Klein, H. Rostill, R. Nilforooshan and **P. Barnaghi** (2018). "Health management and pattern analysis of daily living activities of people with dementia using in-home sensors and machine learning techniques." *Plos One* **13**(5).
2. Enshaeifar, S., A. Zoha, S. Skillman, A. Markides, S. T. Acton, T. Elsaleh, M. Kenny, H. Rostill, R. Nilforooshan and **P. Barnaghi** (2019). "Machine learning methods for detecting urinary tract infection and analysing daily living activities in people with dementia." *Plos One* **14**(1).
3. Papachristou, N., **P. Barnaghi**, B. Cooper, K. M. Kober, R. Maguire, S. M. Paul, M. Hammer, F. Wright, J. Armes, E. P. Furlong, L. McCann, Y. P. Conley, E. Patiraki, S. Katsaragakis, J. D. Levine and C. Miaskowski (2019). "Network Analysis of the Multidimensional Symptom Experience of Oncology." *Scientific Reports* **9**.

Beard, Paul

4. Weber, J., **P. C. Beard** and S. E. Bohndiek (2016). "Contrast agents for molecular photoacoustic imaging." *Nat Methods* **13**(8): 639-650.
5. **Beard, P.** (2011). "Biomedical photoacoustic imaging." *Interface Focus* **1**(4): 602-631.
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7. Yao, J. and L. V. Wang (2014). "Photoacoustic Brain Imaging: from Microscopic to Macroscopic Scales." *Neurophotonics* **1**(1).

Borton, David

8. Powell, M. P., X. X. Hou, C. Galligan, J. Ashe and **D. A. Borton** (2017). "Toward multi-area distributed network of implanted neural interrogators." *Biosensing and Nanomedicine* **X** **10352**.
9. Provenza, N. R., E. R. Matteson, A. B. Allawala, A. Barrios-Anderson, S. A. Sheth, A. Viswanathan, E. McIngvale, E. A. Storch, M. J. Frank, N. C. R. McLaughlin, J. F. Cohn, W. K. Goodman and **D. A. Borton** (2019). "The Case for Adaptive Neuromodulation to Treat Severe Intractable Mental Disorders." *Front Neurosci* **13**: 152.
10. Darie, R., M. Powell and **D. Borton** (2017). "Delivering the Sense of Touch to the Human Brain." *Neuron* **93**(4): 728-730.

Boutelle, Martyn

11. Rogers, M. L., C. L. Leong, S. A. N. Gowers, I. C. Samper, S. L. Jewell, A. Khan, L. McCarthy, C. Pahl, C. M. Talias, D. C. Walsh, A. J. Strong and **M. G. Boutelle** (2017). "Simultaneous monitoring of potassium, glucose and lactate during spreading depolarization in the injured human brain - Proof of principle of a novel real-time neurochemical analysis system, continuous online microdialysis." *Journal of Cerebral Blood Flow and Metabolism* **37**(5): 1883-1895.
12. Varner, E. L., C. L. Leong, A. Jaquins-Gerstl, K. M. Nesbitt, **M. G. Boutelle** and A. C. Michael (2017). "Enhancing Continuous Online Microdialysis Using Dexamethasone: Measurement of Dynamic Neurometabolic Changes during Spreading Depolarization." *Acs Chemical Neuroscience* **8**(8): 1779-1788.
13. Booth, M. A., S. A. N. Gowers, C. L. Leong, M. L. Rogers, I. C. Samper, A. P. Wickham and **M. G. Boutelle** (2018). "Chemical Monitoring in Clinical Settings: Recent Developments toward Real-Time Chemical Monitoring of Patients." *Analytical Chemistry* **90**(1): 2-18.

Braeken, Dries

14. Lopez, C. M., H. S. Chun, S. W. Wang, L. Berti, J. Putzeys, C. Van den Bulcke, J. W. Weijers, A. Firrincieli, V. Reumers, D. Braeken and N. Van Helleputte (2018). "A Multimodal CMOS MEA for High-Throughput Intracellular Action Potential Measurements and Impedance Spectroscopy in Drug-Screening Applications." *Ieee Journal of Solid-State Circuits* **53**(11): 3076-3086.
15. Vos, M., G. Esposito, J. N. Edirisinghe, S. Vilain, D. M. Haddad, J. R. Slabbaert, S. Van Meensel, O. Schaap, B. De Strooper, R. Meganathan, V. A. Morais and P. Verstreken (2012). "Vitamin K-2 Is a Mitochondrial Electron Carrier That Rescues Pink1 Deficiency." *Science* **336**(6086): 1306-1310.

