UNIVERSITY of WASHINGTON COMPUTATIONAL NEUROSCIENCE CENTER

AMBASSADE DE FRANCE AUX ÉTATS-UNIS
Liberté
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Service pour la Science et la Technologie
Office for Science and Technology

NeuroAI Seattle Meeting
Tuesday, September 27, 2022
Zillow Commons

7:50 - 8:00 am	Welcome
8:00 - 8:20 am	*"Learning dynamics of deep networks with multiple pathways"* Michael Buice, Allen Institute for Brain Science
8:20 - 8:40 am	*"Effects of aging on tissue properties of the optic radiations, and how this differs with glaucoma"* John Kruper, Postbac student, Ariel Rokem lab, University of Washington
8:40 - 9:00 am	*"LivingPark: open evaluations of Parkinson's Disease MRI measures"* Tristan Glatard, Concordia University
9:00 - 9:20 am	*"Automated methods to model brain and behavior connections in mouse cortex: a focus on stroke"* Tim Murphy, University of British Columbia
9:20 - 9:40 am	*"Joint coding of visual input and eye/head position in V1 of freely moving mice"* Elliott Abe, Graduate Student, Cris Niell lab, University of Oregon
9:40 - 10:00 am	*"Identifying subpopulations of neurons without double-dipping"* Daniela Witten, University of Washington
10:00 - 10:20am	Break
10:20 - 10:40am	*"Chimera states & the critical brain hypothesis"* Joern Davidsen, University of Calgary
10:40 - 11:00am	"*Visual exploration signals in the monkey hippocampus"* Beth Buffalo, University of Washington
11:00 - 11:20am	*"Tracking turbulent plumes with deep reinforcement learning"* Bing Brunton, University of Washington

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11:20 - 11:40am	*"Learning from combinations of active training and passive exposure to sounds"* Santiago Jaramillo, University of Oregon
11:40 – 12:00 pm	*"Distributed coding for perception, action, and cognition in the mouse brain"* Nick Steinmetz, University of Washington
12:00 - 1:00 pm	Lunch
1:00 - 1:20 pm	*"Supervised Learning Rules in the Hypothalamus Mediate a Plastic Response to Stressors"* Wilten Nicola, University of Calgary
1:20 - 1:40pm	Adrienne Fairhall, University of Washington
1:40 - 2:00 pm	*"Network geometry for sensing and learning"* Kameron Harris, Western Washington University
2:00 - 3:00 pm	IN-BIC planning meeting – open to all faculty involved in IN-BIC CSE2 382
3:00 - 4:30 pm	Shanahan Family Foundation Fellows presentations
5:00 - 6:00 pm	*"AI: where did it come from, what is it now and where is it going?"* Blaise Agüera y Arcas, Google
6:00 - 7:00 pm	Reception in Zillow Commons

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8:15 - 8:30 am	Introduction - Mireille Guyader, French embassy
8:30 - 9:00 am	*"Deciphering the Biological Basis of Cognitive Control"* Frederic Alexandre, Inria Bordeaux, France
9:00 - 9:30 am	*"Contrastive introspection for brain-like credit assignment in reinforcement learning"* Blake Richards, McGill/Mila
9:30 - 10:00 am	*"A rubric for Human-like Artificial Agents and NeuroAI"* Ida Mommenajad, Microsoft
10:00 - 10:30am	Break
10:30 - 11:00am	*"Assigning credit through the "other" connectome"* Eric Shea-Brown, University of Washington
11:00 - 11:30 am	*"Metastable circuit dynamics explain optimal coding of auditory stimuli at moderate arousals"* Lia Papadopoulos, Postdoctoral Fellow, Luca Mazzucato lab, University of Oregon
11:30 -1:00 pm	Poster session in CSE2 382 and lunch
1:00 - 1:30 pm	*"Norepinephrine neurons drive reinforcement learning"* Jeremiah Cohen, Allen Institute for Neural Dynamics
1:30 - 2:00 pm	*"Needing, Tasting, Wanting: A Homeostatic Framework for Reinforcement Learning"* Boris Gutkin, *ENS, Paris*
2:00 - 2:30pm	*"Insights into the computations supporting intelligent human behavior"* Anne Collins, University of California, Berkeley
2:30 - 3:00 pm	*"Use of schematic knowledge in reinforcement learning tasks"* Aaron Gruber, University of Lethbridge
3:00 - 3:30pm	Break
3:30 - 4:30pm	Discussion panel on reinforcement learning
4:30-5:30pm	*"Dynamic and Active Predictive Coding: New Approaches to Understanding Cortical Function"* Rajesh Rao, University of Washington
6:00-9:00pm	Reception at Agua Verde, 1303 NE Boat St, Seattle WA 98105

