

# NEURO NEWS

## \*\*\*\*2018 Incoming Students\*\*\*\*

**Nathaniel Ghena**, Central Michigan University  
**Madelyn Haller**, Colgate University  
**Tatsuya Hayashi**, CUNY Hunter College  
**Ava Niazi**, University of South Florida  
**Nguyen Pham**, California State University, San Marcos  
**Aniket Ramshekar**, University of Michigan, Ann Arbor  
 (MD/PhD student)  
**Daniel Rivera**, Florida International University  
**Christopher Rudzitis**, Muhlenberg College  
**Danlei Wang**, Nanyang Technological University

## \*\*\*\*ACADEMIC DEFENSES\*\*\*\*

Since the last issue of NeuroNews, the Neuroscience Program congratulates the following students on successfully passing their qualifying exams: **Jenifer Einstein (Shepherd lab)**, **Dominic Skinner (Lane lab)**, **Arnulfo Tunon-Ortiz (Lamb lab)** and **Charlotte Magee (Fleckenstein lab)**;

and dissertation proposals: **Christine Wnukowki (Jorgensen lab)** and **Ariadne Penalva (Douglass lab)**,

and dissertation defenses: **Anthony Umpierre (Wilcox lab)**, **Leonardo Parra (Jorgensen lab)**, **Yueqi Wang (Shcheglovitov lab)**, **Jaycie Loewen (Wilcox lab)** and **Jace King (Anderson lab)**.

## \*\*\*\*STUDENT AWARDS\*\*\*\*

**Laura Bell (Shcheglovitov lab)** is the recipient of a NSF fellowship. This is a 3 year award and will cover her stipend as well as cost-of education allowance.

**Arnulfo Tunon-Ortiz (Lamb lab)** has been awarded a Research Supplement to Promote Diversity for 3 years through NINDS.

**Kyle Jenks (Shepherd lab)** was accepted and attended the Cold Spring Harbor Laboratory Imaging the Structure and Function of the Nervous System course.

## \*\*\*\*FACULTY AWARDS\*\*\*\*

The **Rothenfluh lab** obtained a new NIH/NIAAA R01 grant: AA026818 MECHANISMS OF ALCOHOL-INDUCED PLASTICITY MEDIATED BY ARF6, 8/10/2018 – 5/31/2023

## \*\*\*\*SEMINAR SERIES 2018-2019\*\*\*\*

**September 18: David Sulzer, Ph.D.**, Columbia U.  
**October 16: Jennifer Li, Ph.D.**, Rowland I., Harvard  
**November 20: Aaron Batista, Ph.D.**, U. of Pittsburgh  
**January 15: Bitu Moghaddam, Ph.D.**, OHSU  
**February 19: Axel Brunger, Ph.D.**, Stanford U.  
**March 19: Patrick Kanold, Ph.D.**, U. of Maryland,  
 College Park  
**April 16: Yun Zhang, Ph.D.**, Harvard U.

see more details at:

<https://neuroscience.med.utah.edu/meetings.php>

## \*\*\*\*Other Important Dates\*\*\*\*

**Sept. 6: Neuroscience Program: Meet the New Students Reception**  
 Jewish Community Center; 5-8PM

**Sept. 25: Bioscience Symposium**

**Oct. 19: Annual Neuroscience Program Symposium @ Snowbird**  
*"Of Mind and Math: Big Data Analysis and Computational Approaches in Neuroscience"*

<https://neuroscience.med.utah.edu/snowbird.php>

This year's invited speakers:

**Nancy Kopell, Ph.D.**, Boston University  
**Adrienne Fairhall, Ph.D.**, University of Washington  
**Brad Aimone, Ph.D.**: Sandia National Laboratories  
**Jeffrey Anderson, Ph.D.**, University of Utah  
**Alla Borisyuk, Ph.D.**, University of Utah  
**Neda Nategh, Ph.D.**, University of Utah

The Intermountain Chapter of the Society for Neuroscience has already placed a call for abstracts for the poster session: Abstract deadline for poster submissions: October 5, 2018, 5:00PM

**Nov. 3-7: The Society for Neuroscience Annual Meeting** held this year in San Diego, CA.

**Feb. 8, 2019: Neuroscience Program Recruitment Weekend.**

\*\*\*\*ALUMNI NEWS\*\*\*\*

**J. Scott Lauritzen:** Zhihao Zheng\*, **J. Scott Lauritzen\***, Eric Perlman, Camenzind G. Robinson, Matthew Nichols, Daniel Milkie, Omar Torrens, John Price, Corey B. Fisher, Nadiya Sharifi, Steven A. Calle-Schuler, Lucia Kmecova, Iqbal J. Ali, Bill Karsh, Eric T. Trautman, John A. Bogovic, Philipp Hanslovsky, Gregory S.X.E. Jefferis, Michael Kazhdan, Khaled Khairy, Stephan Saalfeld, Richard D. Fetter, Davi D. Bock, 2018, A Complete Electron Microscopy Volume of the Brain of Adult Drosophila melanogaster, *Cell*, 174(3): 1-14.

