

Visual Media Lab Conference

Hochschule der Medien, Stuttgart

A real-life conference on virtual production

This article is a report on this event and on the activities of the IMAGO Technical Committee (ITC) on this occasion. It is dedicated to all those who work or will work in the field of virtual production and / or who teach.

Between March 8th and 11th, Aleksej Berkovic RGC, Dirk Meier, colorist BVK, CSI, Philippe Ros, AFC, and David Stump, ASC, have been invited by Prof. Stefan Grandinetti ¹, cinematographer, BVK, Professor for Cinematography, ITC full member, to represent the IMAGO TC at the Visual Media Lab Conference at the HdM, Hochschule der Medien ² (University of Applied Sciences) in Stuttgart.



Stefan Grandinetti



You can see the full program of the three days and view all the presentations on:

<https://www.hdm-stuttgart.de/vmlab/conferences/VMLC/#schedule>

We will not be able to write about all the speakers, but, in this article, we share the main themes and **give you the most important points and the link to each presentation.**

Stefan Grandinetti summarized the purpose of this conference:

“This conference unites the earlier HdM-events “International Cinematography Days” and “VeGA-Camp” under the umbrella of the new founded HdM-institute “Visual Media Lab” and will take place every two years from now on. In our courses of study (Audiovisual Media), there is the typical approach to educate specialists in media production who can bridge between the worlds of engineering and fine arts (“creative engineers”). The “Visual Media Lab Conference” aims at bringing

together international students, industry, scientists and societies. We want to unite various disciplines and competences in order to research the future education in the constantly changing field of media production. The objective was to bring together as many players in Virtual Production as possible.“

The least we can say is that this objective has been more than met!

The HdM is not a film school, but a public located on the large university campus of Stuttgart, which enjoys an international reputation.

The interdisciplinarity of this university is reflected in this conference where one could meet specialists of different technologies, directors, technicians, teachers, students, renters, manufacturers and high-level scientists.

For example, we were able to meet with representatives of film schools (HFF Munich, Babelsberg) as well as the German representative of the SMPTE ³.



Dr Hans Hoffmann, (7th person from the right) chairman of EBU and SMPTE Europe, surrounded by students of the SMPTE-Chapter Germany.

As a prime example of the advantages of cooperation, Dr. Hans Hoffmann (European Broadcasting Union/SMPTE) presented a new Student Chapter ⁴ of the Society of Motion Picture and Television Engineers (SMPTE). The chapter, launched in September 2022, is founded by three universities including HdM and offers students a possibility to reach out and connect with other students, as well as peers and professionals from around the world and to have an insight into their work and knowledge.

This event was of great importance, because these students will certainly occupy important places in the media technology network. This type of official organization needs new blood.

Cuts out:

The first day was dedicated to Science & Technology

Use of HDR in TV shows and in sports broadcasts.

“Introduction to High Dynamic Range Video”

Video will be available shortly.

Prof. Dr. Jan Fröhlich & Lasse Bickelmann “Hosts of the day”



Jan is Professor for Motion Picture Engineering at HdM and a specialist in HDR. His research led him to become Senior Image Scientist at ARRI Munich and to work for Dolby Laboratories. His contribution on the digital image texture and the ITU Rec.2100 is well-known in the industry

During this day, Jan together with Lasse Bickelmann, Master student in Audiovisual Media at HdM, shared their great knowledge about HDR which is related to Virtual Production.

Several broadcasters have the goal to create cinematic looks with the paradox of reducing depth of field without using focus pullers (quite an impossible mission in 4K for the moment). One of the topics was also the distraction for the audience created by the misuse of HDR, which gives too much information in areas where nothing is happening.

The challenge is to convince broadcaster to use the dynamic range subtly. It is important to remember that HDR has been launched at the request of advertisers who complained that during soccer games in stadiums, there were parts of the image that were overexposed or underexposed, making the advertising banners unreadable.

To make the connection with our profession, it is also useful to recall that there was a strong debate between cinematographers and colorists of the BVK and the ZDF about the use of HDR. The German TV station was forcing colorists to use the full dynamic range in defiance of the drama and the creatives' intent.

Just before lunch, Sean Cooper, Senior Color Scientist at ARRI and Ingmar Rieger, Image Science Engineer at ARRI discussed the differences in

appreciation of HDR between cinema and broadcast. They specifically explained that HDR has introduced new considerations for both media with very specific calibration controls for very, very different aesthetic purposes.

“Color volume conversions between HDR and SDR”

Video will be available shortly.

Pablo Garcia Soriano



Pablo is the managing director and founder at Cromorama (Poland): He is known for his work as a senior colorist, color supervisor and has had a long collaboration at Sony's Digital Media Production Centre Europe (DMPCE). The IMAGO TC conducted extensive tests there with Pablo to compare SONY Raw and X-OCN.

His work during the last international soccer games was a perfect example of the complexity of the live conversion between HDR and SDR.

The second day was dedicated to Virtual Production

Prof. Jan Adamczyk - Host of the day



Prof. Jan Adamczyk is a German VFX Supervisor who has worked on many international blockbusters. From 2018 Prof. Jan Adamczyk has been part of the visual effects team at the Stuttgart Media University.

He gave this day a very rich palette of different approaches to virtual production on television programs, commercials and cinema. A fully packed and amazing day, with very different lecturers, among them:

- **Elfi Kerscher** (Plaza Media) detailed the production of a commercial for Red Bull and more specifically her knowledge about multicam setups and focus pulling issues in virtual production. She also gave her perspective on green production and what it means with LED walls. Not so simple!

https://vimeo.com/824894554?embedded=true&source=vimeo_logo&owner=74736025

- **Christian Kästner** (Framestore), **Christina Caspers-Römer** (Trixter), **Tobias Stärk** (Woodblock) talked about the challenge of managing the virtual

production of the TV series '1899' and at the same time preserving creativity. A very specific point of view on planning, budget, main cinematography and post-production (See the paragraph on the colorist, Steffen Paul).

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- **Mark Dauth** (Pixomondo) compositor in the VFX and advertising industry, gave recipes for good In Camera VFX. He explained the common misconception in Virtual Production. What helps sell a virtual extension of an environment in the LED volume and what should be avoided. Examples were 'Star Trek: Strange New Worlds' and Season 1 of 'House of the Dragon'.

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The third day was dedicated to Virtual Cinematography

“Metamerism and Metameric Failure”

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Dirk Meier, colorist (BVK, CSI)



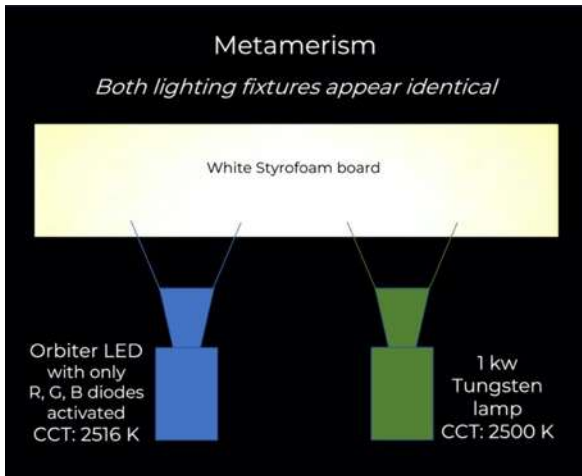
Dirk Meier is a freelance colorist, consultant and lecturer, well known for his international workshops as the UP.GRADE program. He is a very active member of the IMAGO Technical Committee.

