
CP7.0 Training Event 1: Colour Imaging and Printing – State of the Art and Trends for a New Generation

October 22-November 02, 2012

Monday Oct 22, 2012 – Spectral Imaging and Applications Workshop

Venue: E212

0800 - Coffee

0830 - [Tutorial] Introduction to multispectral color imaging, **Jon Y. Hardeberg**, Gjøvik University College.

0915 - [Tutorial] Introduction to spectral printing, **Philipp Urban**, Technische Universität Darmstadt

1000 - Coffee break

1030 - Prediction of spring wheat yield and grain quality with remote VIS-NIR spectroscopy and multivariate data analysis, **Stein Ivar Øvergaard**, Bioforsk Apelsvoll/Gjøvik University College

1100 - LED based Spectral Film Scanner, **Raju Shrestha**, Gjøvik University College

1115 - Reducing training sets for kernel method based reflectance recovery, applications to cultural heritage, **Ferdinand Deger**, Gjøvik University College/Université de Bourgogne

1130 - Dimensionality reduction for spectral image visualization, **Steven Le Moan**, Gjøvik University College/Université de Bourgogne/TU Darmstadt

1200 - Lunch [Canteen]

1300 - Hyperspectral imaging for medical applications, **Lise Lyngsnes Randeberg**, NTNU, Trondheim, and **Julio Hernandez**, Norsk Elektro Optikk, Lillestrøm, Norway

1330 - Spectral imaging for print quality, **Mattias Anderson**, Mid Sweden University, Sweden

1400 - How good are your spectral images? Introducing an upper-bound metric for coregistration errors in spectral imagers and a noise-informed image data representation, **Torbjorn Skauli**, The Norwegian Defence Research Establishment (FFI), Kjeller, Norway

1430 - Coffee break

1500 - Spectral highlight removal, **Pesal Koriala**, Norsk Elektro Optikk AS, Lillestrøm, Norway

1515 - Spectral imaging for cultural heritage applications, **Jon Y. Hardeberg** and **Sony George**, Gjøvik University College

1530 - Spectral imaging for biometrics, Spectral Filter Array interpolation, **Xingbo Wang**, Gjøvik University College/Université de Bourgogne

1545 - Discussions

1700 - Colourlab tour

1800 - 1830 ESR representative selection/election (Only for ESRs and the ER) [Where: A012]

1930 - 2130 Dinner @ Ciao Bella

Tuesday Oct 23, 2012 – Introduction: CP7.0 project group

Venue: E212

0800 - Coffee

0830 - Welcome and introduction to project, **Jon Y. Hardeberg** and **Aditya Sole**, Gjøvik University College

0900 - Partner presentation: LIU, **Daniel Nystrom**, Linköpings Universitet, Sweden

0930 - Partner presentation: TUD, **Phillip Urban**, Technische Universität Darmstadt, Germany

1000 - Partner presentation: OCE, **Maria V. Ortiz Segovia**, Océ Print Logic Technologies SA, France

1030 - Coffee break

1100 - Partner presentation: UWE, **Carrina Parraman**, University of the West of England, Bristol, UK

1130 - Partner presentations: Associate partners (FIRST)

1200 - Partner presentations: Associate partners (MIUN)

1230 - Partner presentations: Associate partners (NG)

1300 - Lunch [Canteen]

1400 - CP7.0 Administrative procedures and tools 1, **Aditya Sole**, Gjøvik University College

1500 - GUC and IMT introduction, **Morten Irgens**, Gjøvik University College

1530 - Colorlab research overview, **Marius Pedersen**, Gjøvik University College

1600 - Coffee break

1630 - 1800 ESR/ER presentations (10 minutes), **HIG, TUD, VV, UWE, LIU, OCE, HIG**

1830 - 1945 Vitensenteret (Games, activities), **Vitensenteret**

2000 - 2200 Dinner @ Tapeo

Wednesday Oct 24, 2012 – Colour Imaging: State of the art and trends for new generation