\*These authors contributed equally to this manuscript.

**Benedict Albeni:** is now the Chair of a national DSMB for a multinational Alzheimer study in Canada and Australia. He has also been elected to the Senate of the University of Manitoba representing the Rady Faculty of Health Sciences. This is a 2 year term.

Adlimoghaddam, A., Roy, B., and **Albeni, B.C.**, 2018, Future Trends and the Economic Burden of Dementia in Manitoba: Comparison with the Rest of Canada and the World, *Neuroepidemiology*, Jul 3;51(1-2):71-81.

Roy Chowdhury, S., Djordjevic, J., Thomson, E., Smith, D.R., **Albeni, B.C.**, and Fernyhough, P., 2018, Depressed mitochondrial function and electron transport Complex II-mediated H2O2 production in the cortex of type 1 diabetic rodents, *Mol Cell Neurosci*, May 23;90:49-59.

Snow, W.M., Cadonic, C., Cortes-Perez, C., Roy Chowdhury, S.K., Djordjevic, J., Thomson, E., Bernstein, M.J., Suh, M., Fernyhough, P., and **Albeni, B.C.**, 2018, Chronic dietary creatine enhances hippocampal-dependent spatial memory, bioenergetics, and levels of plasticity-related proteins associated with NF-KB, *Learn Mem*, Jan 16;25(2):54-66.

Adlimoghaddam, A., Neuendorff, M., Roy, B., and Albeni, B.C., 2018, A review of clinical treatment considerations of donepezil in severe Alzheimer's disease, *CNS Neuroscience and Therapeutics*, epub ahead of print.

**Jared Nielsen:** is now an Assistant Professor of Psychology and Neuroscience at Brigham Young University.

Martin-Brevet, S.\*, Rodríguez-Herreros, B.\*, **Nielsen, J.A.\***, ..., Buckner, R.L., Draganski, B., and Jacquemont, S., 2018, Quantifying the Effects of 16p11.2 Copy Number Variants on Brain Structure: A Multisite Genetic-First Study, *Biological Psychiatry*, 84(4): 253-264.  
\* equal contributions

**Elissa Pastuzyn:** wrote this article for the Royal Society of Biology: <https://thebiologist.rsb.org.uk/biologist-features/158-biologist/features/1967-are-our-memories-formed-by-an-ancient-virus>

\*\*\*\*NEW FACULTY\*\*\*\*

Since the last issue of NeuroNews we have added the following new faculty:

**Neda Nategh, Ph.D., Assistant Professor of Electrical & Computer Engineering.**  
Research: Computational understanding of the brain's dynamic vision functions, neuro-inspired artificial vision.

\*\*\*\*News Worthy\*\*\*\*

So this happened right after the last issue of NeuroNews:

Great press for **Jason Shepherd's** Cell paper  
[http://www.cell.com/cell/fulltext/S0092-8674\(17\)31504-0](http://www.cell.com/cell/fulltext/S0092-8674(17)31504-0)

U of U release  
<https://healthcare.utah.edu/publicaffairs/news/2018/01/memory-virus.php>

The Atlantic  
<https://www.theatlantic.com/science/archive/2018/01/brain-cells-can-share-information-using-a-gene-that-came-from-viruses/550403/>

Newsweek  
<http://www.newsweek.com/breakthrough-memory-formation-virus-hiv-protein-infects-brain-arc-778236>

Nature  
<https://www.nature.com/articles/d41586-018-00492-w>

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3 neuroscience-focused Bioengineering graduate students were awarded the NSF fellowship: Kara Johnson and Shana Black from the Butson lab, and Marta Iversen from the **Rabbitt lab**.

Jenna Novy (undergrad in **Shepherd lab**) was awarded a UROP.

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**Daniel** and Mindy **Lathen (Rothenfluh lab)** welcomed Brook Olivia on January 6th.



\*\*\*\*Postdoctoral Position - Angelucci lab\*\*\*\*

A postdoctoral position is immediately available in **Dr. Alessandra Angelucci's** laboratory at the Moran Eye Institute, University of Utah. The postdoctoral fellow will be part of several large projects funded by two NIH R01s, an NIH BRAIN initiative and 2 NSF grants aimed at understanding the structure and function of feedforward and feedback circuits in the visual cortex of the non-human primate (macaque and marmoset), as well as developing novel technologies for simultaneous large scale optogenetic and electrical recordings. Technical approaches involve use of state of the art viral tracing methods, circuit specific optogenetics combined with electrode array recordings and in vivo 2-photon calcium imaging.

