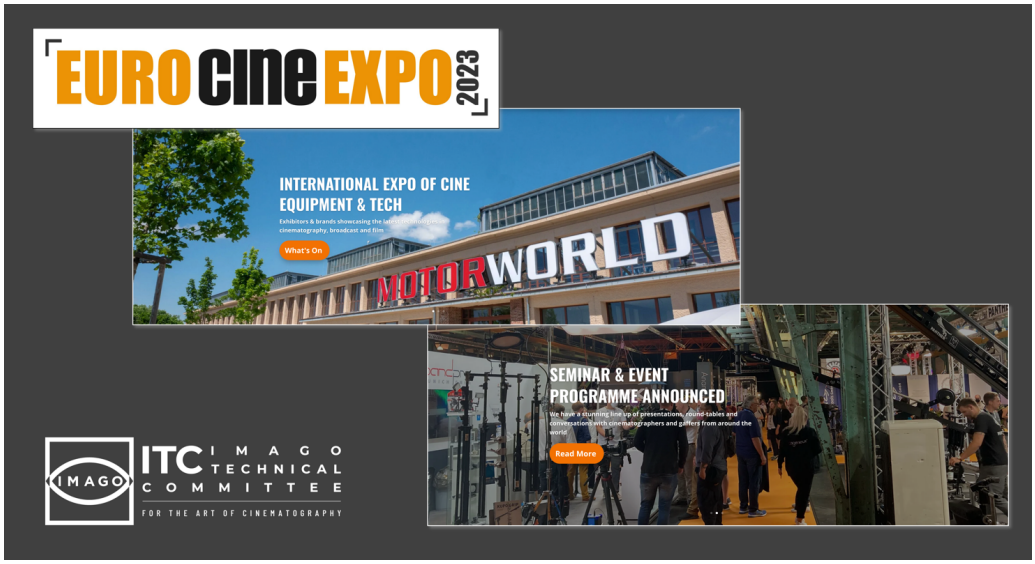
The IMAGO TC at EURO CINE EXPO 2023
5 x ITC sessions + 1

30 JUNE – 1 JULY • 2023

Munich



Thanks to Claire & Rob Saunders (EURO CINE EXPO event directors) the IMAGO TC (ITC) is pleased to invite you to the 5 x ITC sessions + 1
https://eurocineexpo.com/seminars/

For the second edition of this exhibition, Claire & Rob gave the ITC a wonderful gift: the opportunity to have 5 sessions for the ITC. And at the last moment they added a 6th one for David Stump to present his amazing workflow on the film 'Comandante'.

The description of each session is at the end.

1 - "Artistic decisions on cinematography - To be burnt or not to be burnt? – Part 1"

18 speakers (including, Suny Behar (HBO), Stefan Grandinetti (BVK), Pascale Marin (AFC), Dirk Meier (BVK, CSI), Rauno Ronkainen (FSC), Roberto Schaefer (ASC, AIC), Ari Wegner (ACS), ARRI, SONY & RED representatives.

Zoom Link (direct access)
https://us06web.zoom.us/j/87634616284?pwd=S1IzSUR5T202M0VpU2hsdU5UdTZTUT09

2 - "Metamerism and Metameric Failure"

Speaker: Dirk Meier, Colorist BVK, CSI

3 - "Virtual Production"

Speaker: David Stump ASC - MITC - ITC co-chair

4 - "Everything you wanted to know about... LEDs!"

Speaker: Philippe Ros AFC, ITC co-chair

5 - “Lighting approach to the green production”
Speaker: Aleksej Berkovic, cinematographer RGC IMAGO TC co-chair

---

From David Stump cinematographer ASC, MITC, IMAGO TC co-chair
6 - “The Cooke /I - EZTrack - UNREAL ENGINE - NUKE
‘Comandante’ Workflow’’

DETAILED DESCRIPTION

EURO CINE EXPO 2023

ITC PRESENTATIONS 1 to 5

---

1 - Title:
Panel: “Artistic decisions on cinematography - To be burnt or not to be burnt? – Part 1”

<u>We are talking about Part 1 here, because given the richness of the subject, we intend to launch a Part 2 as part of a film festival or exhibition</u>

