IS&T International Symposium on Electronic Imaging Science and Technology 2016

Color Imaging XXI: Displaying, Processing, Hardcopy, and Applications

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Color Imaging XXI: Displaying, Processing, Hardcopy, and Applications

Monday, February 15, 2016

Display

Session Chair: Reiner Eschbach, Monroe Community College (USA)

9:10 – 10:10 am
Continental Ballroom 1

9:10   COLOR-304
Multiprimary display color calibration: A variational framework for robustness to device variation, Carlos Rodriguez-Pardo and Gaurav Sharma, University of Rochester (USA)

9:30   COLOR-305
High resolution LED display using a new rendering method with color sub-pixel architecture, Dae-Sik Kim, Samsung Electronics Co., Ltd. (South Korea)

9:50   COLOR-306
Modeling of luminance transition curve for transparent displays, Hyeok Jun Kwon, Chang-Mo Yang, Min-Cheol Kim, and Choon-Woo Kim, Inha University (South Korea)

10:10 – 10:50 am   Coffee Break

Display & Halftone

Session Chair: Gabriel Marcu (USA)

10:50 am – 12:30 pm
Continental Ballroom 1

10:50   COLOR-307
Developing calibrating curves for trilinear interpolation model during display characterization (JIST-first), Bangyong Sun[1,2], Jon Yngve Hardeberg[2], and Congjun Cao[1]; [1]Xi'an University of Technology (China) and [2]Gjøvik University College (Norway)

11:10   COLOR-308
The preferred display color temperature (Non-transparent vs. Transparent display), Hyeyoung Ha[1], Sooyeon Lee[1], Youngshin Kwak[1], Hyosun Kim[2], Young-jun Seo[2], and Byung-choon Yang[1]; [1]UNIST (South Korea) and [2]Samsung Display Co.,Ltd.

11:30   COLOR-309
Extended corrected-moments illumination estimation, Xiaochuan Chen[1], Mark Drew[1], Ze-Nian Li[1], and Graham Finlayson[2]; [1]Simon Fraser University (Canada) and [2]The University of East Anglia (United Kingdom)

11:50   COLOR-310
Quad-interleaved block-level Parallel Direct Binary Search, Xujie Zhang[1] and Jan Allebach[2]; [1]Qualcomm Company and [2]Purdue University (USA)

12:10   COLOR-311
HVS-based model for superposition of two color halftones, Altyngul Jumabayeva[1], Tal Frank[2], Robert Ulichney3, and Jan Allebach[1]; [1]Purdue University (USA), [2]Hewlett-Packard Indigo Division (Israel), and [3]Hewlett-Packard Laboratories USA (USA)

12:30 – 2:00 pm   Lunch Break

EI 2016 Opening Plenary and Symposium Awards
Session Chair: Choon-Woo Kim (Inha University)
2:00 – 3:00 PM
Continental Ballroom 5

Illuminating a bright future for medicine, Audrey K. Bowden, Stanford University (USA)

3:00 – 3:30 pm   Coffee Break

Cameras

Session Chair: Fritz Lebowsky, STMicroelectronics (France)

3:30 – 4:50 pm
Continental Ballroom 1

3:30   COLOR-312
Demosaicking algorithms for different RGBW color filter arrays, Mina Rafinazari and Eric Dubois, University of Ottawa (Canada)

3:50   COLOR-313
Optimizing color accuracy of a filter-based multispectral camera via iccMAX framework for digital achieves, Wei-Chun Hung and Pei-Li Sun, National Taiwan University of Science and Technology (Taiwan)

4:10   COLOR-314
A learning-based approach to image demosaicking with spatial autocorrelation analysis, Min-Kook Choi, Chan Joo, Hyun-Gyu Lee, and Sang-Chul Lee, Inha University (South Korea)

4:30   COLOR-315
On the selection of patches for color camera calibration, Margarita Khokhlova and Jon Yngve Hardeberg, Gjøvik University College (Norway)

5:00 – 6:00 pm   EI 2016 Symposium Reception

Tuesday, February 16, 2016

COLOR/HVEI: Retinex at 50: History `Joint Session`

Session Chair: Marcelo Bertalmio, Universitat Pompeu Fabra (Spain)

8:50 – 10:10 am
Continental Ballroom 4

This session is jointly sponsored by: Color Imaging XXI: Displaying, Processing, Hardcopy, and Applications, and Human Vision and Electronic Imaging (HVEI) 2016.