Venue: E212

0800 - Coffee

0800 - CP7.0 Administrative procedures and tools 2, **Aditya Sole**, Gjøvik University College

0900 - CP7.0 Administrative procedures and tools 3, **Aditya Sole**, Gjøvik University College

1000 - Partner presentation: VV, **Ole Norberg**, Voxvil AB, Sweden

1030 - **Keynote:** "Imaging Arithmetic: Physics U Math > Physics + Math", **Prof. Gaurav Sharma**, University of Rochester, USA

1130 - Coffee break

1200 - **Keynote:** "Research Ethics and Publication", **Prof. Fritz Albrechtsen**, University of Oslo

1300 - Lunch [Canteen]

1400 - **Keynote:** "Current problems in Colour Management", **Dr. Phil Green**, Gjøvik University College

1500 – 1830 Selected topics in Colour Imaging

- **1500** - Printer and Scanner Forensics - Examining the security mechanisms for a unique interface, **Maria V. Ortiz Segovia**, Océ Print Logic Technologies SA, France
- **1530** - Reflectance, illumination and edges, **Carrina Parraman**, University of the West of England, Bristol, UK
- **1600** - Coffee break
- **1630** - Microscopic color measurements of halftone prints, **Daniel Nystrom**, Linköpings Universitet, Sweden
- **1700** - Perceived Image Quality of Printed Images and Their Relation to Paper Properties, **Ole Norberg**, Voxvil AB, Sweden
- **1730** - Toward a Unified Color Space for Perception-Based Image Processing, **Phillip Urban**, Technische Universität Darmstadt, Germany
- **1800** - Controlling the error in spectral vector error diffusion, **Jeremie Gerhardt**, Fraunhofer FIRST

1930 - 2230 CP7.0 Celebration dinner @ Glass works

Thursday Oct 25, 2012 – CP7 Research and Training

0830 - Coffee

The morning will be separated into 2 parallel tracks. Please note that there will be several room changes throughout the day.

Track 1 – Where: A204

0900 - Colour Management Basics, Lecture by **Srikrishna Nudurumati**,

1000 - Spectral estimation (RGB/XYZ to reflectance)U, Lecture by **Radovan Slavuj**

1100 - Coffee break (Coffee available from the staff room – A building)

1100 - Hyperspectral Image capture workshop, by **Sony George**, Gjøvik University College

Track 2 – Where: A112

0900 - CP7.0 Supervisory Board Meeting

1100 - Coffee break

1130 - CP7.0 Supervisory Board Meeting (continued)

1300 - Lunch [Canteen]

1400 - CP7.0 Research presentation and discussion 1 [Closed session for the ESRs, ER, Scientists-in-charge. Associate partner representatives, project manager]

Where: A126

1600 - Coffee break

1630 - **2015** CP7.0 Research presentation and discussion 2

Where: A204

1900 - Dinner [Pizza delivery]

Friday Oct 26, 2012 – Industrial Visit, Oslo

0800 - 2230 Excursion to Oslo: Visit to Océ and 07

0800 - Bus leaves from the Strand Hotel

1000 - 1330 Visit to Océ-Norge A.S. • A Canon Group Company (lunch at 1215)

1400 - 1600 Visit to 07 Offset printing company

1700 - 1830 Individual sightseeing in the centre of Oslo

1830 - Meet at Café Europa for dinner

Saturday Oct 27, 2012 – Colour Imaging and Image Quality course lectures**[Venue: A126](#)**

0900 - Getting research published, **Dr. Phil Green**, Gjøvik University College

1000 - Colour image quality and processing in an imaging chain 1: overview and input devices, **Dr. Marius Pedersen**, Gjøvik University College

1200 - Lunch

1300 - Colour Management basics: Laboratory exercise, **Dr. Peter Nussbaum**

1500 - Coffee break

1530 - 1800 Colour image quality and processing in an imaging chain 2: input devices, **Dr. Marius Pedersen**, Gjøvik University College