Brookes, Matt

16. Boto, E., N. Holmes, J. Leggett, G. Roberts, V. Shah, S. S. Meyer, L. D. Munoz, K. J. Mullinger, T. M. Tierney, S. Bestmann, G. R. Barnes, R. Bowtell and **M. J. Brookes** (2018). "Moving magnetoencephalography towards real-world applications with a wearable system." *Nature* **555**(7698): 657.
17. Boto, E., S. S. Meyer, V. Shah, O. Alem, S. Knappe, P. Kruger, T. M. Fromhold, M. Lim, P. M. Glover, P. G. Morris, R. Bowtell, G. R. Barnes and **M. J. Brookes** (2017). "A new generation of magnetoencephalography: Room temperature measurements using optically-pumped magnetometers." *Neuroimage* **149**: 404-414.
18. Boto, E., R. Bowtell, P. Kruger, T. M. Fromhold, P. G. Morris, S. S. Meyer, G. R. Barnes and **M. J. Brookes** (2016). "On the Potential of a New Generation of Magnetometers for MEG: A Beamformer Simulation Study." *Plos One* **11**(8).

Busche, Marc

19. **Busche, M. A.** and A. Konnerth (2016). "Impairments of neural circuit function in Alzheimer's disease." *Philosophical Transactions of the Royal Society B-Biological Sciences* **371**(1700).
20. **Busche, M. A.**, S. Wegmann, S. Dujardin, C. Commins, J. Schiantarelli, N. Klickstein, T. V. Kamath, G. A. Carlson, I. Nelken and B. T. Hyman (2019). "Tau impairs neural circuits, dominating amyloid-beta effects, in Alzheimer models in vivo." *Nat Neurosci* **22**(1): 57-64.
21. Zott, B., **M. A. Busche**, R. A. Sperling and A. Konnerth (2018). "What Happens with the Circuit in Alzheimer's Disease in Mice and Humans?" *Annual Review of Neuroscience, Vol 41* **41**: 277-297.

Ces, Oscar

22. Elani, Y., R. V. Law and **O. Ces** (2014). "Vesicle-based artificial cells as chemical microreactors with spatially segregated reaction pathways." *Nature Communications* **5**.
23. Elani, Y., T. Trantidou, D. Wylie, L. Dekker, K. Polizzi, R. V. Law and **O. Ces** (2018). "Constructing vesicle-based artificial cells with embedded living cells as organelle-like modules." *Scientific Reports* **8**.
24. Friddin, M. S., Y. Elani, T. Trantidou and **O. Ces** (2019). "New Directions for Artificial Cells Using Prototyped Biosystems." *Analytical Chemistry* **91**(8): 4921-4928.

Cox, Ben

25. Fomenko, A., C. Neudorfer, R. F. Dallapiazza, S. K. Kalia and A. M. Lozano (2018). "Low-intensity ultrasound neuromodulation: An overview of mechanisms and emerging human applications." *Brain Stimul* **11**(6): 1209-1217.
26. Tyler, W. J., S. W. Lani and G. M. Hwang (2018). "Ultrasonic modulation of neural circuit activity." *Curr Opin Neurobiol* **50**: 222-231.
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Denison, Tim

28. B. Litt, M. Stead, J. Van Gompel, B. K. Sturges, H. J. Jo, C. M. Crowe, **T. Denison** and G. A. Worrell (2018). "Integrating Brain Implants With Local and Distributed Computing Devices: A Next Generation Epilepsy Management System." *IEEE J Transl Eng Health Med* **6**: 2500112.
29. Baud, M. O., J. K. Kleen, E. A. Mirro, J. C. Andrechak, D. King-Stephens, E. F. Chang and V. R. Rao (2018). "Multi-day rhythms modulate seizure risk in epilepsy." *Nature Communications* **9**(1): 88.
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Dupont, Patrick