In a practical live demonstration, Dirk illustrated the relation between the spectrum of a light source and the corresponding visual perception, its color.

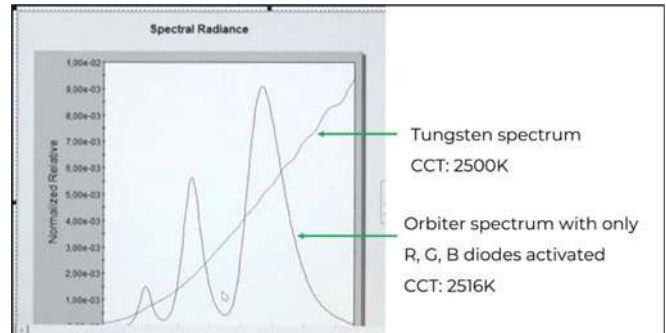
Metamerism describes the phenomenon when two different spectra create the same visual perception.

For this demonstration, there was 1 kW tungsten light next to an ARRI Orbiter LED lamp shining onto a big white Styrofoam board.

The Orbiter is a state-of-the-art LED lighting fixture that uses a total of 6 different types of LEDs to create a high quality, full spectrum range of light. Nevertheless, for this demo, Dirk intentionally turned off three of the six LEDs.



Two different spectra,
but the same visual perception



And with the audience watching, Andy Minuth, Senior Colorist at FilmLight and ITC member, tuned the red, green, and blue LEDs of the Orbiter to visually match the spot of light created by the tungsten lamp.

To verify the visual match Dirk used a lab grade spectroradiometer and showed the audience the measured results as correlated color temperature. Between both lights was a mere 16 Kelvin difference, supporting the fact that there was almost no visible difference in the white light of both lamps at all.

But using only 3 of the 6 types of LEDs within the Orbiter, Dirk created a discontinuous spectrum that showed significant impact when illuminating colored objects.

Especially objects in the range of yellow, orange and red color showed a strong shift from yellow to orange or orange to red, when they were moved from the tungsten light to the RGB-only LED light. And this of course had a very visible effect on skin tones as well.

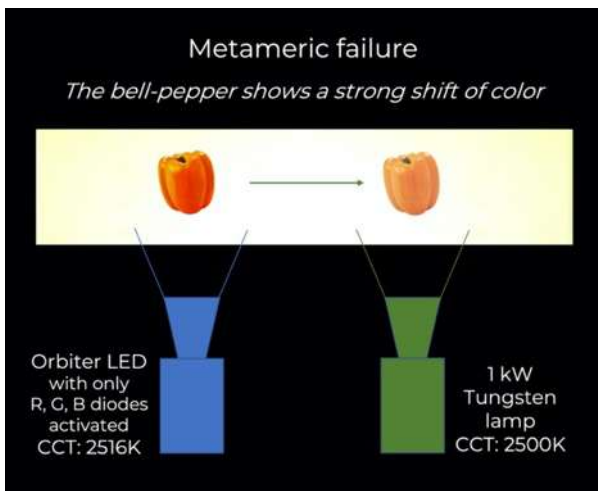


Metameric failure: the orange bell-pepper appears red in the LED light



The orange bell-pepper retains its natural color in the tungsten light

So, while we had a metameric match between the two emitted spectra from the tungsten and LED lights, when they were reflected by the white Styrofoam, we witnessed **metameric failure** when they were reflected by an orange bell-pepper for example.



While the continuous spectrum of the tungsten light source revealed an orange color to our eyes, the discontinuous, somewhat spiky spectrum of the RGB LEDs created a gap in the range of "orange and yellow wavelengths". So, the orange bell-pepper received no orange light from the Orbiter and thus could only reflect some of the red light.

Besides food commercials this of course affects skin tones as well and gives an explanation why many years ago with early LED lights we encountered noticeably strange skin tone rendition. And while modern professional film production LED lights found ways to mitigate the issue by adding more individual LEDs of different wavelengths or using broader band LEDs, there are still old models in the rental market and current practicals on location suffer from this problem. The only way to check for this is having a look at the spectrum using either spectroradiometers or at least the very cheap alternative of so-called spectrosopes.

“LEDs and Numbers”

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Philippe Ros, AFC, David Stump, ASC, MITC, ITC co-chairs



Philippe is a French cinematographer, digital imaging supervisor and instructor. David is a US cinematographer, VFX supervisor and instructor.

Last year, they organized a seminar with George Joblove, Senior Director, Technology and Standards (AMPAS⁵) on the SSI (Spectral Similarity Index), the best index to measure LEDs.

Philippe first pointed out that 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 and our biggest stadiums.

A different world with greatly reduced maintenance and usage costs but criticized by several international medical associations for questionable color

temperature choices, especially for urban use. Daylight LEDs are not recommended for night lighting due to their impact on the circadian biological rhythm (sleep/wakefulness alternation). Likewise, these associations suspect a possible link between these LED lights and the damage caused to the human retina and to sight.



Los Angeles Pre-LED 2002



Los Angeles Post-LED 2012

<https://www.thedailybeast.com/los-angeles-has-swapped-out-140000-street-lights-for-highly-efficient-leds>

In our business, while digital cameras have provoked much debate, LEDs have been adopted much more easily. The advantages of these tools (lightweight, flexible, lower cost and low energy consumption) were immediately obvious.

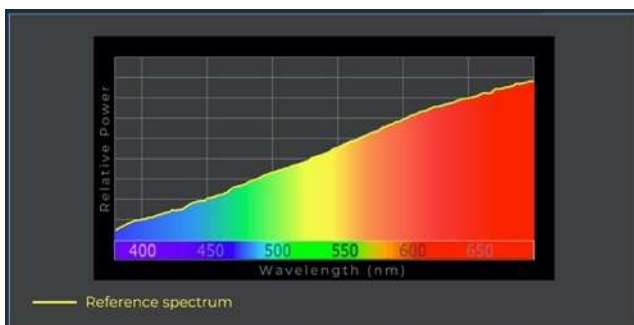
However, unlike traditional sources, tungsten and daylight, LEDs are not all equal in terms of quality and performance.

There are, as the screening of tests highlighted it, many variations from one brand to another, in terms of color as well as in terms of power.

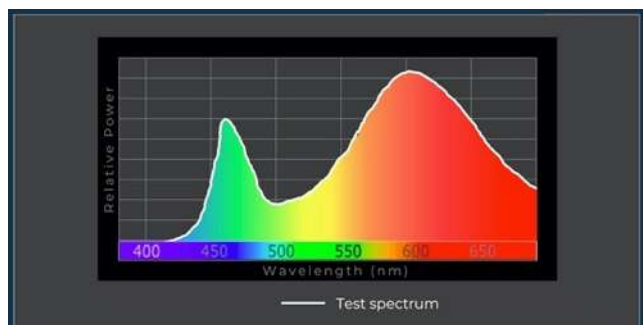
Despite this, they are now an integral part of the digital workflow and the use of LED walls is part of this scheme without us always having a real mastery of this new tool. It is often difficult to know the power of LEDs and, above all, to understand their advantages quickly.

Simple methodologies, such as the Academy of Motion Picture Arts and Sciences SSI (Spectral Similarity Index) standard, has been offered by David Stump to help all participants. He showed a very interesting methodology (Esmeralda Easel Split-Macbeth) to highlight these LED issues.