8:50   RETINEX-017
Retinexes algorithms: Many spatial processes used to solve many different problems (Invited), John McCann, McCann Imaging (USA)

9:30   RETINEX-018
Designator Retinex, Milano Retinex and the locality issue (Invited), Alessandro Rizzi, Università degli Studi di Milano (Italy)

10:10 – 10:50 am   Coffee Break

COLOR/HVEI: Retinex at 50: Spatial Algorithms `Joint Session`

Session Chair: John McCann, McCann Imaging (USA)

10:50 am – 12:30 pm
Continental Ballroom 4

This session is jointly sponsored by: Color Imaging XXI: Displaying, Processing, Hardcopy, and Applications, and Human Vision and Electronic Imaging (HVEI) 2016.

10:50   RETINEX-019
The oriented difference of Gaussians model of brightness perception (Invited), *Mark McCourt and Barbara Blakeslee, North Dakota State University (USA)*

11:10   RETINEX-020
A center-surround framework for spatial image processing, *Vassilios Vonikakis, Advanced Digital Sciences Center (ADSC) (Singapore)*

11:30   RETINEX-021
Retinex-like computations in human lightness perception and their possible realization in visual cortex (Invited), *Michael Rudd, University of Washington (USA)*

11:50   RETINEX-022
The role of lightness perception in determining the perceived contrast of real world scenes (Invited), *David Kane and Marcelo Bertalmio, Universitat Pompeu Fabra (Spain)*

12:10   RETINEX-023
Processing astro photographs using Retinex based methods (Invited), *Daniele Marini, Alessandro Rizzi, and Cristian Bonanomi, Università degli Studi di Milano (Italy)*

12:30 – 2:00 pm   Lunch Break

EI 2016 Tuesday Plenary and Symposium Awards
Session Chair: Nitin Sampat (Rochester Institute of Technology)
2:00 – 3:00 PM
Continental Ballroom 5

Pushing computational photography deeper into imaging system design, *Ren Ng, University of California, Berkeley (USA)*

3:00 – 3:30 pm   Coffee Break

RETINEX at 50: Image Processing

Session Chair: Alessandro Rizzi, Università degli Studi di Milano (Italy)

3:30 – 5:30 pm
Continental Ballroom 1

3:30   RETINEX-316
Connections between Retinex, neural models and variational methods (Invited), *Marcelo Bertalmio, Universitat Pompeu Fabra (Spain)*

4:10   RETINEX-317
Image processing applications through a variational perceptually-based color correction related to Retinex (Invited), *Javier Vazquez-Corral[1], Syed Waqas Zamir[1], Adrian Galdran[2], David Pardo[3], and Marcelo Bertalmio[1]; [1]Universitat Pompeu Fabra, [2]Tecnalia, and [3]EHU/UPV and Ikerbasque (Spain)*

4:30   RETINEX-318
A generalized white-patch model for fast color cast detection in natural images (Invited), *José Luis Lisani[1], Ana Belen Petro[1], Edoardo Provenzi[2], and Catalina Sbert[1]; [1]Universitat des Illes Balears (Spain) and [2]Université Paris Descartes (France)*

4:50   RETINEX-319
Statistical aspects of space sampling in Retinex models (Invited), *Gabriele Gianini, Universitá degli Studi di Milano (Italy)*

5:10
RETINEX Discussion

EI 2016 Symposium Demonstration Session and Exhibit Hall Happy Hour
5:30 – 7:00 PM
Continental Ballroom Foyer

Wednesday, February 17, 2016

Color Management

Session Chair: Phil Green, Gjøvik University College (Norway)

8:50 – 10:10 am
Continental Ballroom 1

8:50   COLOR-320
Estimation of color matching function for tiled LCDs based on genetic algorithm, *Yohan Park[1], Chang-Mo Yang[1], Choon-Woo Kim[1], Hosup Lee[2], and Dae-Sik Kim[2]; [1]Inha University and [2]Samsung Electronics. (South Korea)*

9:10   COLOR-321
The spatial gamut mapping based on guided filter, *Ming Zhu[1,2], Jon Yngve Hardeberg[2], Na Wang[1], and Bangyong Sun[2]; [1]Henan Institute of Engineering (China) and [2]Gjøvik University College (Norway)*

9:30   COLOR-322
Can the problems of CIECAM02 be overcome without losing predicting accuracy?, *Zhifeng Wang[1], Zhiqiang Li[2], Ming Luo[3], Xuedong Zhang[4], and Changjun Li[5]; [1]University of Science and Technology Liaoning (China) and [3]University of Leeds (United Kingdom)*