Participants

Session	Name	Company Association		Position
Artistic Decisions	Daniel Listh	SONY		SONY Content Acquisition Solutions Specialist
Artistic Decisions	Aleksej Berkovic (ITC co-chair)	RGC		Cinematographer
Artistic Decisions	Stefan Grandinetti	BVK		Cinematographer - Professor in cinematography
Artistic Decisions	Dirk Meier	BVK, CSI		Senior Colourist
Artistic Decisions	Philippe Ros (ITC co-chair)	AFC		Cinematographer - Digital Imaging Supervisor
Artistic Decisions	Dave Stump (ITC co-chair)	ASC		Cinematographer, Producer, Director, Visual Effects cinematographer
Artistic Decisions	Pascale Marin	AFC		Cinematographer
Artistic Decisions	Marc Shipman-Mueller	ARRI		ARRI Product Manager Cameras & Lenses
Artistic Decisions	Dr Tamara Seybold	ARRI		ARRI Digital Imaging Scientist
Artistic Decisions	Henning Rädlein	ARRI		ARRI, Head Of Digital Workflow Solutions
Artistic Decisions	Mario Krupinski	HdM		Students of HhM Stuttgart University
Artistic Decisions	Jonas Seidl	HdM		Students of HhM Stuttgart University
Artistic Decisions	Martin Koch	HdM		Students of HhM Stuttgart University
Artistic Decisions	Johannes Hänsler	HdM		Students of HhM Stuttgart University
Artistic Decisions	Marc Cattrall	RED		Marketing Manager EMEA
				ZOOM
Artistic Decisions	Suny Behar	HBO		Cinematographer/ Director
Artistic Decisions	Rauno Raikonen	FSC		Cinematographer - Professor in cinematography - Aalto University Department of film | School of Arts
Artistic Decisions	Roberto Schaefer	AIC, ASC		Cinematographer
Artistic Decisions	Loren Simons.	RED		RED Sr. Motion Picture Technology Advisor
Artistic Decisions	Ari Wegner	ACS		Cinematographer

Duration : 90 minutes
Theater (Black box)- Screening.
5.15 Pm June 30

<u>Short Version Description</u>

The Technical Committee of IMAGO created the Photon Path, a diagram showing the process of creating an image form the photon striking a scene to the pixel displayed on a screen or TV monitor. It harmonizes terms and processes between manufacturers and users.

This diagram highlights all the creative processes at certain steps of the workflow.
Of course, framing, lighting and color grading are where the cinematographer expresses his or her creative intentions.

But we can see from this diagram that there are still decisions to be made to radically alter the image during shooting,

Glass filtering is still used, control of sharpness, texture can be controlled in-camera. Manufacturers offer to burn in camera some textures, noise or grain.
But many cinematographers and some platforms defer these decisions to post-production.
What are the advantages and disadvantages of these methods? What does this mean for the audience and the kinetic perception of drama?

What semantic politics does this refer to, and what power do cinematographers have in these decisions, recommendations or guidelines?

This panel of renowned cinematographers, colorists and manufacturers will attempt to provide some answers on this subject.

2 - ITC PRESENTATION (Already presented at the Stuttgart Visual Media Lab Conference)
Title:
Metamerism and Metameric Failure

Speaker:
Dirk Meier, colorist BVK, CSI,

Duration : 45 minutes

Theater (Black box) – Screening - Friday
Saturday 1 at 3,30 pm Prep Starting at 4 pm

Description

In a practical live demonstration thanks to the support of ARRI Academy we will illustrate the relation between the spectrum of a light source and the corresponding visual perception, its color. Metamerism describes the phenomenon when two different spectra create the same visual perception.
As a second step we will look into metameric failure when seemingly similar white light creates different color perception of certain objects. While this can be used to make vegetable appear riper, this can cause issues in cinematography using various, especially LED based light sources and in particular when LED walls in virtual productions are lighting objects and people.