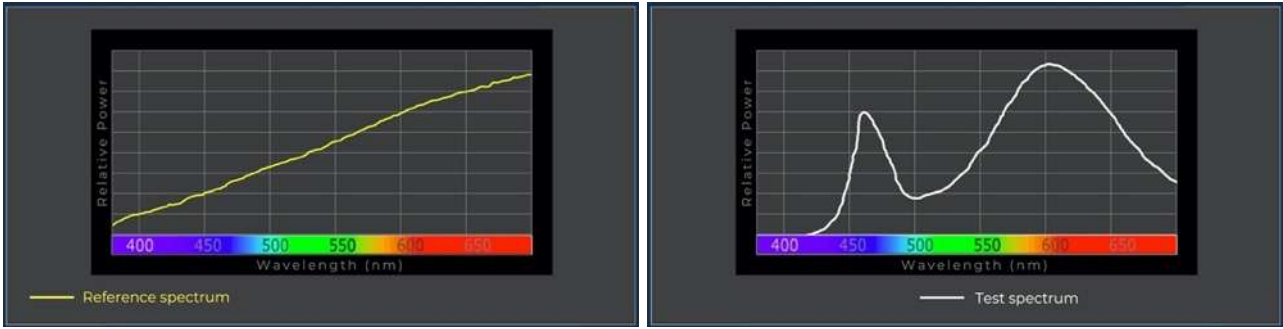
The SSI works simply by comparing e.g. a tungsten reference spectrum (below left) with the spectrum of the LED you want to measure (right below).



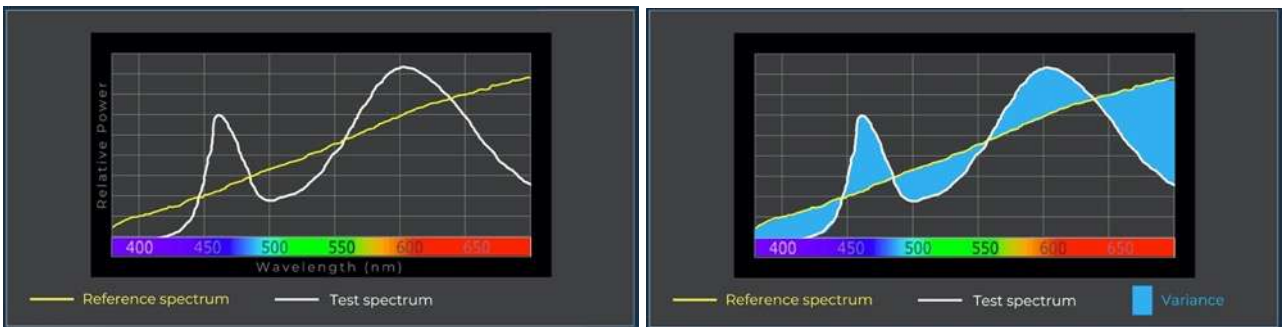
Reference spectrum tungsten



LED Spectrum to be tested



By keeping only the peak lines of the spectra and by superimposing them, we obtain a variance that allows us to measure the LEDs.



In each case, relative power has been graphed as a function of wavelength across the visible spectrum. The same method is applied to measure LED against daylight.

Therefore, an SSI measurement is always broken down into two values.

Example: SSI [P3200] = **86** SSI [CIE D55] = **78**.

Most LED walls currently have an SSI lower than 20.

One of the most important things is to remember that CRI (Color Rendering Index) is no longer considered a valid way to measure LEDs, but unfortunately, it is still very often used.



David recommended to the audience a very simple tool to judge the spectrum of an LED, a spectroscope. For less than €10 you can quickly understand the quality of practical LEDs in a ceiling and decide whether to replace them or not.

By fixing the source and rotating the eyepiece, a horizontal spectrum can be obtained. The more it is interrupted and lacks gradations between colors, the more problems it will create on the restitution of skin tones.

Part of the conference focused on the HdM tests performed by Stefan Grandinetti and his students. We were able to see that the use of high-end cameras and LEDs with good spectra and state-of-the-art color pipeline significantly removes most of the problems encountered in the past.

But not all productions can afford such means.



Tests shot by Stefan Grandinetti and his students on ARRI Alexa 35, with Raw recording file. HDR 4K D.I. on FilmLight color pipeline at HdM

More than fifteen years after the arrival of LEDs, this presentation proposed 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.

Finally, information was given on the pollution problems of LEDs linked to intensive mining and the great difficulty of recycling tools where rare metals and plastics are mixed and difficult to separate.

“Colour Matching in Virtual Production”

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Daniele Siragusano, Image Engineer, FilmLight, HdM graduate, ITC member

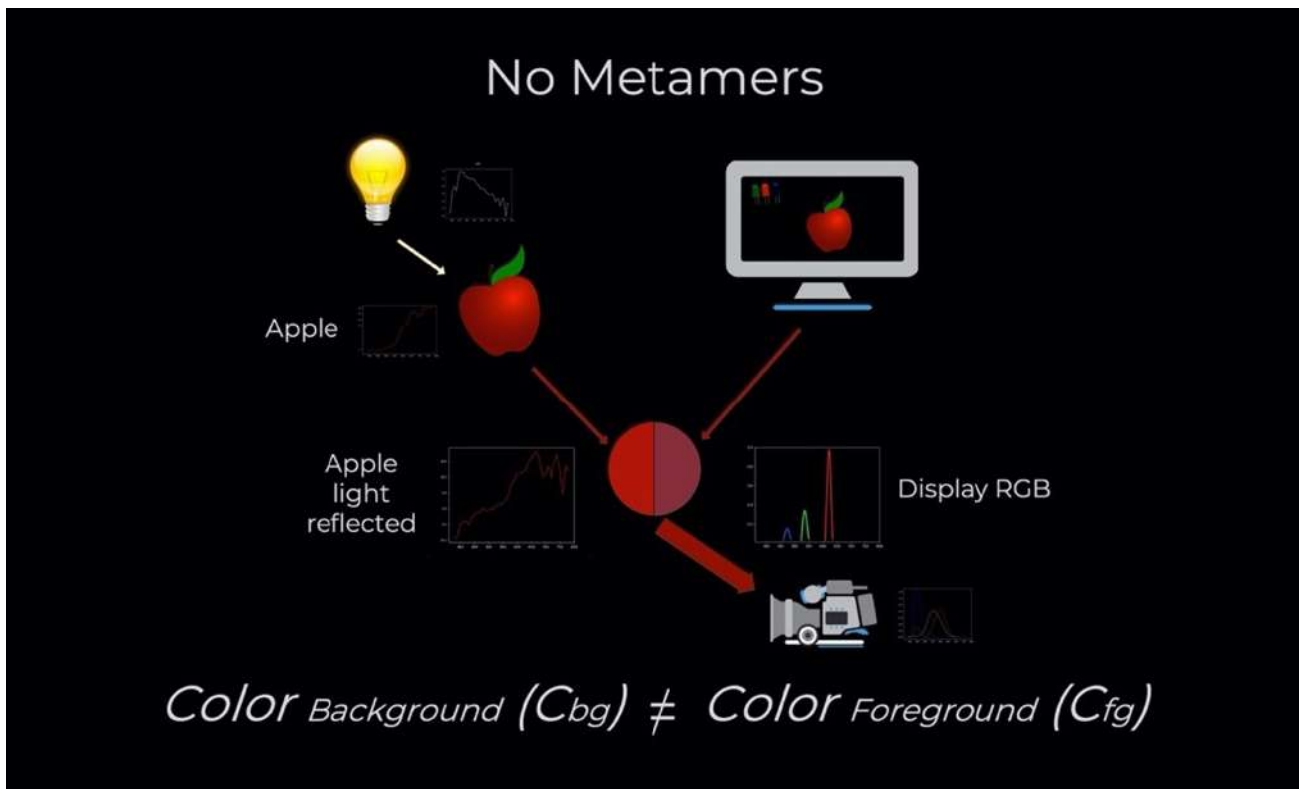


After several years at CinePostproduction in Munich, rising to head of technology before moving to Digital Video & Effects GmbH as a workflow consultant, Daniele joined FilmLight in 2014 as image engineer. Daniele is well-known for providing very insightful color grading & workflows information, advice and training to help the entire community. His expertise is a great asset to the ITC. At the end of the document, you will find Daniele's color tutorials ⁶ that are particularly useful.

