



BIOIMAGE INFORMATICS CONFERENCE 2015

Wednesday: October 14, 2015

1:00pm - 1:10pm	Welcome by the ITL director, Dr. Charles Romine
1:10pm - 1:20pm	Opening remarks by the conference chair, Dr. Peter Bajcsy
1:20pm - 2:20pm	Keynote: Dr. Winfried Denk, Max Planck Institute of Neurobiology: Towards a circuit diagram of the brain
2:20pm - 2:50pm	Coffee Break
2:50pm - 3:30pm	Session 1 (2x 20 min): Brain Imaging Chair: John Elliott, NIST Raysam B: Large-scale & Comprehensive Mapping of Cellular Alterations in Brain Tissue. Peng H.: The BigNeuron Project
3:30pm - 4:00pm	Coffee Break
4:00pm - 5:00pm	Session 2 (3x 20 min): Large Scale Image Analyses Chair: Antonio Cardone, University of Maryland at College Park Pietzsch, T., Preibisch, S., Saalfeld, S., & Tomancak, P.: BigDataViewer: Visualization and Image Processing for Terabyte Data Sets. Kumar VS, Williams JW, Aggour KS, Sarachan B, Al-Kofahi Y, Santamaria-Pang A: Collaborative Analysis of High-Content Image Data. Economu, M. N., Clack, N. G., Arthur, B. J., Bruns, C., & Chandrashekar, J.: Registration and visualization of large-scale 3D mosaic images.
5:00pm - 6:00pm	Transportation to hotel



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Thursday: October 15, 2015

8:30am – 8:40am	Announcements: BII2016 in Singapore and Call for BII2017 proposals
8:40am – 9:40am	Keynote: Dr. Ivo Sbalzarini, Max Planck Institute of Molecular Cell Biology and Genetics: Model-based Image Analysis for Fluorescence Microscopy
9:40am – 10:00am	Break
10:00am – 11:00am	<p>Session 3 (4 x 15 min): Cell Imaging Chair: Michael Halter, NIST</p> <p>Yi J, Barr V, Manna AK, Hong J, Neuman KC, Samelson LE: Signaling Microclusters in T cells.</p> <p>Camp, C. H., Lee, Y. J., & Cicerone, M. T.: Quantitative , Comparable Hyperspectral Chemical Imaging of Biological Specimens with Broadband Coherent Anti-Stokes Raman Scattering (BCARS) Microspectroscopy.</p> <p>Joshi R, Swaminathan SR, Winter M, Saini JS, Blenkinsop TA, Stern J, Temple S, Cohen AR: Measuring visual structure in phase and fluorescence microscopy using image compression.</p> <p>Traver M, Schaefer B, Campanello L, Losert W, Shroff H: Mechanisms of T Lymphocyte Activation Revealed by Super-Resolution Microscopy.</p>
11:00am – 11:20am	Coffee Break
11:20am – 12:30am	<p>Parallel Sessions 4 (60 min presentations and 10 min discussion per session): Conference Challenges</p> <p>Stitching Challenge in Green Auditorium Chaired by Joe Chalfoun, NIST</p> <ul style="list-style-type: none"> • Chalfoun J.: Stitching Challenge: Evaluation Methodology • Sun, C.: Stitching Challenge: CSIRO-QI. • Wait, E., Winter, M., & Cohen, A.: Stitching Challenge: Normalized Covariance Image Stitching Technique for Rigid Registration of Microscope Tiles. • Yang, G. Stitching Challenge: i2k Align v3.0. • Wang, C.-W.: Stitching Challenge: Linear Blending. • Discussion <p>Cell Counting Challenge in Lecture Room A: Chaired by Maric Dragan, NIH</p>



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	<ul style="list-style-type: none"> • Maric D.: Nucleus Counting Challenge: Nucleus counting in brain immune-histology applications: A crucial requirement to study tissue remodeling after ischemic and traumatic brain injury. • Wang C. and Yu G.: Nucleus Counting Challenge Method • Discussion
12:30pm - 2:00pm	Lunch and Poster Session
2:00pm - 3:00pm	Keynote: Stephen Smith, Allen Institute of Brain Science: Toward Photonic Connectomes
3:00pm - 3:30pm	Coffee Break
3:30pm - 4:30pm	<p>Session 5 (4 x 15 min): Cell Image Analyses Chair: Andrew Cohen, Drexel University</p> <p>Hirose O, Kawaguchi S, Tokunga T, Teramoto T, Kuge S, Ishihara T, Toyoshima Y, Iino Y, Yoshida R: SPF-CellTracker : Tracking multiple cells with strongly-correlated moves using a spatial particle filter.</p> <p>Mankowski WC, Konica G, Winter MR, Chen F, Maus C, Merkle R, Klingmuller U, Hofer T, Kan A, Heinzel S, Oostindie S, Hodgkin P, Cohen AR: Multi-Modal Segmentation for Quantifying Fluorescent Cell Cycle Indicators Throughout Clonal Development.</p> <p>Matuszewski DJ, Sintorn IM, Puigvert JC, Wahlby C: Comparing cell cycle analysis using flow cytometry and image-based screening.</p> <p>Kwee, E., Powel, K., & Muschler, G.: Characterization of connective tissue progenitors through phase contrast and multicolor fluorescence time-lapse microscopy</p>
4:30pm - 5:30pm	Transportation to hotel
6:00pm	Banquet at the hotel location