9:50   COLOR-323
A color retargeting approach for mesopic vision: simulation and compensation (JIST-first), *Mehdi Rezagholizadeh[1], Tara Akhavan[2], Afsoon Soudi[3], Hannes Kaufmann[2], and James Clark[4]; [1]McGill University (Canada), [2]Vienna University of Technology (Austria), and [3]TandemLaunch Inc. (Canada)*

10:10 – 10:40 am   Coffee Break

Color Deficiency

Session Chair: Alessandro Rizzi, Università degli Studi di Milano (Italy)

10:40 am – 12:40 pm
Continental Ballroom 1

10:40   COLOR-324
Using a data-bearing frame to capture an extended target, *Robert Ulichney, Matthew Gaubatz, Chun-Jung Tai, Stephen Pollard, Melanie Gottwals, and Ingeborg Tastl, Hewlett-Packard, Inc (USA)*

11:00   COLOR-325
A new approach to image enhancement for the visually impaired,
*Xiaohong Gao[1] and Monica Loomes[2]; [1]Middlesex University and
[2]Hertfordshire County Council (United Kingdom)*

11:20   COLOR-326
Quality of color coding in maps for color deficient observers, *Anne
Kristin Kvitle, Marius Pedersen, and Peter Nüssbaum, Gjøvik University
College (Norway)*

11:40   COLOR-327
**Image quality assessment comparison between local and whole color
rendering on large displays,** *YoonJung Kim, Daeun Park, and YungKyung
Park, Ewha Womans University (South Korea)*

12:00   COLOR-328
Colour vision deficiency transforms using ICC profiles, *Phil Green and
Peter Nussbaum, Gjøvik University College (Norway)*

12:20   COLOR-329
Color appearance simulations using spectral estimation theory, *Haomiao
Jiang, Trisha Lian, Brian Wandell, and Joyce Farrell, Stanford University (USA)*

12:40 – 2:00 pm   Lunch Break

EI 2016 Wednesday Plenary and Symposium Awards
Session Chair: Choon-Woo Kim (Inha University)
2:00 – 3:00 PM
Continental Ballroom 5

**Intel® RealSense Technology: Adding human-like sensing and
interactions to computing devices,** *Achin Bhowmik, Intel Corporation
(USA)*

3:00 – 3:30 pm   Coffee Break

The Dark Side of Color
Session Chair: Reiner Eschbach, Monroe Community College (USA)
3:30 – 5:30 pm
Continental Ballroom 1
3:30   COLOR-330
How red is cadmium red?, *Carinna Parraman[1] and Judith Mottram[2];
[1]University of the West of England and [2]Royal College of Art (United
Kingdom)*

3:50   COLOR-331
**Contentious and discrete spectral power distributions: Which is a
better white light source?,** *Po-Chieh Hung, Konica Minolta, Inc. (Japan)*

4:10   COLOR-332
**Color management breaks good anaglyph 3D images – is there a
solution?,** *Andrew Woods, Curtin University (Australia)*

4:30   COLOR-333
**New dimension of color perception: From artistic expression to
scientific analysis,** *Larissa Noury[2] and Christine Fernandez Maloigne[1,3,4];
[1]XLIM, [2]Couleur-Espace-Culture, [3]University of Poitiers, and [4]CNRS (France)*

4:50   COLOR-334
The murkiness of image quality assessment, *Marius Pedersen, Gjøvik
University College (Norway)*

5:10   COLOR-335
For each country, a color of lipstick, *Christine Fernandez Maloigne[1,2,3];
[1]University of Poitiers, [2]XLIM lab, and [3]CNRS (France)*

**Color Imaging XXI: Displaying, Processing, Hardcopy, and Applications
Interactive Papers Session**

5:30 – 7:00 pm
Continental Ballroom 6

The following works will be presented at the EI 2016 Symposium Interac-
tive Papers Session.