To create the illusion of an extended virtual set, the parameters and characteristics of the foreground and virtual background need to match. Some parameters like movement and parallax can be homogenized by tracking and synchronization.

This talk focused on the color match between foreground and background in a Virtual Production Stage. At first sight, color matching might be seen as a 'calibration problem', but Daniele showed that it is impossible to predict before shooting.

This is due to metamerism failure between the narrow band light spectra of the virtual production stage and the broad band spectrum reflected from the real objects in the virtual production stage. So, color matching of the foreground and the background is inevitable.



But color matching on the shooting day must be fast, robust and easy to achieve because principal photography is precious and very expensive. Delays need to be avoided. Also, the production might not afford an expert only for this task.

Hence, the tools for color matching need to be very intuitive, fast to learn and easy to operate.

“Real Time Visual Effects Using LED Volumes in Motion Picture Production”

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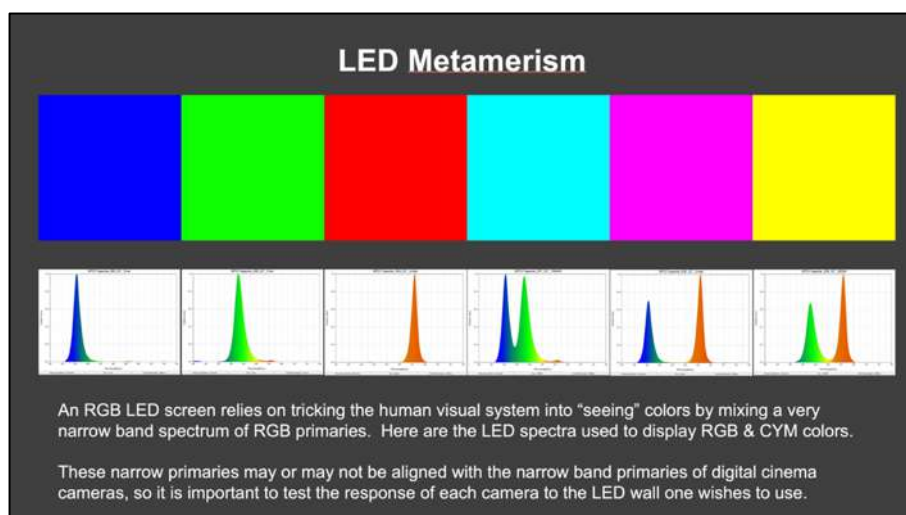
David Stump, ASC, MITC, ITC co-chair



David has been working as cinematographer, as Visual Effects Cinematographer and as Visual Effects Supervisor, earning an Emmy Award, an Academy Award and an International Cinematographers Guild Award. He is currently chairman of the Camera Subcommittee of the ASC Technical Committee (MITC) and a member of the AMPAS Science & Technology Council, David authored the book “Digital Cinematography – Fundamentals, Techniques and Workflows”, second edition.

David explained that rendering Computer-Generated Images (CGI) 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 post-production. Real Time XR is a new trend that will move VFX compositing back into production and onto the set.

David highlighted the fact that surrounding LED screens have poor quality for correctly rendering skin tones and that he strongly recommended not to use them as keylight for the actors.



Slide from David Stump’s presentation.

The SSI measurement of these screens is below 20/100 (see previous presentation by Philippe Ros).

This led to the question of how to use ceiling mounted LED screens. For commercials for cars the ceiling sounds good results on car bodies but what about convertible cars with actors?

The other topic was about shooting full sun effects with LED walls. This can work for shooting for commercials, but it becomes complex, very expensive and time consuming for feature films.

LED walls can't create a believable sunlight and we all know how hard it is to create the full sun in the studio.

David finally pointed out that semantic problems are very present in international co-productions and/or post-productions 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”.

“Photon Path" and "Glossary" IMAGO Technical Committee (ITC)

https://vimeo.com/827399450?embedded=true&source=vimeo_logo&owner=74736025

Daniel Siragusano, Image Engineer, **Aleksej Berkovic**, RGC, ITC co-chair



Aleksej is a cinematographer, he shot feature films in Russia, Georgia, India, Kazakhstan, and the UK. Founder of Mark-Il productions which is over 30 years in the market, founder and Creative Director of several Advertising Agencies. From the year 2002 employed by Dedo Weigert Film company in Munich, Germany.

Daniele and Aleksej presented the result of one of the most important works of the Technical Committee.

Given the Federation's resources, the ITC was looking for an activity that would not require too much funding. In 2020 the ITC initiated a glossary to help clarify important cinematography related terms in a concise and scientific way. It was also decided that the glossary should be easy to comprehend, acknowledging that cinematographers, assistants, gaffers, DITs and colorists are not scientists or engineers. Many ITC members worked on this glossary, but we have to pay homage to **Charles Poynton, PhD**, who is playing a crucial role in this process.

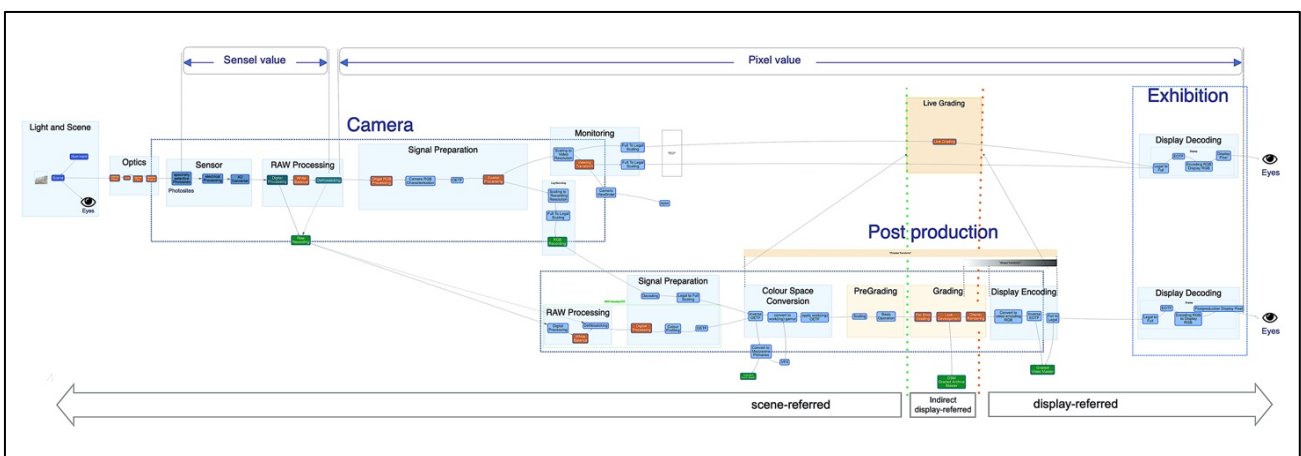


Charles is an independent contractor specializing in the physics, mathematics, engineering, and programming of digital color as well as digital video. He is involved in engineering wide color gamut (WCG) and high dynamic range (HDR) systems. He is well-known for his expertise on color spaces.

