



# Biolmage Informatics 2019

Co-hosted by:



ALLEN INSTITUTE *for*  
BRAIN SCIENCE



ALLEN INSTITUTE *for*  
CELL SCIENCE

**October 2-4, 2019**

Allen Institute  
615 Westlake Avenue N  
Seattle, WA 98109

## Wednesday, October 2

8:00-9:00am	Registration and continental breakfast
9:00-9:15am	Welcome and introductory remarks - Biolmage Informatics Local Program committee
9:15-10:15am	<b>Gaudenz Danuser</b> , <i>UT Southwestern Medical Center</i> Opening keynote: "Inference of causality in molecular pathways from live cell images"
10:15-10:30am	<b>Software Demo:</b> • David Van Valen, <i>California Institute of Technology</i> , "Deep learning for single cell biology"
10:30-10:50am	Morning break
10:50am-12:20pm	<b>Talks selected from submitted abstracts:</b> • Michael Halter, <i>National Institute of Standards and Technology</i> , "Quantitative workflow for segmentation and tracking of hiPSCs from transmitted light microscopy images" • Rebecca Green, <i>Ludwig Institute for Cancer Research</i> , "4D high content imaging and automated phenotypic profiling of <i>C. elegans</i> embryogenesis" • Yaochen Xie, <i>Texas A&amp;M University</i> , "Advanced deep learning methods for biological image transformations" <b>Software Demo:</b> • Thomas Skillman, <i>Immersive Science</i> , "ConfocalVR: Live demo of a virtual-reality-based immersive visualization tool for confocal microscope image-stacks"
12:20-1:30pm	Networking Lunch (provided)
1:30-2:30pm	<b>Emma Lundberg</b> , <i>KTH Royal Institute of Technology</i> Afternoon keynote: "Spatiotemporal dissection of the human proteome"
2:30-3:10pm	<b>Talk selected from submitted abstracts:</b> • Alexey Tersikh, <i>SBP Medical Discovery Institute</i> , "Single cell imaging of epigenetic landscapes" <b>Software Demo:</b> • Deep Ganguli, <i>Chan Zuckerberg Initiative</i> , "A comparative and unifying approach to image-based transcriptomics data analysis"
3:10-3:30pm	Afternoon break

## Wednesday, October 2

3:30-5:00pm	<p><b>Talks selected from submitted abstracts:</b></p> <ul style="list-style-type: none"><li>• Olga Gliko, <i>Allen Institute for Brain Science</i>, "End-to-end automated classification of neuroanatomy"</li><li>• Rodrigo Munoz Castaneda, <i>Cold Spring Harbor Laboratory</i>, "Creation and anatomically-based registration of brain histological atlases at cellular resolution"</li><li>• Johannes Schöneberg, <i>University of California, Berkeley</i>, "4D cell biology: big data image analytics and lattice light-sheet imaging reveal dynamics of clathrin-mediated endocytosis in stem cell derived intestinal organoids"</li></ul> <p><b>Software Demo:</b></p> <ul style="list-style-type: none"><li>• Nicholas Sofroniew, <i>Chan Zuckerberg Initiative</i>, "Napari: multi-dimensional image visualization in Python"</li></ul>
5:00-5:15pm	Technology Sponsor and Poster Pitch Lightning Talks
5:15-7:00pm	Poster session, software demos, and happy hour reception