3 – ITC PRESENTATION (Already presented at the Stuttgart Visual Media Lab Conference and the Oslo Digital Conference)
Title :
Virtual Production

Speaker:
David Stump ASC - MITC - ITC co-chair

Duration : 45 minutes
Meeting Room

Friday 30 - 3 pm
Description

Rendering Computer Generated Images in real-time has always been the holy grail for visual effects, and game engine technology is starting to make this dream a reality. New Extended Reality (XR) Virtual Production workflows are allowing filmmakers to capture visual effects shots in-camera using real- time game engine technology and surrounding LED screens. Extended Reality is the biggest paradigm shift in VFX production since the “Digital Revolution”.

This disruptive change has evolved in reaction to the VFX industry pushing too far into Postproduction. Real Time XR is new trend that will move VFX compositing back into production and onto the set.

An excerpt of the conference:

“Semantic problems are very present in international co-

productions and/or postproductions that take place in several companies but, that in virtual production, these problems appear in an unexpected way:
Human beings can by effort overcome differences in language, semantics and syntax. We can discuss terminology and eventually move forward. However, when machines talk to other machines, there is no discussion of terminology. Without agreement on terminology, machines fail to communicate catastrophically".

4 - ITC PRESENTATION (Already presented at Fonction Cinema conference in Geneva, at the Stuttgart Visual Media Lab Conference and the Oslo Digital Conference)

Title:
Everything you wanted to know about... LEDs!

Speaker:
Philippe Ros

Duration : 45 minutes
Meeting Room
Friday 30 at 11 am

Short Description

In the digital age, the solid-state lighting (LEDs) has created new opportunities for filmmakers and cinematographers. But they also radically changed the responsibility of gaffers and their skills necessary for the complex use of this new lighting fixtures. Moreover, it is often difficult to know the power of LEDs and, above all, to know their advantages quickly. Simple methodologies, such as highlighting the SSI (Spectral Similarity Index) quality standard, are therefore offered here to help all participants.
Our world of cinematography has changed, and this conference proposes to understand how the new color spectrum of LEDs modifies our workflow and how they intervene in our subjectivity''.

Long Description

LEDs have invaded our lives. These small light-emitting diodes are in the bathroom, in the avenues of big cities, on our movie sets. They light up our intimate lives as our biggest stadiums.
Who is this invader who makes no noise but has managed to impose himself without the slightest resistance?
Do we know that a dozen new models, or even new brands of LEDs appear every month?

In our business, while digital cameras have provoked much debate, LEDs have been adopted much more easily, almost on the sly.
Indeed, the advantages of these tools (lightness, flexibility, lower cost and low energy consumption) were immediately obvious.
However, unlike traditional sources, tungsten and daylight, LEDs

are not all equal in terms of quality and performance. There are, as the screening of tests will highlight, many variations from one brand to another, in terms of color as well as in terms of power.
Despite this, they are now an integral part of the digital workflow, and the use of LED walls is part of this scheme without us always having a real mastery of this new tool.

The specificity of these light-emitting diodes no longer concerns only the cinematographer and the gaffer. Make-up, set design, costumes and, of course, post-production with the colorist, now depend on LEDs. The wrong choice of projectors can seriously affect a production.

More than fifteen years after the arrival of LEDs, this presentation proposes to freely analyze all the consequences of the use of these lighting fixtures and above all to exploit new information: missing or little-used data that allow these tools to be judged without the inertia of marketing.

Through two series of tests, it clearly shows the qualities and defects of these lighting fixtures in terms of color rendering and skin texture.

Moreover, it is often difficult to know the power of LEDs and, above all, to know their advantages quickly. Simple methodologies, such as highlighting the SSI (Spectral Similarity Index) quality standard, are therefore offered here to help all participants.
Our world has changed, and this conference proposes to understand how the new color spectrum of LEDs modifies our workflow and how they intervene in our subjectivity.

ITC PRESENTATION
5 - Title:
Lighting approach to the green production

Speaker:
Aleksej Berkovic, cinematographer RGC IMAGO TC co-chair

Duration : 45 minutes
Workshop room
Saturday 1 at 11 am

Short Version Description

Yes, we know that such an opinion exists: "Green film making simply means leaving as little environmental impact on the planet as possible while producing your film. It's a myth that

sustainability will come with a price tag, often the opposite is true."
Our approach is not based on declarations. You will see with your own eyes simple, practical results and explanation how to reduce the cost, environmental impact and, at the same time, to increase creative potential, quality of visual storytelling based on one example.