As this task became more and more complex, the members realized that even among technically minded people it was difficult to agree on every aspect of terms like pixel, photosite, sensel, scene-referred etc. So, Daniele Siragusano started a simple sketch to draft the path a single photon would pass from light source through scene, lens, camera and post-production to the viewer looking at a display. As this sketch called “Photon Path” became very extensive and complex it helped to agree on the order of signal processing and correct terminology. The diagram is still in progress, waiting for agreement on several words but it can already be of great service.

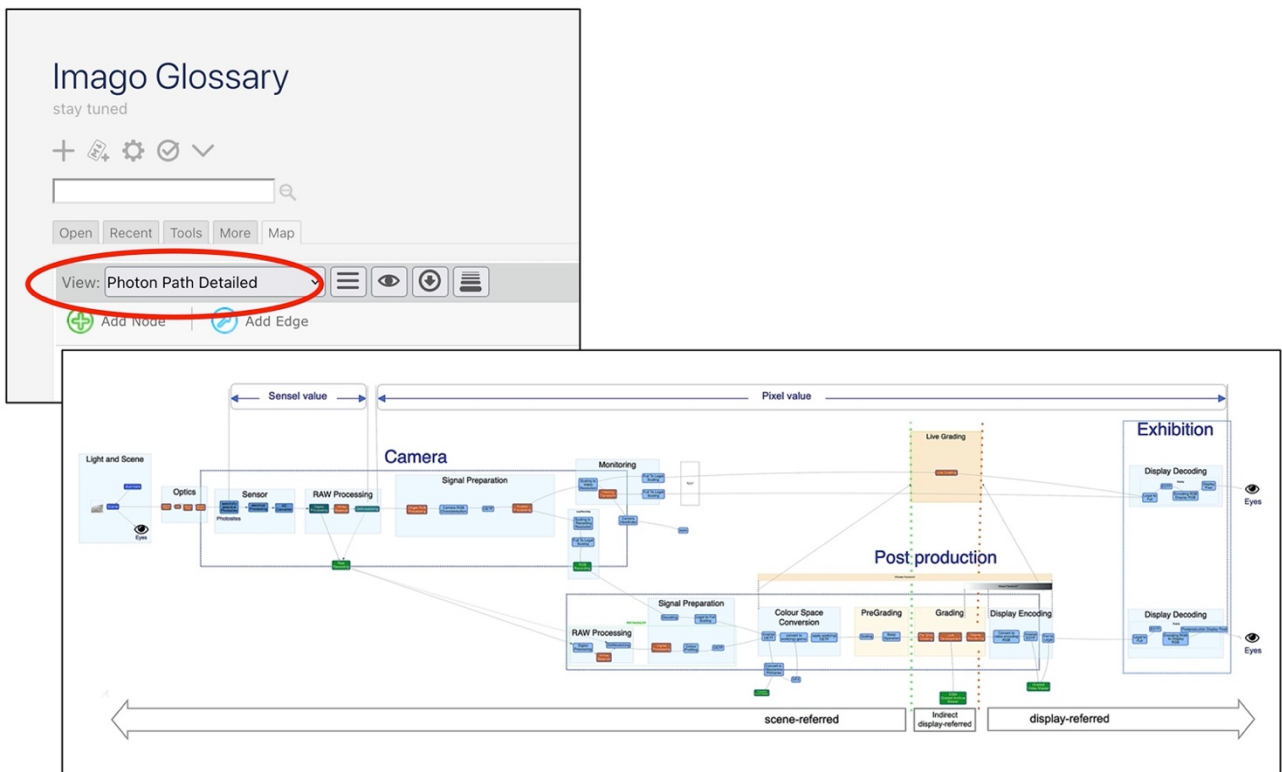
Direct link to the diagram:

https://imago.org/projects/itc/photon_path/diagram/

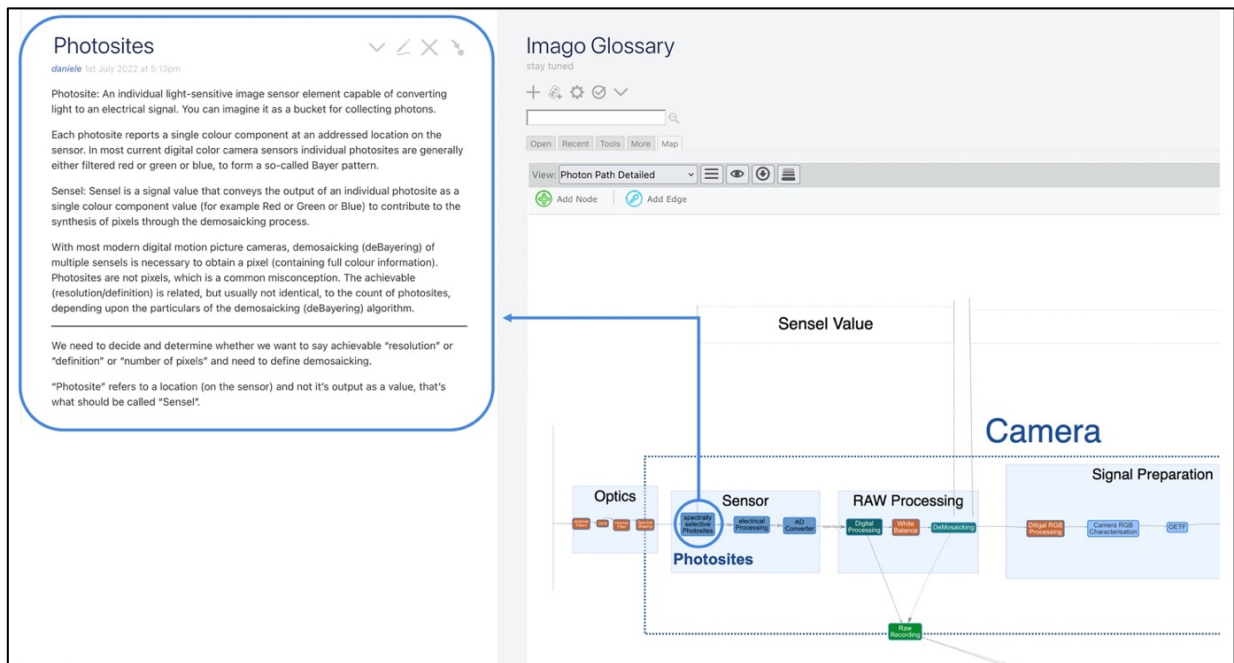


Photon Path Diagram 1

In "View", please select: "Photon Path Detailed" See figure 2 below.