1830 - 2000 Dinner @ DollyDimple

Monday Oct 29, 2012 – Colour Imaging and Image Quality course lectures**[Venue: A204](#)**

0800 - Lecture: "Research training", **Dr. Phil Green**, Gjøvik University College

0900 - Colour image quality and processing in an imaging chain 3: Displays, projectors, printers, **Dr. Marius Pedersen**, Gjøvik University College

1200 - Lunch [Canteen]

1300 - Colour image quality and processing in an imaging chain 4: Colour rendering transforms, **Dr. Marius Pedersen**, Gjøvik University College

1600 - Dinner [Canteen]

1700 - 1900 ESR/ER discussions (optional)

Where: A012

Tuesday Oct 30, 2012 – Colour Imaging and Image Quality course lectures**[Venue: G301](#)**

0800 - Research tools, **Dr. Phil Green**, Gjøvik University College

1000 - Colour image quality and processing in an imaging chain 5: Image quality and psychophysics, **Dr. Marius Pedersen**, Gjøvik University College

1200 - Lunch [Canteen]

1300 - Print/Image quality laboratory exercise, **Dr. Marius Pedersen**, Gjøvik University College

1600 - Dinner [Canteen]

1700 - 1900 ESR/ER discussions (optional)

Where: A012

Wednesday Oct 31, 2012 – Colour Imaging and Image Quality course lectures
[Venue: G301](#)

0800 - 1200 Selected topics in colour imaging, (by GUC faculty)

- **0800** - Regression based characterization of color measurement instruments in printing applications, **Dr. Peter Nussbaum**
- **0845** - Development of an adaptive bilateral filter for evaluating color image difference, **Dr. Zhaohui Wang**
- **0930** - Spatial colour gamut mapping by means of anisotropic diffusion, **Prof. Ivar Farup**
- **1015** - Simulation of Image Appearance using Contrast Sensitivity Functions and Wavelets, **Dr. Marius Pedersen**
- **1100** - Geodesic calculation of color difference formulas and comparison with the Munsell color order system, **Dr. Dibakar Pant**

1200 - Lunch [Canteen]

1300 - Colour image quality and processing in an imaging chain 6: Image quality metrics, **Dr. Marius Pedersen**, Gjøvik University College

1600 - Dinner [Canteen]

1700 - 1900 ESR/ER discussions (optional)

Where: [A012](#)

Thursday Nov 1, 2012 – Colour Imaging and Image Quality course lectures
[Venue: A204](#)

0800 - Selected topics in Colour Imaging, **PhD students** present assigned topics

- **0800** - Color in 3D printing, **Sepideh Samadzadegan**
- **0845** - Challenges and opportunities for secure printing with multi-channel color printers, **Melissa Olen**
- **0930** - Controlling color when printing with fluorescent inks, **Srikrishna Nudurumati**
- **1015** - Soft and hard proofing - color and beyond, **Paula Zitinski Elias**
- **1100** - Challenges and opportunities for multi-primary displays, **G M Atiqur Rahaman**

1200 - Lunch [Canteen]

1300 - 1600 Selected topics in Colour Imaging, **PhD students** present assigned topics

- **1300** - Gamut mapping of color and spectral images, **Teun Baar**
- **1345** - Modeling the appearance of color images, **Ping Zhao**
- **1430** - Content-based color image enhancement and reproduction, **Ferdinand Deger**

1600 - Dinner [Canteen]

1700 - 1830 Selected topics in Colour Imaging, **PhD students** present assigned topics

- **1700** - Quantifying the quality of a spectral image, **Sony George**
- **1745** - Halftoning for multi-channel colour printing, **Radovan Slavuj**

Friday Nov 2, 2012 – Colour Imaging and Image Quality course lectures

[Venue: A204](#)

0800 - Selected topics in Colour Imaging, **Master students** present assigned papers

1200 - Lunch [Canteen]

1300 - 1600 Q&A, discussions, and wrap-up

1700 - Pizza [delivery]