

**Computational approaches for technical imaging in cultural heritage
(7th IP4AI meeting) Programme
27-29th April, 2022**

Wednesday, 27th April

Time, BST (UTC +1)	Speaker	Title
14:00-14:05 <i>Conference introduction</i>		
Keynote 1		Chair: Catherine Higgitt, <i>National Gallery, London</i>
14:05-15:05	Jill Dunkerton <i>National Gallery, London</i>	“Technical imaging and connoisseurship: investigating a collaboration between Botticelli and Filippino Lippi”
15:05-15:10 <i>Short break</i>		
Oral Presentation Session 1		Chair: Catherine Higgitt, <i>National Gallery, London</i>
15:10-15:30	John K. Delaney <i>National Gallery of Art, Washington DC</i>	“An alternative approach to mapping pigments in paintings with hyperspectral reflectance image cubes using artificial intelligence” Tania Kleynhans, John K. Delaney, Roxanne Radpour, Catherine M. Schmidt Patterson & Kathryn A. Dooley
15:30-15:50	David Mills <i>Queen Mary University of London</i>	“Revealing the unreadable – digitisation without disruption” David Mills
15:50-16:10	Paolo Romano <i>CNR-ISPC</i>	“New developments on simultaneous MA-XRD/MA-XRF imaging: instrumental setup and computational approaches for pigment-specific mapping of paintings” Francesco Paolo Romano, Costanza Miliani, Claudia Caliri, Claudia Fatuzzo, Danilo Pavone, Giulia Privitera, Dario Zappalà & Zdenek Preisler
16:10-16:30	Juan José Murillo Fuentes <i>University of Sevilla</i>	“Crossings Segmentation in Plain Weaves for X-Rays of Canvases with Deep Learning” Antonio D. Bejarano, Juan José Murillo-Fuentes & Laura Alba-Carcelén
Poster & Demonstration Session 1		
16:30-17:30	<i>See list in book of abstracts.</i>	

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Panel Discussion

Moderator: Ingrid Daubechies, *Duke University*

14:00-14:55

Jill Dunkerton
National Gallery, London
Ahmed Elgammal
Rutgers University
Robert G. Erdmann
*Rijksmuseum/
University of Amsterdam*
Haida Liang
Nottingham Trent University
Marc Walton
*M+ Museum, Hong Kong/
Northwestern University*

The role of AI for art investigation

With the increasing use of a range of advanced technical imaging and spectroscopic imaging methods in the study and preservation of artworks and other cultural heritage artefacts and drives to digitise and share archives, collections and associated materials, there is growing interest in – and need for – computational approaches to exploit and explore this data. This conference includes many exciting uses of machine learning and AI approaches in the heritage/cultural sector and for art investigation for particular applications. However, the use of such approaches is not without problems and their critics. As we look to the future, is the heritage/cultural sector ready for AI / ML and are data scientists ready for the challenges in art investigation and art history? In this session we hope to explore and encourage an open discussion of some of the challenges and benefits of ML and AI for art investigation and how experts – from both the cultural and heritage sectors and data sciences – might interact with each other and with machines.

14:55-15:00

Short break

Keynote 2

Chair: Pier Luigi Dragotti, *Imperial College London*

15:00-16:00

Haida Liang
Nottingham Trent University

“AI for DIGILAB: A Heritage Materials Research Infrastructure for Multimodal Spectral Imaging Data Processing”

Oral Presentation Session 2

Chair: Pier Luigi Dragotti, *Imperial College London*

16:00-16:20

Marta Melchiorre
National Gallery, London
Sotiria Kogou
Nottingham Trent University

“Application of a novel neural network approach to investigate the painting materials and technique in *The Adoration of the Kings* by Sandro Botticelli and Filippino Lippi” Marta Melchiorre Di Crescenzo, Sotiria Kogou, Luke Butler, Florence Liggins, Haida Liang & Catherine Higgitt

16:20-16:40

Niranjan Thanikachalam
Artmyn SA

“Multimodal image change analysis for artwork monitoring” Niranjan Thanikachalam, Pierre-Antoine Héritier & Loïc Baboulaz

16:40-17:00

Matthias Alfeld
TU Delft

“DataHandlerP: An open access software package for the analysis of spectroscopic imaging data” Matthias Alfeld & Luís Manuel de Almeida Nieto

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Poster & Demonstration Session 2

13:30-14:30 See list in book of abstracts.

Keynote 3

Chair: Miguel Rodrigues, *University College London*

14:30-15:30 **Marc Walton** “Creating Images Worth More Than A Thousand Words: Computational Imaging for Cultural Heritage”
*M+ Museum, Hong Kong/
Northwestern University*

15:30-15:35 Short break

Oral Presentation Session 3

Chair: Miguel Rodrigues, *University College London*

15:35-15:55 **Su Yan** “Automatic Algorithms for Deconvoluting Macro X-ray Fluorescence Data” Su Yan, Jun-Jie Huang, Herman Verinaz-Jadan, Nathan Daly, Catherine Higgitt & Pier Luigi Dragotti
Imperial College London

15:55-16:15 **Emeline Pouyet** “Artificial Intelligence for Pigment Classification Task in the Short-Wave Infrared Range” Emeline Pouyet, Tsveta Miteva, Neda Rohani & Laurence de Viguerie
CNRS, Sorbonne University

16:15-16:35 **Silvia Russo** “Monitoring metal soaps formation on painted metals: challenges in processing reflectance FTIR time-series chemical images in absence of sharp features” Silvia Russo, Jean Baptiste Thomas, Laura Brambilla & Edith Joseph
HE-Arc CR, Neuchâtel

16:35-16:55 **Patrice Abry** “Multiscale anisotropic analysis for assessment of similarity between Arches papers in selected Matisse lithographs” Patrice Abry, Stéphane Roux, Paul Messier, Margaret Holben Ellis & Stéphane Jaffard
ENS Lyon

16:55-17:00 Conference closing remarks