

IS&T International Symposium on Electronic Imaging Science and Technology 2021

Computer Vision and Image Analysis of
Art 2021

Online

11 - 28 January 2021

Editors:

**Kurt Heumiller
David G. Stork**

ISBN: 978-1-7138-3833-3

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Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



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Computer Vision and Image Analysis of Art 2021

MONDAY 18 JANUARY 2021

OPTICS AND IMAGE PROCESSING

Session Chair: Christopher Tyler, Smith-Kettlewell Eye Research Institute (United States)

11:45 – 12:45

11:45

CVAA-040

JIST-first: Did Tim paint a Vermeer?, David Stork¹, Christopher Tyler², and Sara Schechner³; ¹Consultant, ²Smith-Kettlewell Eye Research Institute, and ³Harvard University (United States)

12:05

CVAA-041

Transfer learning with style transfer between the photorealistic and artistic domain, Nikolay Banar¹, Matthia Sabatelli², Pierre Geurts³, Walter Daelemans⁴, and Mike Kestemoni⁵; ¹University of Antwerp and ²University of Liege (Belgium)

12:25

CVAA-042

Recovery of underdrawings and ghost-paintings via style transfer by deep convolutional neural networks: A digital tool for art scholars, David Stork¹ and Anthony Bourachea²; ¹Consultant (United States) and ²University College London (United Kingdom)

CONFERENCE INTERACTIVE POSTERS

CVAA-017

CVAA POSTER: Resolution enhancement in the recovery of underdrawings via style transfer by generative adversarial deep neural networks, George Cann¹, Anthony Bourachea², Ryan-Rhys Griffiths³, and David Stork⁴; ¹University College London (United Kingdom), ²Cambridge University Press (United Kingdom), and ³Consultant (United States)

CVAA-015

CVAA POSTER: Computational identification of significant actors in paintings through symbols and attributes, David Stork¹, George Cann², Anthony Bourachea³, and Ryan-Rhys Griffiths⁴; ¹Consultant (United States), ²University College London (United Kingdom), and ³University of Cambridge (United Kingdom)

COMPUTATIONAL TOOLS FOR ART SCHOLARSHIP

Session Chair: Kurt Heumiller, Museum of Modern Art (United States)

19:45 – 20:25

19:45

CVAA-013

JIST-first: Exploring the facial color representative regions using the Humanæ images, Yuchun Yan¹, Hayan Choi², and Hyeon-Jeong Suk³; ¹Korea Advanced Institute of Science and Technology and ²DeepScent (Republic of Korea)

20:05

CVAA-014

A web-based visualization tool for multispectral images, Snehal Padhye, David Messinger, and James Forwerdo, Rochester Institute of Technology (United States)

TUESDAY 19 JANUARY 2021

PLENARY: DEEP INTERNAL LEARNING—DEEP LEARNING WITH ZERO EXAMPLES

Session Chair: Charles Bouman, Purdue University (United States)

10:00 – 11:10

Deep internal learning—Deep learning with zero examples

Michal Irani, professor, Department of Computer Science and Applied Mathematics, Weizmann Institute of Science (Israel)

Michal Irani is a professor at the Weizmann Institute of Science. Her research interests include computer vision, AI, and deep learning. Irani's prizes and honors include the Maria Polak Prize (2016), the Helmholtz "Test of Time Award" (2017), the Landau Prize in AI (2019), and the Rothschild Prize in Mathematics and Computer Science (2020). She also received the LCCV Best Paper Awards (2000 and 2002), and the Mori Prize Honorable Mention (2001 and 2003).

THURSDAY 21 JANUARY 2021

PLENARY: THE DEVELOPMENT OF INTEGRAL COLOR IMAGE SENSORS AND CAMERAS

Session Chair: Jonathan B. Phillips, Google Inc. (United States)

10:00 – 11:10

The development of integral color image sensors and cameras

Kenneth A. Parulski, expert consultant: mobile imaging (United States)

Kenneth Parulski is an expert consultant to mobile imaging companies and leads the development of ISO standards for digital photography. He joined Kodak in 1980 after graduating from MIT and retired in 2012 as research fellow and chief scientist in Kodak's digital photography division. His work has been recognized with a Technical Emmy and other major awards. Parulski is a SMPLE fellow and an inventor on more than 225 US patents.

MONDAY 25 JANUARY 2021

PLENARY: MAKING INVISIBLE VISIBLE

Session Chair: Jonathan B. Phillips, Google Inc. (United States)

10:00 – 11:10

Making invisible visible

Ramesh Raskar, associate professor, MIT Media Lab (United States)

Ramesh Raskar is an associate professor at MIT Media Lab and directs the Camera Culture research group. His focus is on AI and imaging for health and sustainability. They span research in physical (e.g., sensors, healthtech), digital (e.g., automated and privacy-aware machine learning), and global (e.g., geomaps, autonomous mobility) domains. He received the Lemelson Award (2016), ACM SIGGRAPH Achievement Award (2017), DARPA Young Faculty Award (2009), Alfred P. Sloan Research Fellowship (2009), IR100 Award from MIT Technology Review (2004), and Global India Innovator Award (2003). He has worked on special research projects at Google (X) and Facebook and co-founded/advised several companies.

WEDNESDAY 27 JANUARY 2021

PLENARY: REVEALING THE INVISIBLE TO MACHINES WITH NEUROMORPHIC VISION SYSTEMS: TECHNOLOGY AND APPLICATIONS OVERVIEW

Session Chair: Radka Tezaur, Intel Corporation (United States)

10:00 – 11:10

Revealing the invisible to machines with neuromorphic vision systems: Technology and applications overview
Luca Verre, CEO and co-founder, Prophesee (France)

Luca Verre is co-founder and CEO of Prophesee, the inventor of the world's most advanced neuromorphic vision systems. Verre is a World Economic Forum technology pioneer. His experience includes project and product management, marketing, and business development roles at Schneider Electric. Prior to Schneider Electric, Verre worked as a research assistant in photonics at the Imperial College of London. Verre holds a MSc in physics, electronic and industrial engineering from Politecnico di Milano and Ecole Centrale and an MBA from Institut Européen d'Administration des Affaires, INSEAD.