                                                                    COLOR-336
Color vision testing using the Oculus Rift, *Trisha Lian, Haomiao Jiang,
and Joyce Farrell, Stanford University (USA)*

EI 2016 Symposium Interactive Papers Session
5:30 – 7:00 PM
Continental Ballroom 6

Thursday, February 18, 2016

Color in Medical Applications

Session Chair: Daniele Marini, Università degli Studi di Milano (Italy)

9:10 – 10:10 am
Continental Ballroom 1

9:10   COLOR-337
**Optical imaging techniques for non-contact measurements of vital functions
and diagnosis of malignant tissues in medicine,** *Rudolf Verdaasdonk, John
Klaessens, and Albert Veen, VU University Medical Center (Netherlands)*

9:30   COLOR-338
Characterisation of skin spectra in a Caucasian and Oriental sample,
*Kaida Xiao[3,2], Mengmeng Wang[1], Ming Luo[1], Changjun Li[3], and
Sophie Wuerger[2]; [1]University of Leeds, [2]University of Liverpool (United
Kingdom), and [3]University of Science and Technology Liaoning (China)*

9:50   COLOR-339
Current problems and perspectives on colour in medical imaging,
*William Revie[1] and Phil Green[2]; [1]FFEI (United Kingdom) and [2]Gjøvik
University College (Norway)*

10:10 – 10:50 am   Coffee Break

Printing

Session Chair: Carinna Parraman, University of the West of England
(United Kingdom)

10:50 am – 12:30 pm
Continental Ballroom 1

10:50   COLOR-340
Dynamic print stream classification and optimal JPEG compression,
*Cheng Lu[1], Mark Shaw[2], Randy Guay[2], David Day[2], and Jan Allebach[1];
[1]Purdue University and [2]Hewlett Packard (USA)*

11:10   COLOR-341
Toner usage prediction, *Mengqi Gao[2], Yanling Ju[1], Terry Nelson[3],
Theresa Prenn[3], and Jan Allebach[1]; [2]Purdue University and [3]Hewlett-Parkard
Co. (USA)*

11:30   COLOR-342

Color uniformity improvement for an inkjet color 3D printing system, *Pei-Li Sun and Yuping Sie, National Taiwan University of Science and Technology (Taiwan)*

11:50   COLOR-343

Vector driven 2.5D printing with non-photorealistic rendering, *Paul O'Dowd, Carinna Parraman, and Mikaela Harding, University of the West of England (United Kingdom)*

12:10   COLOR-344

2.5D printing: The evolution of the water lily, *Carinna Parraman, Paul O'Dowd, and Mikaela Harding, University of the West of England (United Kingdom)*

12:30 – 2:00 pm   Lunch Break

Invited Talk: Vision Security - The Role of Imaging
Session Chair: Alessandro Rizzi, Università degli Studi di Milano (Italy)
2:00 – 2:30 pm
Continental Ballroom 1

                                             COLOR-345

Vision security – the role of imaging, *Marius Pedersen and Jon Yngve Hardeberg, Gjøvik University College (Norway)*

Vision & Image Processing

Session Chair: Marius Pedersen, Gjøvik University College (Norway)

2:30 – 5:10 pm
Continental Ballroom 1

2:30   COLOR-346

Psychophysical study of color verbalization using fuzzy logic, *Corey Abshire[1], Jan Allebach[2], and Dmitri Gusev[3]; [1]Indiana University and [2]Purdue University (USA)*

2:50   COLOR-347

Lightness perception for different size displays under various surround conditions, *YungKyung Park[1], Hyosun Kim[2], Young-jun Seo[2], and YoonJung Kim[1]; [1]Ewha Womans University and [2]Samsung Display Co. Ltd. (South Korea)*

3:10   COLOR-348

Enhancement of perceived sharpness by chroma contrast, *YungKyung Park and YoonJung Kim, Ewha Womans University (South Korea)*

3:30   COLOR-349

Choice of distance metrics for RGB color image analysis, *Amadou Tidjani Sanda Mahama[1], Augustin Dossa[1], and Pierre Gouton[2]; [1]Institut de Mathématiques et de Sciences Physiques (Benin) and [2]Université de Bourgogne (France)*

3:50   COLOR-350

Digital image segmentation for object-oriented halftoning, *Zuguang Xiao[1], Mengqi Gao[1], Brent Bradburn[2], and Jan Allebach[1]; [1]Purdue University and [2]Hewlett-Packard (USA)*

4:10   COLOR-351

How suitable is structure tensor analysis for real-time color image compression in context of high quality display devices, *Fritz Lebowsky and Mariano Bona, STMicroelectronics (France)*

4:30   COLOR-352

Preserving color fidelity in real-time color image compression using a ranking naturalness criterion, *Marina Nicolas and Fritz Lebowsky, STMicroelectronics (France)*

4:50   COLOR-353

Multiscale approach for dehazing using the STRESS framework (JIST-first), *Vincent Jacob Whannou de Dravo and Jon Yngve Hardeberg; The Norwegian Colour and Visual Computing Laboratory, Gjøvik University College (Norway)*