

# The Short Course on the Application of Machine Learning for Automated Quantification of Behavior

Bar Harbor, Maine  
October 13-18, 2024

## Schedule of Activities

### Sunday, October 13<sup>th</sup>

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| 3:00 - 8:00 pm | <b>Registration</b><br><i>Participants are not permitted to enter Highseas prior to 3:00pm.</i> |
| 6:00 – 7:00 pm | <i>Dinner</i>   |
| 7:00 – 8:30 pm | <b>Poster Session</b>   |

### Monday, October 14<sup>th</sup>

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| 7:45 – 8:45 am   | <i>Breakfast</i>   |
| 8:45 – 9:00 am   | <b>Welcome &amp; Announcements</b><br>Vivek Kumar, Ph.D., The Jackson Laboratory   |
| 9:00 – 10:15 am  | <b>Bootcamp: Introductory and Advanced</b><br>Susan McClatchy, M.S., The Jackson Laboratory  |
| 10:15 – 10:30 am | <i>Break</i>   |
| 10:30 – 12:15 pm | <b>Bootcamp: Introductory and Advanced (Continued)</b>   |
| 12:15 - 1:00 pm  | <i>Lunch</i>   |
| 1:00 – 1:15 pm   | <i>Shuttle from The Jackson Laboratory to Highseas</i>   |
| 1:15 – 3:45 pm   | <b>Break for activities led by Instructors</b>   |
| 3:45 – 4:00 pm   | <i>Shuttle from Highseas to The Jackson Laboratory</i>   |
| 4:00 - 6:00 pm   | <b>Advanced Workshop: Scientific Software Engineering</b><br>Talmo Pereira, Ph.D., The Salk Institute for Biological Studies<br><br><b>Bootcamp: Introduction to Machine Learning with Python</b><br>Fernando Cervantes Sanches, Ph.D., The Jackson Laboratory |

6:00 – 6:15 pm	<i>Shuttle from The Jackson Laboratory to Highseas</i>
6:15 - 7:15 pm	<i>Dinner</i>
7:15 - 8:45 pm	<b>Evening Discussion</b>

## **Tuesday, October 15<sup>th</sup>**

### ***Fundamentals of Behavior Quantification***

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7:00 – 7:45 am	<i>Breakfast</i>
7:45 – 8:00 am	<b>Announcements</b>
8:00 - 9:00 am	<b>Talk Title TBD</b> Kristin Branson, Ph.D., Janelia Research Campus
9:00 - 10:00 am	<b>Quantifying behavior using deep learning</b> Talmo Pereira, Ph.D., The Salk Institute for Biological Studies
10:00 - 10:15 am	<i>Break</i>
10:15 - 11:15 am	<b>Measuring animal behavior in three dimensions</b> Lili Karashchuk, Ph.D., Allen Institute for Neural Dynamics
11:15 - 12:15 pm	<b>Tracking and modeling movement in Hydra</b> Adrienne Fairhall, Ph.D., University of Washington
12:15 - 1:00 pm	<i>Group Photo</i> <i>Lunch</i>
1:00 - 3:00 pm	<b>Break for Activities led by Instructors</b>
3:00 – 6:00 pm	<b>Workshop: MM Pose</b> Kristin Branson, Ph.D., Janelia Research Campus
6:00 - 7:00 pm	<i>Dinner</i>
7:00 - 8:30 pm	<b>Evening Discussion: Identity Matters</b> Moses Davis, Ph.D., The Jackson Laboratory

## **Wednesday, October 16<sup>th</sup>**

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7:00 – 7:45 am	<i>Breakfast</i>
7:45 – 8:00 am	<b>Announcements</b> Ann Kennedy Ph.D., Northwestern University