David Stump presentation
---
6 - Title:
The Cooke /I - EZTrack - UNREAL ENGINE - NUKE
'Comandante Workflow'

Speaker:
David Stump, cinematographer ASC, MITC, IMAGO TC co-chair

Duration : 45 minutes
Theater (Black box)- Screening
Saturday 1 at 3.30 pm

Short Version Description

Director Edoardo de Angelis' film 'Comandante' is breaking new technical ground. The directors and cinematographer's creative intent led them to choose an anamorphic shooting format. The "Cooke look" appealed to both cinematographer DP Ferran Paredes Rubio and Director Angelelis.

At first, the production explored an LED wall XR approach to shooting VFX sequences at sea, but the restraints of water and a moving submarine proved too difficult for traditional XR production. An exploration of "non LED Wall" production proved fruitful. From there, the film makers devised a novel Near Real-Time (NRT) workflow which allowed post-production to work in near real time, as principal photography progressed. 'Comandante' follows the true story of an Italian submarine commander in World War II. Shooting a seagoing submarine movie for real, or even with traditional VFX techniques, can be expensive and extremely difficult. Producer Pierpaolo Verga brought on board visual effects designer Kevin Tod Haug, workflow designer David Stump ASC to help solve the problems of time, budget and schedule.

Together, they designed an innovative new Near Real-Time Visual Effects / Live Action workflow to bring together key advancements in lens distortion calibration, camera tracking, machine learning and real-time on-set rendering to deliver quality composites of what was just shot to the filmmakers, in a matter of

minutes.

Long Version Description

An innovative new Near Real-Time Visual Effects / Live Action workflow brings together key advancements in lens distortion calibration, machine learning and real-time on set rendering to deliver quality composites of what was just shot to the filmmakers, in a matter of minutes.

Lens distortion calibration and modelling the taking lens to fit with computer generated images is essential to marrying the real and virtual worlds. This always difficult process is made exponentially more complex when shooting with anamorphic lenses.

The normal distortion mapping process entails shooting lens grids to try to estimate lens distortion and shading. The 'Comandante' team employed Cooke Optics /i Technology factory lens mapping system to automate the process. Cooke very accurately physically measures their lenses, embedding extremely accurate distortion and shading parameters into each lens per serial number. The 'Comandante' VFX department took these Cooke mathematical coefficients and applied them to the image in an automated process to get highly accurate distortion map compositing solutions, even when the camera moved and the lens racked focus. This technology was coupled with EZtrack's camera tracking system to deliver precise camera movement data synchronized with lens and camera data, dolly data and crane data. This allowed the VFX and camera teams to accurately access all of Cooke's /i Lens Metadata while also providing access to the position and movement of the camera in real time.

The video playback operator was then able to lock in view a temp composite of CG from the Unreal Engine and the live feed from the camera in a Qtake playback system because the output of Unreal could now be warped and distorted to precisely match the output of the camera. That required that the composited image is not a fudge between a spherical reference coming out of an Unreal Engine and the actual anamorphic from the camera. The results were astonishing: the lens distortions were perfectly consistent across the image, eliminating what usually takes weeks of work in VFX post production matchmoving.

Camera, motion data, metadata and lens distortion information

were recorded from the camera and streamed into Epic Games' Unreal Engine in real time. This data was then streamed into Nuke, the production's high-end compositing software. The Unreal Reader tool in Nuke enabled the filmmakers to re-render the background in high quality, and the virtual and physical images are merged using Nuke's ne AI CopyCat tool, which uses machine learning to separate out the LED wall from the actors. By re-rendering using the true recorded values of the tracked camera's position, the lag between tracking and real-time render is removed, allowing the filmmakers freedom over their shot movements.

Using this workflow, a director can watch an on-set feed from the live cameras mixed with a real time temp composite version of a basic CG render of a VFX shot. The goal is that the director can then move on to the next set-up with confidence. But more importantly, thanks to the collaboration of Cooke and EZtrack, all the data collected can be used by the on-set VFX team to produce an updated rendering of the required CG that is also more than good enough to allow the editor to see their vision come to life in Near Real Time.