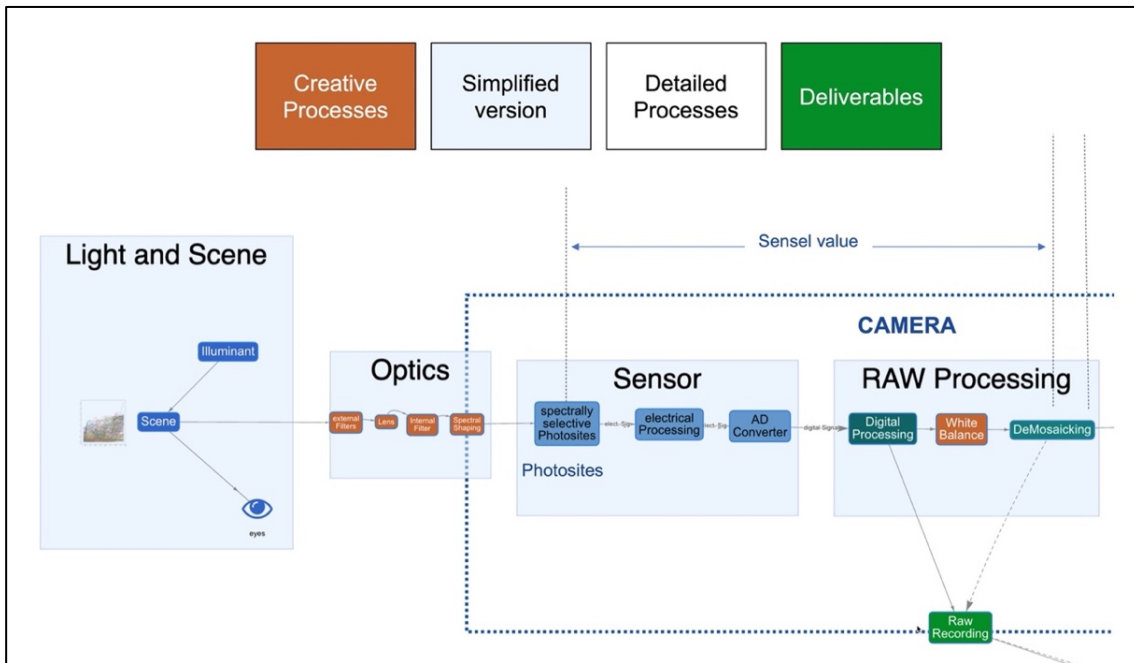


When clicking on a box, you can directly open the glossary, left side of the panel). See figure 3 below.



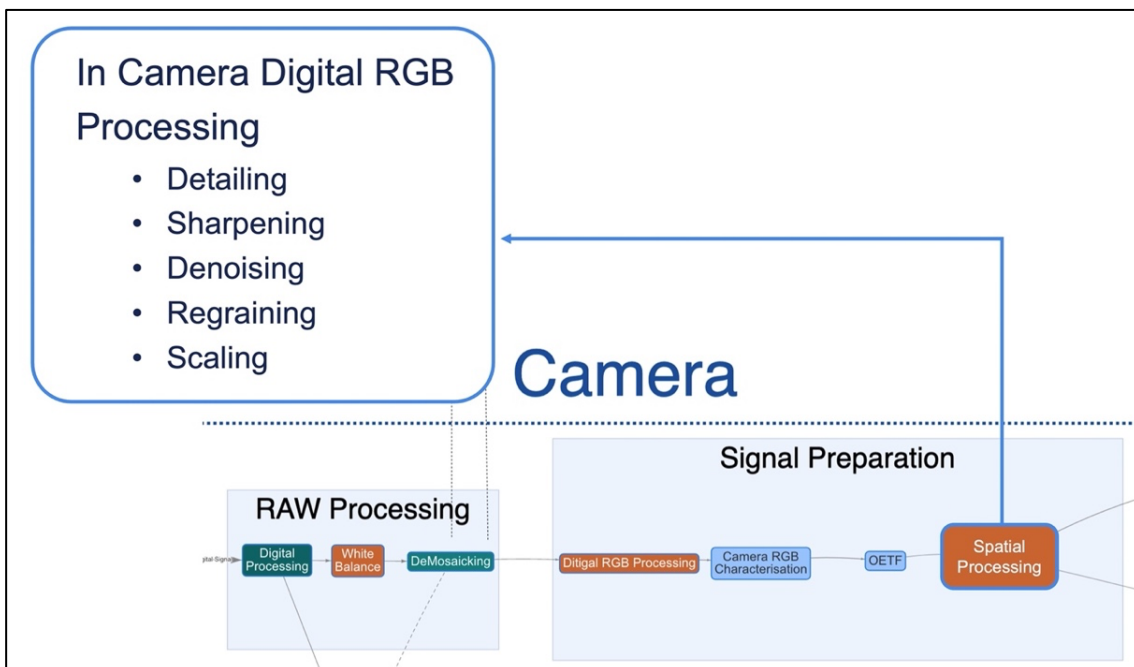
Photon Path Diagram 3

Each box has a specific color, for cinematographers and colorists, it is important to know that all the brown cases are related to creative processes. For DITs the deliverables cases are colored in green. See figure 4 below.



Photon Path Diagram 4

The low number of brown box colors underscores the fact that, for now, all these processes are driven by young technology, but that engineers are still exploring the creative possibilities of such a complex journey. For some boxes, all process functions are detailed. We can see at this step of “Signal Processing”, that many creative functions can be activated (See figure 5 below).



Photon Path Diagram 5

ARRI, FILMLIGHT, RED, SONY have approved this scheme and the words in it. The ITC is in the process of obtaining approval from other manufacturers.

This "Photon Path" became a very helpful tool to communicate amongst the members of the committee and triggered ideas to create an educational tool from it.

At the same time, the HdM University has launched work on the "Photon Path Application".

The application is based on this glossary and diagram and aims to encourage all technicians to take an interest in this topic through an interactive and user-friendly experience. The user will literally move through the diagram.




Prof. Dr. Simon Wiest

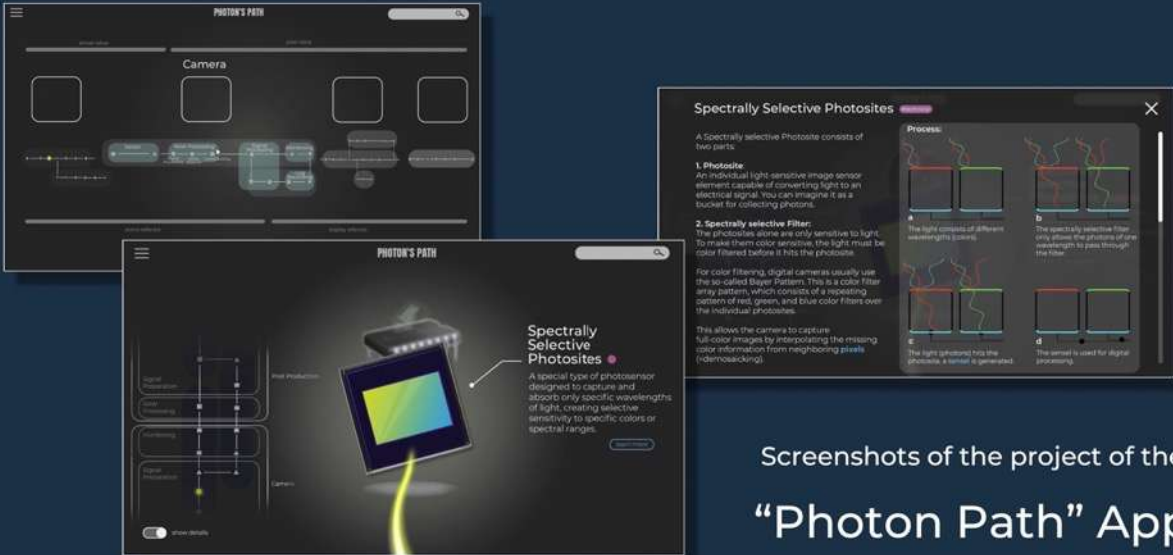
Photon Path Application Team

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Under the supervision of Professor Simon Wiest and members of the ITC, the students have already started working. At the time of writing, the committee is already in its fourth weekly meeting with the students and the proposals and progress are very exciting.