**THANKS TO OUR  
TECHNOLOGY SPONSOR**



## Thursday, October 3

8:00-9:00am	Registration and continental breakfast
9:00-9:05am	Welcome and introductory remarks - BiImage Informatics Local Program committee
9:05-10:05am	<p><b>Susanne Rafelski</b>, <i>Allen Institute for Cell Science</i> Morning keynote: "Creating a state space of stem cell signatures"</p>
10:05-10:45am	<p><b>Talk selected from submitted abstracts:</b></p> <ul style="list-style-type: none"><li>• Andrew Kennard, <i>University of Washington</i>, "Quantitative analysis of cell migration in vivo reveals environmental control of the wound response in zebrafish"</li></ul> <p><b>Software Demo:</b></p> <ul style="list-style-type: none"><li>• Jianxu Chen, <i>Allen Institute for Cell Science</i>, "The Allen Cell Structure Segmenter: a new open source toolkit for segmenting 3D intracellular structures in fluorescence microscopy images"</li></ul>
10:45-11:05am	Morning break
11:05am-12:35pm	<p><b>Talks selected from submitted abstracts:</b></p> <ul style="list-style-type: none"><li>• Luke Funk, <i>Broad Institute of Harvard and MIT</i>, "Image analysis and informatics approaches for pooled genetic perturbation screens of morphological phenotypes"</li><li>• Olivia Creasey, <i>University of California, San Francisco</i>, "Quantification of pancreatic islet tissue structure through local cell-cell and cell-matrix interactions"</li><li>• Nico Stuurman, <i>University of California, San Francisco/HHMI</i>, "Building microscope software and hardware tools for cell biology experiments"</li></ul> <p><b>Software Demo:</b></p> <ul style="list-style-type: none"><li>• Jacob Reimer, <i>Baylor College of Medicine</i>, "Automated processing and analysis of multimodal imaging data with DataJoint"</li></ul>
12:35-1:35pm	Networking Lunch (provided)

## Thursday, October 3

1:35-2:35pm	<b>Anne Carpenter</b> , <i>Broad Institute of Harvard and MIT</i> Afternoon keynote: "Using images as data to accelerate drug discovery"
2:35-3:15pm	<b>Talk selected from submitted abstracts:</b> <ul style="list-style-type: none"><li>Kwonmoo Lee, <i>Worcester Polytechnic Institute</i>, "Deep learning-based subcellular phenotyping of leading edge dynamics reveals fine differential drug responses"</li></ul> <b>Software Demo:</b> <ul style="list-style-type: none"><li>Peter Bajcsy and Nathan Hotelling, <i>National Institute of Standards and Technology and NIH</i>, "Interoperability of web computational plugins for large microscopy image analyses"</li></ul>
3:15-3:35pm	Afternoon break
3:35-4:50pm	<b>Talks selected from submitted abstracts:</b> <ul style="list-style-type: none"><li>Jeremy Linsley, <i>Gladstone Institutes</i>, "Automated single cell tracking for longitudinal imaging of neurodegeneration"</li><li>David Grunwald, <i>UMASS Medical School</i>, "Metadata and performance tracking for fluorescent microscopes"</li><li>Lachlan Whitehead, <i>Walter and Eliza Hall Institute</i>, "Taking CARE of malaria with lattice light sheet microscopy"</li></ul>
4:50-5:05pm	Technology Sponsor and Poster Pitch Lightning Talks
5:05-7:00pm	Poster session, software demos, and happy hour reception

THANKS TO OUR GOLD SPONSOR



THANKS TO OUR BRONZE SPONSOR

**HAMAMATSU**  
PHOTON IS OUR BUSINESS

## Friday, October 4

8:00-9:00am	Registration and continental breakfast
9:00-9:05am	Welcome and introductory remarks - BiImage Informatics Local Program committee
9:05-10:20am	<b>Talks selected from submitted abstracts:</b> <ul style="list-style-type: none"><li>Donglai Wei, <i>Harvard University</i>, "Finishing the last mile for electron microscopy connectomics reconstruction with biological priors"</li><li>Joergen Kornfield, <i>McGovern Institute at MIT</i>, "From electron microscopy images to hypothesis driven connectome analysis"</li><li>Hanchuan Peng, <i>Allen Institute for Brain Science</i>, "A Brain Big Data Infrastructure for Whole-Brain Single-Cell Morphometry"</li></ul>
10:20-10:40am	Morning break
10:40-11:40am	<b>R. Clay Reid</b> , <i>Allen Institute for Brain Science</i> Closing keynote: "Large-Scale circuit reconstruction in the cerebral cortex"
11:40am-12:00pm	Closing remarks - BiImage Informatics Local Program committee
12:00-2:00pm	Brightfield Auto-Reconstruction Competition Review & Scoring (Participants only)