

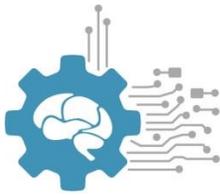
December, 2015

Awards

- **Adrienne Fairhall** and **Eric Shea-Brown** (CSNE Thrust Leaders) have been awarded a Swartz Foundation grant to support theoretical neuroscience at the University of Washington. Read more about the new grant at: <http://www.washington.edu/news/blog/swartz-foundation-grant-to-boost-uw-research-in-computational-neuroscience/>
- UW Graduate Students **Kaitlyn Casimo** and **Guarav Mukherjee** have been selected to the 2016 class of the AAAS Emerging Leaders In Science & Society.

Upcoming Seminars, Lectures, Courses

- **Technology Commercialization** (ENTRE 541; principles and practice of building a technology commercialization plan) and **Neural Engineering** (BioE498/599; co-taught by Drs. Raj Rao and Lise Johnson) will be offered during winter quarter at the University of Washington.
- Applications for the summer 2016 CSNE Research Experience for Undergraduates (**REU**), Research Experience for Veterans (**REV**), Research Experience for Teachers (**RET**) and Young Scholars Program (**YSP**) are now being accepted. Deadlines for the applications are in early 2016. Online applications are available at: <http://csne-erc.org/education>
- Neuroethics Seminar "Plugged-In Patients: **Brain-Computer Interfaces**" from the Center for Bioethics, Harvard Medical School, Thursday, December 3, 2015, 4:30-6:00 pm EST; webcast live: <http://bioethics.hms.harvard.edu/news/plugged-patients-brain-computer-interfaces>
- UW PBio Seminar, "Reconstruction and Simulation of Neocortical Microcircuitry" by **Henry Markram**, Ph.D., Professor, École Polytechnique Fédérale de Lausanne, Switzerland, Director Blue Brain Project and the Human Brain Project; Thursday, December 3, 2015, 9:30 a.m., G-328 HSB
- UWIN Seminar, **Nathan Kutz**, Robert Bolles and Yasuko Endo Professor of Applied Mathematics, University of Washington, "Neural processing, networks and decision-making: Integrating equation-free methods, machine learning and sparsity," Wednesday, December 9, 3:30 pm, Univ. Washington, HSB K-069.
- UW CompNeuro Seminar, **Michael Beyeler** (Cognitive Anteaater Robotics Lab, UC Irvine, "A cortical neural network model of visual motion perception for decision-making and reactive navigation," Tuesday, December 1, 2015, 4-5pm, Guthrie Hall Annex 3 RM 120



New CSNE Publications

- **Brunton, B.W., Johnson, L.A., Ojemann, J.G. and Kutz, J.N.** Extracting spatial-temporal coherent patterns in large-scale neural recordings using dynamic mode decomposition. *J Neurosci Methods*, 2015 Oct 31. pii: S0165-0270(15)00382-9. doi: 10.1016/j.jneumeth.2015.10.010.
- Chung, M.J., Friesen, A.L., Fox, D., Meltzoff, A.N. and **Rao, R.P.** A Bayesian Developmental approach to robotic goal-based imitation learning. *PLoS One*. 2015;10(11):e0141965.
- Matsumoto, Y., Chen, R., **Anikeeva, P.** and Jasanoff, A. Engineering intracellular biomineralization and biosensing by a magnetic protein. *Nat Commun*. 2015 Nov 2;6:8721.
- **Klein, E., Brown, T., Sample, M., Truitt, A.R. and Goering, S.** Engineering the brain: Ethical issues and the introduction of neural devices. *Hastings Center Report* 45, 6: 26-35, 2015.
- **Klein, E.** Informed consent in implantable BCI research: Identifying risks and exploring meaning. *Science and Engineering Ethics*, pp.1-19, 2015.