IMAGO TC Projects Council

 INTERNATIONAL FEDERATION OF CINEMATOGRAPHERS



Screenshots of the project of the "Photon Path" App

ITC_HdM_Students_4_Meeting_2023-05-02

“Challenges and Opportunities in Color Grading in the Virtual Production Cinematography of Netflix's Series "1899"”

https://vimeo.com/827402145?embedded=true&source=vimeo_logo&owner=74736025

Steffen Paul, colorist



Steffen Paul, senior colorist, has 15 years of experience in post-production and claims to build consistent color pipelines with a good knowledge of film and digital intermediate. During his studies at the Media University of Mittwedia in Germany, he wrote an acclaimed thesis on the "Color Lab" in partnership with Gjøvik University College in Norway. He worked for 12 years at ARRI Media and is currently employed at Basis Berlin post-production.

It is interesting to note that many German colorists have solid academic backgrounds, unlike many countries where colorists are trained on the job.

Steffen presented a case study based on a project he graded last year: the Netflix's Series "1899" without hiding the difficulties he faced during the process.

From the interior sets to countryside to the boat sequences on the decks, the extensive use of virtual production was a great challenge for Steffen and for Nikolaus Summerer, the cinematographer.

Steffen entered in detail with all the strengths and limitations of the new technology and what solutions were found in the process of color grading this program.



Screenshot from "1899" official teaser Netflix Series

After the numerous clips and Steffen's precise explanations, it became obvious that the choice of art direction favoring dark tones with a limited color palette, leaden skies and very muted sunlight contributed greatly to the successful integration of the background and foreground.



Screenshot from a night sequence of "1899"

At the level of this integration, the series offers aesthetically very successful sequences, despite the technical difficulties of this new adventure for the team. On the decks of the ship, the sequences of day playing with false tint or night with extreme low key would have been impossible to achieve without this virtual production.

For all lovers of studio work, this is a great step forward.

"HBO Camera Assessment Series SEASON 6 (2022)"

Screenings have taken place and will continue to take place in capitals around the world.

Suny Behar, director, cinematographer



Suny is a director, cinematographer, consultant and educator. He is well-known for his work as camera layout artist on Pixar's animated feature "Cars". His passion about technology led him to be the cinematographer of the HBO Camera Assessment Series for the past decade.

At the end of the third day, we had the opportunity to see a 4K DCP of this rich and expansive image library.

Through several types of scenarios, we clearly saw that the idea was not to present comparative tests of cameras, but to determine which camera is the best for a specific type of scenario.



Still from a sequence of HBO Camera Assessment Series

This gigantic library produced by HBO and Warner Bros also offered the possibility of seeing 35 mm.

The most shared point of view was that for filming in very low light, digital cameras were capable of a sensitivity impossible to match.



Still from a sequence of HBO Camera Assessment Series

“BVK Cine-Talk: Virtual Cinematography”

https://vimeo.com/827411308?embedded=true&source=vimeo_logo&owner=74736025

To summarize these three days Alex Böhle, (BVK, member of the board) and Stefan Grandinetti invited several speakers of the day such as cinematographer Jost Vacano (BVK, ASC) as a special guest, David Stump (ASC), Daniel Schua, Steffen Paul, Mark Dauth.



From left to right: Prof. Stefan Grandinetti (BVK), Mark Dauth (Pixomondo), David Stump (ASC), Jost Vacano (BVK, ASC), Daniel Schua (Cinematographer, Alumnus, HdM), Alex Böhle (Cinematographer, Board of BVK), Steffen Paul (colorist).

This Cine-talk organized with the BVK gave to this conference a high level of exchanges not only between different technicians and methodologies but also between generations.

Jost Vacano recalled that whatever the technology the goal is to meet the directors' wishes, to manage the psychological crises and to survive the constraints of the production.

He recalled his first film in the United States: the first day, the first meeting on the set with John Frankenheimer where he suggested to him to do a simple static shot instead of a long tracking shot with a crane that the director had already installed.

Jost justified this proposal by arguing that there was no need to dramatize this sequence. Frankenheimer, known for his toughness, froze then approved and never took a camera decision again without Jost. Nothing

surprising when you know the tenacity of the cinematographer of the Oscar-nominated "Das Boot" and his twelve years of struggle to get the copyright on this film.



We witnessed a touching moment when Jost acknowledged that David Stump ASC had worked with him as an VFX cinematographer long ago on the films "Starship Troopers" and "Hollow Man".

The parties, the studios

At the end of each day, a party gathered all the participants with an excellent white wine, beers, ham and sausages. A great opportunity to meet and discuss with the speakers and the students.



A good way to also visit the big studios of the university. They are equipped with top-of-the-line lighting gears. The university takes advantage of the latest cameras on the market and is in discussions to purchase LED walls for one of its studios.

The fourth day was dedicated to the CITO conference.

CITO (Cinematography in Progress) is an international Joint Research group which publishes on the internet a scientific journal of great interest to cinematographers.

<https://cinematographyinprogress.com/index.php/cito>



From left to right: Yu-Lun Sung, Tony Costa (AIP), Ella van den Hove (SBC), Stephan Grandinetti (BVK)

This meeting hosted by Stefan Grandinetti and Jan Fröhlich was attended by several CITO members, some of whom are also on the IMAGO Education Committee (IEC), chaired by Ella van der Hove, SBC and Philippe Cordey, SCS.

We were pleased to see an excellent short film made under the supervision of **Ella van den Hove**, SBC, professor at INSAS and her topic for this day was “Research with practice, an example”.

And here is one of the exercises she gave to her students:

“The students in cinematography (master) will demonstrate their expertise of the cinematographic image in the service of a narrative for which they will be entirely responsible. They will be asked to choose an excerpt from the soundtrack of an existing film and to conceive and execute a new breakdown. They will be the

directors of their own images. They will be able to deepen one or the other technique of their choice."



Excerpt of short movie (INSAS - Belgium film school exercise)



Excerpt of short movie (INSAS - Belgium film school exercise)

The student director Marie Merlant (cinematography and editing) and her team (5 persons) had to shoot this 3-minute film in a very tight framework. The shooting had to be done without a car and with a minimum of time and equipment at a very short distance from the school.

Below, the link to download the film

https://drive.google.com/file/d/18wUFh_xqQxVnjAAmdcASR9J5O5N755W3/view?usp=share_link

Just after, **Yu-Lun Sung**, Cinematographer Senior Lecturer / Cinematography Pathway Leader at the School of Arts and Creative Industries gave a presentation called **“Experimental design and analysis methods”**. You will find below a summary of his presentation.

“Cinematography as a research subject overarches a variety of disciplines, and researcher-practitioners can easily identify important and industry-relevant questions to ask. However, this interdisciplinary characteristic of pragmatism may actually create hurdles to leap over, particularly in the emerging Virtual Production ecosystem whereby the dynamic between key heads of department is changing. I argue that the triangulation research paradigm, proposed by Murray Smith (2017) for investigating creativity can shed light on the authorship and contributions of a cinematographer. System model of creativity (Yeh, 2011) suggests that creativity is a process that can be observed only at the intersection of individuals, domains, and fields, which can evaluate broadly how virtual production as a field interacts different individuals and their knowledge in various domains.