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Friday: October 16, 2015

8:30am - 9:30am	Keynote: Dr. Jean-Karim Hériché, European Molecular Biology Laboratory; Building a canonical model of the human mitotic cell
9:30am - 9:50am	Break
9:50am - 10:50am	<p>Session 6 (4 x 15 min): Morphology Analyses Chair: Carl Simon, NIST</p> <p>Singh S: Morphological Profiling for Targeting Diseases and Characterizing Compounds.</p> <p>Florczyk SF, Baker P, Bodhak S, Juba D, Cardone A, Pine PS, Brady M, Sarkar S, Bajcsy P, Chen D, Simon CG: 3D Cellular Morphotyping of Scaffold Niches.</p> <p>Goldberg IG: Pattern recognition with markerless, stain-free, non-destructive imaging.</p> <p>Bartholomew, A., Szilagyi, E., Patil, R., Premand, K., & Yu, J: The Need for Highly Sensitive Imaging as a Rapid Functional Test of Mesenchymal Stem Cell (MSC) Therapeutics.</p>
10:50am - 11:10am	Coffee Break
11:10am - 12:10am	<p>Session 7 (4x 15 min): BigNeuron and Neuron Reconstruction Chair: Hanchuan Peng, Allen Institute for Brain Science</p> <p>Li C.: Learning to Improve Single Neuron Segmentation</p> <p>Wang C-W.: Automatic tracing and registration of multi-dimensional microscopic images in high resolution</p> <p>Zhao T.: Neuron Tracing Methods in NeuTu</p> <p>Chen H.: High-throughput color-separation of neurons in BigNeuron</p>
12:10pm - 1:00pm	Lunch
1:00pm - 2:00pm	<p>Session 8 (4 x 15 min): Large Scale Image Visualization Chair: Peter Bajcsy, NIST</p> <p>Torosdagli N, Pattanaik S, Lisle C, Liu Y: Web based Out-of-Core Volume Visualization in Client-Server Architectures.</p> <p>Wait E, Winter M, Song S, Monteleone D, Cohen A, Bjornsson CF, Goderie S, Temple S: Collaborative Visualization in the Browser for Segmentation, Tracking, and Lineaging with 5-D Biological Microscopy Images.</p>



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	<p>Harrington KIS, Stiles TS, Venkatraman L, Bentley K: Functional Image Processing with ImageJ/FIJI.</p> <p>Cardona A.: Quantitative Cellular Neuroanatomy as the Foundation for Mapping Neural Circuits from Electron Microscopy</p>
2:00pm – 3:00pm	<p>Session 9 (4 x 15 min): Machine Learning Chair: Jana Kosecka, George Mason University</p> <p>Wang Y, Wang Y, Yu G, Shi G, Tian L: PPSD : Probability Principled Synapse Detection.</p> <p>Rajabi Z, Kosecka J, Bajcsy P: Confidence Estimation in Stem Cell Classification.</p> <p>Ji S: Deep Learning for Bioimage Informatics.</p> <p>Gu L, Chen L: Learning to Boost Filamentary Structure Segmentation.</p>
3:00pm – 3:30pm	Coffee Break
3:30pm – 4:15pm	<p>Session 10 (3x 15 min): Microscopy Image Analysis Environments Chair: Charles Camp, NIST</p> <p>Nandy K, Liu Y, Mott D, Meaburn K, Misteli T, Lockett SJ, Gudla PR: MiPipeline (Microscopy Pipeline): A User Friendly Software Environment for Microscopy Image Analysis and Informatics.</p> <p>Carroll, M. & Swedlow, J.R.: The Open Microscopy Environment : Open Source Image Informatics for the Biological Sciences.</p> <p>Xiao M, Zou C, Sheppard K, Krebs M: DCT Image Stack Alignment: one more important preprocessing step.</p>
4:15pm – 4:20pm	Closing remarks by the conference chair, Dr. Peter Bajcsy
4:20pm – 5:20pm	Transportation to hotel



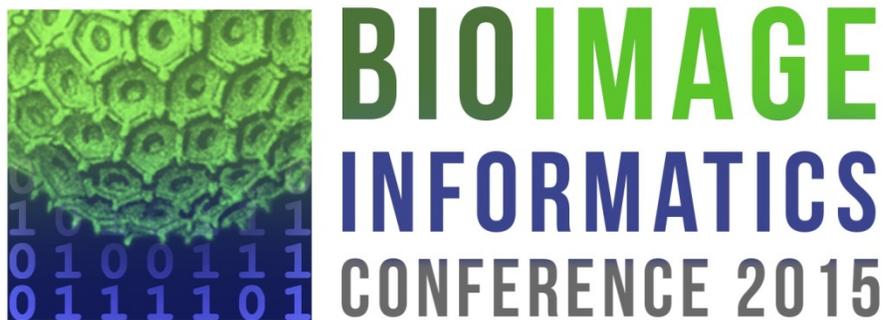
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Poster Session: Thursday after lunch