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Dutta, Barun

34. Lopez, C. M., J. Putzeys, B. C. Raducanu, M. Ballini, S. W. Wang, A. Andrei, V. Rochus, R. Vandebriel, S. Severi, C. Van Hoof, S. Musa, N. Van Helleputte, R. F. Yazicioglu and S. Mitra (2017). "A Neural Probe With Up to 966 Electrodes and Up to 384 Configurable Channels in 0.13 μm SOI CMOS." IEEE Transactions on Biomedical Circuits and Systems **11**(3): 510-522.
35. Callaway, E. M. and A. K. Garg (2017). "Neurons recorded en masse." Nature **551**(7679): 172-173.
36. Jun, J. J., N. A. Steinmetz, J. H. Siegle, D. J. Denman, M. Bauza, B. Barbarits, A. K. Lee, C. A. Anastassiou, A. Andrei, C. Aydin, M. Barbic, T. J. Blanche, V. Bonin, J. Couto, **B. Dutta**, S. L. Gratiy, D. A. Gutnisky, M. Hausser, B. Karsh, P. Ledochowitsch, C. M. Lopez, C. Mitelut, S. Musa, M. Okun, M. Pachitariu, J. Putzeys, P. D. Rich, C. Rossant, W. L. Sun, K. Svoboda, M. Carandini, K. D. Harris, C. Koch, J. O'Keefe and T. D. Harris (2017). "Fully integrated silicon probes for high-density recording of neural activity." Nature **551**(7679): 232-+.
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38. (preprint) Steinmetz, N. A., P. Zatzka-Haas, M. Carandini and K. D. Harris (2018). "Distributed correlates of visually-guided behaviour across the mouse brain. doi: <https://doi.org/10.1101/474437>

Faisal, Aldo

39. Komorowski, M., L. A. Celi, O. Badawi, A. C. Gordon and **A. A. Faisal** (2018). "The Artificial Intelligence Clinician learns optimal treatment strategies for sepsis in intensive care." Nat Med **24**(11): 1716-1720.
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41. (preprint) Stout, D., T. Chaminade, A. Thomik, J. Apel and **A. Faisal** (2018). "Grammars of action in human behaviour and evolution. doi: <https://doi.org/10.1101/281543>

Fawcett, James

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Fried, Shelley

45. Lee, S. W., F. Fallegger, B. D. F. Casse and **S. I. Fried** (2016). "Implantable microcoils for intracortical magnetic stimulation." Science Advances **2**(12).
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Gilmore, Ian

47. Passarelli, M. K., C. F. Newman, P. S. Marshall, A. West, **I. S. Gilmore**, J. Bunch, M. R. Alexander and C. T. Dollery (2015). "Single-Cell Analysis: Visualizing Pharmaceutical and Metabolite Uptake in Cells with Label-Free 3D Mass Spectrometry Imaging." Analytical Chemistry **87**(13): 6696-6702.
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49. **Gilmore, I. S.**, S. Heiles and C. L. Pieterse (2019). "Metabolic Imaging at the Single-Cell Scale: Recent Advances in Mass Spectrometry Imaging." Annu Rev Anal Chem (Palo Alto Calif).

Grigsby, Chris

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Grossman, Nir

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Haar, Shlomi

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Jackson, Andrew

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Koroshetz, Walter

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62. Massive NIH-industry project opens portals to target validation <https://www.nature.com/articles/d41573-019-00033-8>

Lacour, Stéphanie

63. Kremen, V., B. H. Brinkmann, I. Kim, H. Guragain, M. Nasser, A. L. Magee, T. Pal Attia, P. Nejedly, V. Sladky, N. Nelson, S. Y. Chang, J. A. Herron, T. Adamski, S. Baldassano, J. Cimbalknik, V. Vasoli, E. Fehrmann, T. Chouinard, E. E. Patterson, **Lacour, S. P.**, G. Courtine and J. Guck (2016). "Materials and technologies for soft implantable neuroprostheses." *Nature Reviews Materials* **1**(10).
64. **Lacour, S. P.**, G. Courtine and J. Guck (2016). "Materials and technologies for soft implantable neuroprostheses." *Nature Reviews Materials* **1**(10).
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Malliaras, George

67. Proctor, C. M., A. Slezia, A. Kaszas, A. Ghestem, I. del Agua, A. M. Pappa, C. Bernard, A. Williamson and **G. G. Malliaras** (2018). "Electrophoretic drug delivery for seizure control." *Science Advances* **4**(8).
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Owens, Róisín

69. Pas, J. C. Pitsalidis, D. A. Koutsouras, P. P. Quilichini, F. S. B. Cui, L. Gallais, R. P. O'Connor, G. G. Malliaras and **R. M. Owens** (2018). "Neurospheres on patterned PEDOT:PSS microelectrode arrays enhance

electrophysiology recordings." *Advanced Biosystems* **2**(1).

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Schultz, Simon

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Urban, Alan

76. Mace, E., G. Montaldo, S. Trenholm, C. Cowan, A. Brignall, **A. Urban** and B. Roska (2018). "Whole-Brain Functional Ultrasound Imaging Reveals Brain Modules for Visuomotor Integration." *Neuron* **100**(5): 1241-1251 e1247.
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Van Helleputte, Nick

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Woolrich, Mark

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