In the UK, the trend of VP research also focuses on the joined force of academics and Small-and-Medium sized enterprises (SMEs), in that they endeavor to solve targeted practical challenges encountered in the field through early-stage prototypes (Story Futures Academy 2022). I propose that the research on creativity of a cinematographer should advance in parallel with the technical improvements in VP workflow”.

Please check the reference details in the Google Drive Shared folder:

https://drive.google.com/drive/folders/1zRTRWIOqafkfCaKXe5_YBhguOGdqhUCB

For those who have experienced shooting in Asia and/or shooting with Asian skin tones, we recommend reading two very interesting research article ⁷ that Yu-Lun has written on this subject.

At the end of the morning **Tony Costa**, cinematographer, AIP, gave his presentation on “Literature for research into cinematography”

Tony gave an in-depth look of the relationship between the cinematography and philosophy and the key problem created by the representation of the cinematographer’s work in our culture. Tony emphasized the relation between filming and teaching and the missing link with academia.

Below some excerpts of his summary:

“It has been for a long time that cinematographers around the world claim for recognition of authorship. For the time being is not consensus that is the most crucial aspect to discuss about cinematography if it is an artistic profession or rather a technical one.

One of the ways to make other circles to understand the crucial role that cinematography plays in the movies is to have more research studies in academia. It is important to have more and more research in the field of cinematography towards master and PhD degrees. This is crucial to give a different perspective for cinematography education.

A great majority of cinematography teachers are or were at a certain point cinematographer professional. It is difficult to get off the practice and introduce the creative and philosophical part of the job into cinematography. This is the

crucial part that cinematographers and academia must conquer through research projects”.

Tony quoted this fact about Gregg Toland, ASC:

“Philip Cowan recently published a book called «Authorship and Aesthetics in the Cinematography of Gregg Toland» where Cowan demonstrates that the American cinematographer of «Citizen Kane» applied in this same movie directed by Orson Welles, other techniques like depth of field, composition, low angle shots in previous movies he worked on. Proving that it was not a choice exclusive coming from the director. Despite the opening credits of «Citizen Kane» both director and cinematographer are side by side, that didn't change the normal discourse of analysts and scholars to always mention the cinematography of Orson Welles and often omitting Greg Tolland.”

Tony used references from famous philosophers to question technology and art. He concluded that technology is part of the creativity and it is not opposite to artistic values. Something that might be taken for granted but is actually far from understood. During the conference, these questions were debated by many cinematographers who are teaching and think seriously about becoming PhD. Tony pointed out that becoming a Doctor (PhD) for cinematographers who teach and practice their profession will allow them to invest in a field where our expertise in cinematography is absent or poorly represented.

For the end, a special thanks and two photos

A special thanks to Stefan Grandinetti, Jan Fröhlich, Jan Adamczyk and all the HdM students for the way they welcomed us.

A very friendly atmosphere and a great think tank!



Stefan Grandinetti and his students

A rare opportunity to gather several members of the ITC



From left to right: Philippe Ros (AFC), Aleksej Berkovic (RGC), David Stump (ASC), Stefan Grandinetti (BVK), Dirk Meier (BVK, CSI), Daniele Siragusano & Andy Minuth (FilmLight)

Article written by the IMAGO TC

Index

1. **Stefan Grandinetti** is well-known for his research on HDR (High Dynamic range), HFR (High Frame Rates) and new color spaces. In 2014, he conducted tests with Prof. Jan Froehlich which were the first in Europe to reproduce a full HDR capture with two cameras on a stereo rig. These tests have enriched our way of perceiving this new universe and showed and anticipated the assets and issues of HDR.
https://www.hdm-stuttgart.de/~froehlich/hdm-hdr-2014/Paper_Jan%20Froehlich_Creating%20Cinematic%20Wide%20Gamut%20OHDR-Video%20for%20the%20Evaluation%20of%20Tone%20Mapping%20Operators%20and%20HDR-Displays_SPIE-EI_2014.pdf
2. **HdM**
The Stuttgart Media University or Media University (German: Hochschule der Medien Stuttgart or Hochschule der Medien) is a state university of media studies in Stuttgart, Germany.
The University offers bachelor's and master's degrees in three faculties:
 - Faculty of Printing and Media

- Faculty of Electronic Media
- Faculty of Information and Communication

It also offers a doctorate in collaboration with partner universities. It has an Institute for Applied Research and operates the university publisher, Verlag Stuttgart.

<https://www.hdm-stuttgart.de/en/>

3. SMPTE

The Society of Motion Picture and Television Engineers (SMPTE) founded in 1916 is a global professional association of engineers, technologists, and executives working in the media and entertainment industry. As an internationally recognized standards organization, SMPTE has published more than 800 technical standards and related documents for broadcast, filmmaking, digital cinema, audio recording, information technology (IT), and medical imaging. (Wikipedia).

<https://www.smpete.org/>

4. SMPTE German Student Chapter

<https://www.smpete.org/blog/three-universities-of-applied-sciences-partner-to-launch-germanys-first-smpete-student-chapter>

5. AMPAS (Academy of Motion Picture Arts and Sciences).

The Academy of Motion Picture Arts and Sciences (AMPAS, also known as simply the Academy or the Motion Picture Academy) is a professional honorary organization with the stated goal of advancing the arts and sciences of motion pictures. The Academy's corporate management and general policies are overseen by a board of governors, which includes representatives from each of the craft branches. L'Académie est connue dans le monde entier pour sa cérémonie annuelle de remise des prix, désormais officiellement et populairement connue sous le nom d'"Oscars".

In addition, the Academy holds the Governors Awards annually for lifetime achievement in film; presents Scientific and Technical Awards annually; gives Student Academy Awards annually to filmmakers at the undergraduate and graduate level; awards up to five Nicholl Fellowships in Screenwriting annually; and operates the Margaret Herrick Library (at the Fairbanks Center for Motion Picture Study) in Beverly Hills, California, and the Pickford Center for Motion Picture Study in Hollywood, Los Angeles. The Academy opened the Academy Museum of Motion Pictures in Los Angeles in 2021. (Wikipedia)

<https://www.oscars.org/>

6. Daniele Siragusano tutorials (FilmLight)

Many other videos can be found in the 'watch' section of the FilmLight homepage or on youtube under the FilmLight channel.

A few selections:

- Sensory Adaptation

https://www.filmlight.ltd.uk/store/watch/colour-on-stage/?vimeography_gallery=2&vimeography_video=375458465

- Luminance

https://www.filmlight.ltd.uk/store/watch/colour-on-stage/?vimeography_gallery=2&vimeography_video=651149199

- Natural images and texture

https://www.filmlight.ltd.uk/store/watch/colour-on-stage/?vimeography_gallery=2&vimeography_video=333078338

- Good overview of color management

https://www.filmlight.ltd.uk/store/watch/product-tutorials/truelight-colour-spaces/?vimeography_gallery=19&vimeography_video=298129056

7. Yu-Lun Sung

[Decolonising cinematography education: experimenting with lighting ratios and textures for Black and Asian skin tones \(2022\)](https://pdfs.semanticscholar.org/88c0/a9e6c7509baac68f216b5eb89b0210397451.pdf)

<https://pdfs.semanticscholar.org/88c0/a9e6c7509baac68f216b5eb89b0210397451.pdf>

[Reading the Light Right: The Exposure of Asian Skin Tones in Cinematography \(2020\)](https://ojs.st-andrews.ac.uk/index.php/FCJ/article/view/2075/1542)

<https://ojs.st-andrews.ac.uk/index.php/FCJ/article/view/2075/1542>