Poster IDs are below

Poster presentations

1. Cardone A, Kociolek M, Brady M, Bajcsy P: Estimating Actin Fiber Orientation using Interpolation-Based Gray-Level Co-Occurrence Matrix Computation. In BioImage Informatics conference; 2015.
2. Cardone A, Kociolek M, Chalfoun J, Bhadriraju K, Peskin A, Brady M, Bajcsy P: Segmentation and feature-based analysis of sub-cellular microscopy images. In BioImage Informatics conference; 2015.
3. Chen D, Candia J, Driscoll MK, Losert W, Sarkar S, Florczyk SJ, Bodhak S, Simon CG, Dunkers JP: Machine Learning Based Methodology to Identify Cell Shape Phenotypes Associated with Microenvironmental Cues. In BioImage Informatics conference; 2015:6-8.
4. Coletta CE, Goldberg IG: The WND-CHARM Python API Pythonic Pattern Recognition for Bioimage Informatics. In BioImage Informatics conference; 2015:5.
5. De J, Cheng L, Lin F: Tracing Filamentary Structures in Neuronal Images. In BioImage Informatics conference; 2015:1-4.
6. Litorja M, Samarov D: Use of Image Segmentation Algorithm to Test Model Spectral Distribution for Surgical Lighting. In BioImage Informatics conference; 2015.
7. Majurski M, Zheng C, Chalfoun J, Dima A, Brady M: Shape Descriptors Comparison for Cell Tracking. In BioImage Informatics conference; 2015:1-4.
8. Ranefall P, Wahlby C: Your New Default Thresholding Method ? A robust global gray-level thresholding method based on object features. In BioImage Informatics conference; 2015.
9. Shen Y, Losert W, Candia J, Morozov A: Automated analysis pipeline for high throughput screening data on the single cell level. In BioImage Informatics conference; 2015.
10. Shirtz AE, Koos DS, Pollack H, Moats R, Warburton D: Extended Volume Creation in Z Using Speeded Up Robust Features. In BioImage Informatics conference; 2015:2-4.
11. Zhou J, Yang L, Ye B: QTIP : Quantifier for Topographic Index of Presynaptic-terminal using 3D Confocal Imaging. In BioImage Informatics conference; 2015.



12. Pietzsch, T., Preibisch, S., Saalfeld, S. & Tomancak, P. BigDataViewer: Visualization and Image Processing for Terabyte Data Sets. In BioImage Informatics Conf. 2015.
13. Chalfoun, J., Majurski, M., Blattner, T., Keyrouz, W., Bajcsy, P., & Brady, M.: MIST: Microscopy Image Stitching Tool. In BioImage Informatics Conf. 2015.
14. Simon, M., Florczyk, S.J., Juba, D., Baker, P.J., Simon, C.G.J., Brady, M., & Bajcsy, P.: Segmentation of Large Numbers of 3D Cells on Different Scaffolds. In BioImage Informatics Conf. 2015.
15. Vandecreme, A., Majurski, M., Chalfoun, J., Scott, K., Scott, J.H.J., Brady, M., & Bajcsy, P.: From Image Tiles to Web-Based Interactive Measurements. In BioImage Informatics Conf. 2015.
16. Juba, D., Cyrus, T., & Keyrouz, W.: Cell Visualization on a Desktop Display Wall. In BioImage Informatics Conf. 2015.
17. Tohsato, Y., Kyoda, K., Ho, K.H.L., & Onami, S.: SSBD: An Integrated Database of Quantitative Data and Microscopy Images of Biological Dynamics. In BioImage Informatics Conf. 2015.
18. Dogan, G., Bernal, J., & Hagwood, C.R.: Fast Computation of Elastic Shape Distance between 2d Objects. In BioImage Informatics Conf., 2015
19. Elliott, J., Cooksey, G., & Plant, A.: Developing Image-Based Measurements to Characterize Stem Cells Cultured as Colonies. In BioImage Informatics Conf. 2015.
20. Dogan, G.: A Python Toolbox for Shape Detection and Analysis in Images. In BioImage Informatics Conf. 2015.
21. Halter, M., Bier, E., DeRose, P.C., Cooksey, G.A., Choquette, S.J., Plant, A.L., & Elliott, J.T.: Performance Benchmarking a Widefield Fluorescence Microscope Using Fluorescent Glass. In BioImage Informatics Conf. 2015
22. Halter, M., Lund, S., Li-Baboud, Y.-S., Peskin, A.P., Bajcsy, P., Hoepfner, D.J., & Plant, A.L.: Reducing Uncertainty in the Evaluation of Stem Cell Colonies. In BioImage Informatics Conf. 2015
23. Baker, P. J., Lin, N. J., Pintar, A. L., Lin-Gibson, S. & Lopez-Perez, D.: Evaluating the Activity of an Anti-biofilm Agent via Imaging. In BioImage Informatics Conf. 2015.