The ideal candidate would have strong quantitative and programming (e.g. Matlab, Python, C...) skills, and experience in electrophysiology and or/ in vivo 2P imaging.

The salary is commensurate with experience and postdoctoral NIH pay scales in the US. The positions entail an excellent health care and recreational benefits package. Salt Lake City offers unparalleled opportunities for outdoors recreation including world class skiing, rock climbing, mountain biking, river rafting and hiking. The city is consistently ranked among the most livable cities in America and is also a very affordable place to live.

To apply, please send a CV and name of 2-3 referees to [alessandra.angelucci@hsc.utah.edu](mailto:alessandra.angelucci@hsc.utah.edu).

\*\*\*\*Postdoctoral Position - Rothenfluh lab\*\*\*\*

The **Rothenfluh lab** is seeking a postdoctoral fellow. We are looking for someone detail-oriented, conscientious, and motivated. The lab studies the molecular mechanisms of addiction using *Drosophila* as a model organism. Prior experience in any of these areas would be preferred beneficial: neuroscience, live imaging, high-throughput -omics analysis. Contact: [adrian.rothenfluh@hsc.utah.edu](mailto:adrian.rothenfluh@hsc.utah.edu)

\*\*\*\*Neuroscience Initiative (NSI) Highlights \*\*\*\*

1. We partnered with NBA to recruit Dr. Jim Heys.
2. We had a successful Brain Awareness Week (BAW) this year. The event was headed by **Christie Wnukowski (Jorgensen lab)**.
3. We helped sponsor a graduate recruitment video. Project lead was **Chris Gregg**.
4. Our NSI Seed Grants helped **Alex Shcheglovitov** secure federal funding for over \$2 million (R21 + RO1). Project Title: "Patient-specific "mini brains" as a new model system for pediatric epilepsy research". Research Team - **Alexander Shcheglovitov** along with Robert Bollo and Jay Spanpanato from Neurosurgery. NSI Seed Grant Amount - \$100,000.

Our 2018 NSI Seed Grant was awarded to the research team of **Sophie Caron - Biology, Jason Shepherd - Neurobiology & Anatomy**, Mark Metzstein, Human Genetics, **Adrian Rothenfluh - Psychiatry**

Project Title: "Arc-capsids: new way of neuronal communication during synaptic plasticity and learning" NSI Seed Grant Amount - \$50,000.

5. We helped sponsor **Jason Shepherd's** Synapse Interest Group seminar series.

In 2018, the NSI at the University of Utah funded five one-year pilot collaborative seed grant projects for up to \$50,000 in research areas that align with the NSI mission of deepening our understanding of the brain and transforming this knowledge into innovative solutions for patient care. The NSI links basic, translational, and clinical research in five disease pillar areas:

- 1) Demyelinating & Neuroimmune Diseases
- 2) Mood & Behavior Disorders
- 3) Neural Injury & Recovery
- 4) Neurodegenerative Disorders
- 5) Episodic Brain Dysfunction

Seed grant applications focusing on "Neuroinflammation and It's Role In Diseases" were also encouraged.

Grants Development – NSI facilitated StrokeNET and NeuroNEXT renewals for Neurology.

In 2017, **Tom Lane** led a team to secure a Multiple Sclerosis Collaborative Research Center Grant by the National MS Society. NSI provided support for proposal preparation and submission. The MS Center grant involves faculty from Pathology and Neurology, and is directed towards understanding MS progression and repair using viral models.

Info on StrokeNET:

University of Utah Health Sciences Center (UUHC) Stroke Center was chosen to be one of 25 Regional Coordinating Centers in the NIH funded Stroke Trials Network (StrokeNet). The team recently went through a competitive renewal and secured funding for the next grant period of 5 years. The Stroke Center leads multidisciplinary stroke care and research in the Mountain West region and has consistently achieved the highest quality awards offered by the American Heart & Stroke Association.

In 2018, **Baldomero Olivera** along with his colleagues were awarded a \$10M DOD grant. The grant was directed towards studies on cone snail venom and how it might be transformed into a safer alternative to opioid painkillers. The initial work that provided the foundation for this research grant was funded through the University of Utah's NSI Collaborative Pilot Seed Grant Program.

**NEW NSI WEB PAGE:**

<https://uofuhealth.utah.edu/neuroscience-initiative/about.php>

## \*\*\*RECENTLY PUBLISHED\*\*\*

**Bijanazadeh M.**, Nurminen L., Merlin S., Clark A.M., and **Angelucci A.**, 2018, Distinct laminar processing of local and global context in primate primary visual cortex, *Neuron*, Accepted.