CSNE in the News

- Several news outlets in San Diego reported on the **renewal of the CSNE** including The Daily Aztec, SanDiego6, KPBS and the SDSU Newscenter:
 - <http://www.thedailyaztec.com/71128/news/new-brain-microchip-could-mobilize-people-with-paralysis/>
 - http://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=75871
 - <http://www.sandiego6.com/news/local/Renewed-hope-for-brain-injuries-paralysis-could-be-a-thing-of-the-past-337291321.html>
 - <http://www.kpbs.org/news/2015/oct/26/san-state-searches-breakthrough-paralysis/>
- **Mr. Benjamin Hart** (teacher at Redmond High School), a 2015 CSNE Research Experience for Teachers participant, was mentioned in the November 6, 2015, Lake Washington School District *Focus* newsletter.
- The UW Daily announces the creation of the new graduate **Certificate in Neural Computation and Engineering**:
http://www.dailyuw.com/news/article_53c135ac-9721-11e5-b040-4b2fbd6fe74d.html



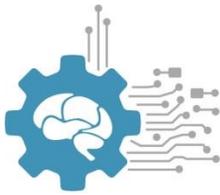
- “A knack for hacking: Students tackle neural engineering problems at the CSNE” that describes **the 2015 CSNE Hackathon** was published in the November 12, 2015 issue of *The Daily*:
http://www.dailyuw.com/science/article_23efc846-88fa-11e5-ae3e-8f2ca73729a5.html

Recent Papers of Interest to the CSNE Community

- Park et al., Soft, stretchable, fully implantable miniaturized optoelectronic systems for wireless optogenetics. *Nature Biotech*, 2015, doi:10.1038/nbt.3415
- Pinnell, R.C., Dempster, J. and Pratt, J., Miniature wireless recording and stimulation system for rodent behavioural testing. *Journal of Neural Engineering*, 12:6, 2015, doi:10.1088/1741-2560/12/6/066015
- Robinson, N., Guan, C. and Vinod, A.P., Adaptive estimation of hand movement trajectory in an EEG based brain–computer interface system. *Journal of Neural Engineering*, 12:6, 2015.
- Jarosiewicz et al., Virtual typing by people with tetraplegia using a self-calibrating intracortical brain-computer interface, *Science Translational Medicine*, 7: 313ra179, DOI: 10.1126/scitranslmed.aac7328.
- Rajan, A.T., Boback, J.L., Dammann, J.F., Tenore, F.B., Wester, B.A., Otto, K.J., Gaunt, R.A. and Bensmaia, S.J., The effects of chronic intracortical microstimulation on neural tissue and fine motor behavior. *Journal of Neural Engineering*, 12:6, 2015.
- Klaes, C., Kellis, S., Aflalo, T., Lee, B., Pejsa, K., Shanfield, K., Hayes-Jackson, S., Aisen, M., Heck, C., Liu, C., Andersen, R.A., Hand shape representations in the human posterior parietal cortex, *J. Neurosci.*, 35: 15466-15476, 2015.

Grant Opportunities

- Integrative Strategies for Understanding Neural and Cognitive Systems:
http://www.nsf.gov/pubs/2016/nsf16508/nsf16508.htm?WT.mc_id=USNSF_25&WT.mc_ev=click
- BRAIN Initiative: New Technologies and Novel Approaches for Large-Scale Recording and Modulation in the Nervous System (U01) Grant:
<http://www.grants.gov/web/grants/view-opportunity.html?oppld=280111>
- BRAIN Initiative: Optimization of Transformative Technologies for Large Scale Recording and Modulation in the Nervous System (U01) Grant
<http://www.grants.gov/web/grants/view-opportunity.html?oppld=280112>



CENTER FOR SENSORIMOTOR NEURAL ENGINEERING

Improving lives by connecting brains and technology

- BRAIN Initiative: Development and Validation of Novel Tools to Analyze Cell-Specific and Circuit-Specific Processes in the Brain (R01) Grant
<http://www.grants.gov/web/grants/view-opportunity.html?oppld=280114>
- BRAIN Initiative: Non-Invasive Neuromodulation - Mechanisms and Dose/Response Relationships for Targeted CNS Effects (R01) Grant
<http://www.grants.gov/web/grants/view-opportunity.html?oppld=280230>
- BRAIN Initiative: Non-Invasive Neuromodulation - New Tools and Techniques for Spatiotemporal Precision (R01) Grant
<http://www.grants.gov/web/grants/view-opportunity.html?oppld=280240>
- Research Associateship Programs:
<http://sites.nationalacademies.org/pga/rap/>
- Vodafone Wireless Innovation Project
<http://vodafone-us.com/wireless-innovation-project/>

Join the CSNE Facebook site at:

<https://www.facebook.com/groups/134997836537779/>

Please send additional news and events items for inclusion in this newsletter to Dr. Eric Chudler (CSNE, Executive Director) at chudler@uw.edu.