8:00 - 9:00 am	<b>A universal translator behavior across species</b> Oren Forkosh, Ph.D., The Hebrew University of Jerusalem
9:00 - 10:00 am	<b>Supervised behavior analysis</b> Ann Kennedy, Ph.D., The Scripps Research Institute
10:00 - 10:15 am	<i>Break</i>
10:15 - 11:15 am	<b>Talk Title TBD</b> Vivek Kumar, Ph.D., The Jackson Laboratory
11:15 - 12:15 pm	<b>Talk Title TBD</b> Alexander Mathis, Ph.D., École Polytechnique Fédérale de Lausanne
12:15 - 1:00 pm	<i>Lunch</i>
1:00 – 3:00 pm	<b>Break- Activities led by Instructors</b>
3:00 – 6:00pm	<b>Workshop: Supervised behavior analysis</b> Ann Kennedy, Ph.D., The Scripps Research Institute
6:00 - 7:00 pm	<i>Lobster Dinner</i>
7:00 - 8:30 pm	<b>Evening Discussion / Student Projects</b>

## Thursday, October 17<sup>th</sup>

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7:00 – 7:45 am	<i>Breakfast</i>
7:45 – 8:00 am	<b>Announcements</b>
8:00 - 9:00 am	<b>The structure of behavioral spaces</b> Greg Stephens, Ph.D., Vrije Universiteit Amsterdam
9:00 - 10:00 am	<b>Measuring behavior across scales</b> Gordon Berman, Ph.D., Emory University
10:00 - 10:15 am	<i>Break</i>
10:15 - 11:15 am	<b>Mapping the landscape of social behavior</b> Ugne Klibaite, Ph.D., Harvard University
11:15 - 12:15 pm	<b>New approaches to 3D motion capture in freely moving mice</b> Jeff Markowitz, Ph.D., Georgia Tech & Emory University
12:15 – 1:15pm	<i>Lunch – Boxed lunches will be available Shuttles &amp; Carpool to Town Pier. Free parking at Bar Harbor Club.</i>

1:15 – 3:15 pm	<i>Bay Cruise</i>
3:15 – 3:30 pm	<i>Shuttles &amp; Carpool to Highseas</i>
3:30 – 5:00 pm	<b>Workshop: Motion Mapping</b> Gordon Berman, Ph.D., Emory University
5:00 – 6:30 pm	<b>Workshop: Moseq</b> Caleb Weinreb, Ph.D., Harvard University
6:30 – 7:30 pm	<i>Dinner</i>
7:30 - 8:30 pm	<b>Evening Discussion - Ethical considerations in brain and behavioral quantification</b> Karen Rommelfanger, Ph.D., Institute of Neuroethics

## Friday, October 18<sup>th</sup>

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7:00 – 7:45 am	<i>Breakfast</i>
7:45 – 8:00 am	<b>Announcements</b>
8:00 - 9:00 am	<b>From the lab to the wild: how do we study mice hunting for prey?</b> Emily Dennis, Ph.D., Janelia Research Campus
9:00 - 10:00 am	<b>Talk Title TBD</b> Speaker TBD
10:00 - 10:15 am	<i>Break</i>
10:15 - 11:15 am	<b>Behavioral drift as an evolutionary strategy</b> Ben de Bivort, Ph.D., Harvard University
11:15 - 12:15 pm	<b>Talk Title TBD</b> Scott Linderman, Ph.D., Stanford University
12:15 – 1:00pm	<i>Lunch</i>
1:00 – 3:00 pm	<b>Break for Activities led by Instructors</b>
3:00 – 4:30 pm	<b>Workshop: Title TBD</b> Ben de Bivort, Ph.D., Harvard University
4:30 – 6:00 pm	<b>Workshop: Title TBD</b> Greg Stephens, Ph.D., Vrije Universiteit Amsterdam
6:00 – 7:00 pm	<i>Dinner</i>
7:00 – 8:00 pm	<b>Evening Discussion</b>

## Saturday, October 19<sup>th</sup>

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7:00 - 9:00 am

*Grab-n-Go Breakfast & Departures*

*Participants may remain on the 1<sup>st</sup> floor until 12:00pm if needed.*