

# **2015 IEEE International Conference on Computational Photography**

**(ICCP 2015)**

**Houston, Texas, USA  
24-26 April 2015**



**IEEE Catalog Number: CFP15CCP-POD  
ISBN: 978-1-4799-8668-2**

# Program

Friday, April 24 - Morning Session	
8:30 – 9:30	Breakfast/Registration
9:45 – 10:00	Welcome
10:00 – 11:20	Papers Session 1 — 4 talks (15 minute talk + 5 minute Q&A)
	MC3D: Motion Contrast 3D Scanning""3 <i>Nathan Matsuda, Oliver Cossairt, Mohit Gupta</i>
	What Makes It a Good Day for Outdoor Photometric Stereo?""33 <i>Yannick Hold-Geoffroy, Jinsong Zhang, Paulo Gotardo, Jean-Francois Lalonde</i>
	Structured Light Field Design for Correspondence Free Rotation Estimation""42 <i>Ian Schillebeeckx and Robert Pless</i>
	Directional Super-Resolution by Means of Coded Sampling and Guided Upsampling""52 <i>David Schedl, Clemens Birklbauer, Oliver Bimber</i>
11:20 – 11:30	Coffee Break
11:30 – 12:30	Keynote 1 - Prof. Rebecca Richards-Kortum, Rice University Using Optical Technologies to Develop Point-of-Care Diagnostics for Low-Resource Settings""P IC
12:30 – 1:30	Lunch
Afternoon Session	
1:30 – 3:30	Tutorial Session I - Halide Tutorial Andrew Adams (Google) and Jonathan Ragan-Kelly (Stanford)
3:30 – 4:00	Coffee Break
4:00 – 5:20	Papers Session 2 — 4 talks (15 minute talk + 5 minute Q&A)
	LiSens — A Scalable Architecture for Video Compressive Sensing""62 <i>Jian Wang, Mohit Gupta, and Aswin Sankaranarayanan</i>
	High Resolution Photography with an RGB-Infrared Camera""6; <i>Huixuan Tang, Xiaopeng Zhang, Shaojie Zhuo, Feng Chen, Kyros Kutulakos, Liang Shen</i>
	Dual Aperture Photography: Image and Depth from a Mobile Camera""7; <i>Manuel Martinello, Andrew Wajs, Shuxue Quan, Hank Lee, Chien Lim, Taekun Woo, Wonho Lee, Sang-Sik Kim, David Lee</i>
	Invited Talk: Computational Photography: Going Forward from a Historical Perspective""P IC <i>Brian Barsky (UC Berkeley)</i>
5:45 – 8:30	Reception - Houston Museum of Natural Sciences Hall of Paleontology <i>*Rice shuttle buses will take guests to HMNS from the BRC beginning at 5:30</i>

Saturday, April 25 - Morning Session	
8:30 – 9:00	Breakfast
9:00 – 10:00	Paper Session 3 — 3 talks (15 minute talk + 5 minute Q&A)
	Unbounded High Dynamic Range Photography Using a Modulo Camera <sup>8</sup> ; <i>Hang Zhao, Boxin Shi, Christy Fernandez-Cull, Sai-Kit Yeung, Ramesh Raskar</i>
	Towards Self-Powered Cameras <sup>9</sup> ; <i>Shree Nayar, Daniel Sims, and Mikhail Fridberg</i>
	Invited Talk: Ultra-miniature Computational Diffractive Sensors and Imagers <sup>P IC</sup> <i>David G. Stork (Rambus)</i>
10:00 - 10:15	Coffee Break
10:15 – 11:15	Keynote 2 - Prof. Mandyam Srinivasan, University of Queensland Vision and Navigation in Honeybees and Applications to Robotics <sup>P IC</sup>
11:15 – 12:35	Papers Session 4 — 4 talks (15 minute talk + 5 minute Q&A)
	A Dictionary-based Approach for Estimating Shape and Spatially-Varying Reflectance <sup>10</sup> ; <i>Zhuo Hui and Aswin Sankaranarayanan</i>
	Single-Shot Reflectance Measurement from Polarized Color Gradient Illumination <sup>11</sup> ; <i>Graham Fyffe and Paul Debevec</i>
	Invited Talk: Overcoming Diffraction and Multiple Scattering in Optical Imaging <sup>P IC</sup> <i>Rafael Piestun (University of Colorado at Boulder)</i>
	Invited Talk: Extreme Computational Imaging: Photography, Health-tech and Displays <sup>P IC</sup> <i>Ramesh Raskar (MIT)</i>
Afternoon Session	
12:35 – 2:30	Joint lunch and Poster Session Sponsored by Intel (50 posters, 6 demos)
2:30 – 3:30	Tutorial Session II - Deep Learning for Vision and Imaging Ankit Patel (Rice University)
3:30 – 4:30	Papers Session 5 — 3 talks (15 minute talk + 5 minute Q&A)
	Predicting Range of Acceptable Photographic Tonal Adjustment <sup>32</sup> ; <i>Ronnachai Jaroensri, Vladimir Bychkovsky, Aaron Hertzmann, Sylvain Paris, Fredo Durand</i>
	Contrast Use Metrics for Tone Mapping Images <sup>39</sup> <i>Miguel Granados, Tunc Aydin, Rafael Tena, Jean-Francois Lalonde, Christian Theobalt</i>
	Invited Talk: High Speed Flow Microscopy using Compressed Sensing <sup>P IC</sup> <i>Mark Foster (Johns Hopkins University)</i>
4:50 – 5:50	Keynote 3 - Eric Cheng, DJI From Waves to Wind: Natural History Imaging Using Underwater Cameras and Drones <sup>P IC</sup>
6:00	Group Photo on steps of the BRC taken by drone
6:30 - 9:30	Happy Hour at Valhalla, Rice campus. *Rice shuttle bus will take guests.

Sunday, April 26 - Morning Session	
8:30 – 9:00	Breakfast
9:00 – 10:00	Keynote 4 - Prof. Wolfgang Heidrich, KAUST Imaging Light in Flight and Other Uses for TOF Cameras""P IC
10:00 – 11:00	Papers Session 6 — 3 talks (15 minute talk + 5 minute Q&A)
	Self-Calibrating Imaging Polarimetry""347 <i>Yoav Schechner</i>
	Performance Characterization of Reactive Visual Systems""357 <i>Subhagato Dutta, Abhishek Chugh, Robert Tamburo, Anthony Rowe, and Srinivasa Narasimhan</i>
	Invited Talk: Energy-Efficient Codes for Transport-Aware Imaging""P IC <i>Matthew O'Toole (University of Toronto)</i>
11:00 – 1:00	Joint lunch and Poster Session (50 posters, 6 demos) – LAST CHANCE TO VOTE
Afternoon Session	
1:00 – 2:00	Papers Session 7 — 3 talks (15 minute talk + 5 minute Q&A)
	Linking Past to Present: Discovering Style in Two Centuries of Architecture""366 <i>Stefan Lee, Nicolas Maisonnewe, Alexei Efros, Josef Sivic, and David Crandall</i>
	Robust Radiometric Calibration for Dynamic Scenes in the Wild ""376 <i>Abhishek Badki, Nima Khademi Kalantari, and Pradeep Sen</i>
	Invited Talk: Computational Imaging for Inverse Scattering""P IC <i>Ioannis Gkioulekas (Harvard University)</i>
2:00 – 2:10	Awards Announcement and Closing Remarks