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9:00 - 9:30 am	*"Emulating the motion pathway"* Cornelia Fermuller, University of Maryland College Park
9:30 - 10:00 am	*"Towards understanding the underlying principles of small biological neural network design"* Jean-Baptiste Masson, Institut Pasteur - CNRS - Université Paris Cité - INRIA
10:00 - 10:30 am	*"How deep learning theory can inform and benefit from brain structure and learning dynamics"* Guillaume Lajoie, Université de Montréal & Mila
10:00 - 11:00am	*"Synaptic plasticity in the orbitofrontal cortex explains how risk attitude adapts to the range of risk prospect"* Jean Daunizeau, Paris Brain Institute
11:00 -12:30 pm	Poster session in CSE2 382 and lunch
12:30 - 1:00 pm	*"Measuring, modeling and shaping neural plasticity in brain-machine interfaces"* Amy Orsborn, University of Washington
1:00 - 1:30 pm	*"Computing with a mess: how complex and heterogeneous components help network computation"* Stefan Mihalas, Allen Institute for Brain Science
1:30 - 2:00pm	Break
2:00 - 2:30 pm	*"Toward Robust and Knowledge-Rich Natural Language Processing"* Hannaneh Hajishirzi, University of Washington
2:30 - 3:00pm	*"Unsupervised and semi-supervised learning for interpreting and connecting behavior with brain activity"* Eli Shlizerman, University of Washington
3:00 - 3:30pm	*"Cognitive and Emerging computing at Sandia"* Corinne Teeter, Sandia
3:30 - 4:00pm	Break
4:00 - 5:00pm	Industry research panel with Julie Harris (Cajal Neuroscience), Babak Parviz, Philip Sabes, and Corrine Teeter (Sandia)
5:30 pm	Student and postdoc mixer, Big Time Brewery (4133 University Way NE)

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Advances and challenges in AI/ML for neurotechnologies
Friday, September 30, 2022
Zillow Commons

8:30 - 8:45 am	Opening remarks
8:45 - 9:30 am	Yann LeCun, Meta
9:30 - 10:30 am	*"Volitional control of neural activity"* Eb Fetz, University of Washington
10:30 - 11:00am	Break
11:00 - 11:30 am	Matt Golub, University of Washington
11:30 -12:00 pm	Matt Perich, University of Montreal
12:00 - 1:00 pm	Lunch
1:00 - 1:30 pm	*"Real-time modeling with adaptive interventions for high-dimensional neural data"* Anne Draelos, Duke University
1:30 - 2:00pm	Maryam Shanechi, University of Southern California
2:00 - 2:30 pm	James Murray, University of Oregon
2:30 - 3:00pm	Break
3:00 - 3:30pm	Emily Mugler, Meta
3:30 - 4:30pm	Philip Sabes, University of California Berkeley
5:00pm	Reception

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NeuroAI Seattle Meeting
Poster Presentations
Wednesday, September 28, 2022

CSE2 382

1. Janna Hong, Chaytan Inman, and Marlene Grieskamp, *University of Washington*

2. Lordstrong Akano, *University of Ibadan*

3. Scott Sterrett, *University of Washington*
"The olfactory bulb maps breathing rhythms and self-location in freely-behaving mice"

4. Edward Hao, *University of British Columbia*

5. Asad Beck, *University of Washington*

6. Vivian White, *Western Washington University*
"Randomized Scattering Networks"

7. Andre Ye, Alec Bunn, Amelia Johnson, Eric Xia, and Yegor Kuznetsov, *University of Washington*
"Emergent Language: Independent AI Development of a Language-Like Syntax"

8. Davor Curic, *University of Calgary*

9. Christian Schmid, *University of Oregon*

10. Anthony Azevedo, *University of Washington*
"The Drosophila connectome reveals the logic of premotor neural circuits for leg motor control"

11. Glorianna Gutierrez, Asad Beck, Franck Kalume, Horacio O. de la Iglesia *University of Washington*
"Machine Learning-Based Labels of Epileptic Activity are Correlated with Environmental Temperature in a Mouse Model of Dravet Syndrome"

12. Pavithra Rajeswaran, Amy Orsborn, *University of Washington;* Alexandre Payeur, Guillaume Lajoie, *Mila*; Jose Carmena, *University of California Berkeley*
"Emergence of sparse unit-level representations yet increased population dimensionality in Brain Computer Interface learning"

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13. Nanda Krishna, *Mila & Université de Montréal*

14. Emily Tam, *University of Montreal* and *University of Washington*

15. Helena Liu, *University of Washington*

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CSE2 382

1. Colin Bredenberg, *University of Montreal*

2. Shahab Bakhtiari, *McGill University*

3. Courtnie Jean Paschall, *University of Washington*
"Using Virtual Reality to Explore "AI-in-the-Loop" Brain Computer Interface"

4. Preston Jiang, *University of Washington*

5. Stefan Mihalas, *Allen Institute for Brain Science*

6. David Bell, *University of Washington*

7. Lu Mi, *Allen Institute for Brain Science*

8. Katharine Lundblad, *University of Washington*

9. Frederic Theunissen, *University of California Berkeley*

10. Anandita De, *University of Washington*

11. Ben Pedigo, *Johns Hopkins University*

12. Kyle Aitken, *Allen Institute for Brain Science*

13. Che Wang, *New York University*

14. Trung Le, *University of Washington*
"Modeling Neural Population Activity with Spatiotemporal Transformer"

15. John Ferre, *University of Washington*

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Amenities

Wifi: Visit onboard.wifi.uw.edu and follow the instructions to access wifi on campus. You will need to download the Eduroam profile. **NetID:** event0352 **Password:** 36VB-73MY-33FR

Breakroom: The Center for Neurotechnology (CSE2 350) is located one floor below the meeting and can be used as additional space for small group discussions during the week.

Refreshments: Light breakfast, coffee and lunch will be provided on all meeting days. There is a café on the first floor of the building.