**King, J.B.**, and **Anderson, J.S.**, 2018, Sustained versus instantaneous connectivity differentiates cognitive functions of processing speed and fluid intelligence. *Human Brain Mapping*, doi: 10.1002/hbm.24336

**King, J.B.**, Jones, K.G., Goldberg, E., Rollins, M., MacNamee, K., Moffitt, C., Naidu, S.R., Garcia-Leavitt, E., Amaro, J., Breitenbach, K., Watson, J.M., Gurgel, R.K., **Anderson, J.S.**, and Foster, N.L., 2018, Increased functional connectivity after listening to favored music in adults with Alzheimer dementia. *The Journal of Prevention of Alzheimer's Disease*, doi: 10.14283/jpad.2018.19

**King, J.B.**, **Anderson, J.S.**, **Yurgelun-Todd, D.A.**, **Subramaniam, P.**, Ehrler, M., and Lopez-Larson, M.P., 2018, Decreased anterior cingulate activation in a motor task in youths with bipolar disorder. *Journal of Child Psychology and Psychiatry*, doi: 10.1111/jcpp.12875

Lavoy, S., Chittoor-Vinod, V.G., **Chow, C.Y.**, and Martin, I., 2018, Genetic Modifiers of Neurodegeneration in a Drosophila Model of Parkinson's Disease. *Genetics*, 209(4):1345-1356.

Nurminen, L., Merlin S., **Bijanazadeh M.**, **Federer F.**, and **Angelucci A.**, 2018, Top-down feedback controls spatial summation and response amplitude in primate visual cortex, *Nature Communications*, 9:2281.

Owings, K.G., Lowry, J.B., Bi, Y., Might, M., and **Chow, C.Y.**, 2018, Transcriptome and functional analysis in a Drosophila model of NGLY1 deficiency provides insight into therapeutic approaches. *Hum. Mol. Gen.*, 27(6):1055-1066.

Palu, R., and **Chow, C.Y.**, 2018, Baldspot/ELOVL6 is a conserved modifier of disease and the ER stress response. *PLOS Genet.* 14(8).

De, S.\*, **Van Deren, D.\***, Peden, E., Hockin, M., Boulet, A., Titen, S., and **Capecchi, M.R.**, 2018, Two distinct ontogenies confer heterogeneity to mouse brain microglia, *Development*, 145: dev152306 doi: 10.1242/dev.152306 Published 4 July 2018 \*These authors contributed equally to this work.

Spampanato, J., **Gibson, A.**, and **Dudek, F.E.**, 2018, The antihelminthic moxidectin enhances tonic GABA currents in rodent hippocampal pyramidal neurons, *J Neurophysiol*, May 1;119(5):1693-1698. doi: 10.1152/jn.00587.2017. Epub 2018 Jan 24. PMID: 29364072

Williams, P.G., Johnson, K.T., Curtis, B.J., **King, J.B.**, and **Anderson, J.S.**, 2018, Individual differences in aesthetic engagement are reflected in resting-state fMRI connectivity: Implications for stress resilience. *NeuroImage*, 179:156-165, doi: 10.1016/j.neuroimage.2018.06.042

## \*\*\*Non-Invasive Neurostimulation Program\*\*\*

The Non-Invasive Neurostimulation (NIN) Program will be launching this fall. The NIN facility offers University of Utah researchers the opportunity to incorporate Transcranial Magnetic Stimulation (TMS) into their human neuroscience research. The NIN research facility features a state-of-the-art TMS stimulator, neuronavigation system, and TMS-compatible electroencephalography (EEG).

This program will apply cutting-edge TMS research methods to achieve two major objectives:

1. **Precision science.** Create new knowledge about how the human brain works.
2. **Personalized treatment.** Explore novel, personalized therapeutic and diagnostic approaches for neurological and psychiatric diseases.

The NIN Program is a collaborative effort between the Department of Psychiatry and the Scientific Computing and Imaging (SCI) Institute. The program is led by Christopher Butson, PhD, Associate Professor of Biomedical Engineering and a faculty member in the SCI Institute, and Brian Mickey, MD, PhD, Associate Professor of Psychiatry.

The facility is located in Research Park at the University Neuropsychiatric Institute (UNI) and will be available for use by all University of Utah investigators.

More information can be found at: <https://medicine.utah.edu/psychiatry/nin/>

Please contact Dr. Butson ([butson@sci.utah.edu](mailto:butson@sci.utah.edu)) or Dr. Mickey ([brian.mickey@hsc.utah.edu](mailto:brian.mickey@hsc.utah.edu)) with questions.

*Do you have something to submit in the next issue of NeuroNews?*

Send your information to: Tracy Marble, Program in Neuroscience; 390A BPRB, FAX: 581-4233, or e-mail: [tracy.marble@hsc.utah.edu](mailto:tracy.marble@hsc.utah.edu)