

INTERVIEWS Nicola Foley

ROUND TABLE

A panel of experts examine AI's influence on our industry so far – and what the future might hold



THE PANEL



Chris Nolan

Chris Nolan is the CEO of 90,000 FEET Studios. Like his famous namesake, he's also an award-winning director and writer. His latest work is a docu-fiction film by futurist Gerd Leonhard called *Look Up Now*, which contemplates how humans can best utilise AI.



Dominic Lees

Dominic Lees is associate professor of filmmaking at the University of Reading and writes on synthetic media and its impact on the screen industries. An AI expert, he's also an experienced director, with credits including co-writing and directing 2008's *Outlanders*.



Martine Bertrand

A senior AI researcher at DNEG, Martine Bertrand is helping to develop cutting-edge AI-driven technologies that can be applied to a variety of visual effects challenges, from creating realistic character animations to generating complex visual landscapes.



Quentin Jorquera

Quentin Jorquera is an experienced DOP with credits on short films, commercials and music videos. He's worked and trained as an actor, film critic, producer, creative director, virtual production expert, rigging electrician and gaffer over the course of his career.

Definition: How has AI technology impacted our industry in 2023?

Martine Bertrand: AI is just beginning to show its impact on our industry. Many studios are exploring AI-driven technologies in an effort to reduce the time and cost required to generate complex visual effects. Some pragmatic use cases of AI, for instance, involve frame interpolation, denoising and image upscaling. AI approaches can now analyse and replicate patterns of movement and textures, creating realistic animations that would have taken much longer to craft manually. Furthermore, AI has enabled the creation of deepfakes and virtual actors, which have been utilised in both film restoration and new productions, providing fresh avenues for storytelling.

Dominic Lees: The big talk has been about ChatGPT 4, but AI has wide-ranging impacts on production. Big benefits in 2023 have been in areas like

VFX; easy text-to-image systems, such as Midjourney, enable concept artwork to be produced quickly and cheaply. We are already seeing the impact on jobs in the industry – changing patterns of work and some roles disappearing.

Chris Nolan: I'm a 'protopian' futurist filmmaker, so let's first look at the positive: the democratisation and acceleration of production and filmmaking. For aspiring filmmakers, or even seasoned ones with a script collecting dust, new AI tools and opportunities now exist to make your films like never before. It may not have been as visible as now, but AI technology has been impacting our industry for over a decade, rendering lifelike characters and environments, allowing filmmakers to create visuals faster, cheaper and in more creative ways. The difference now is that AI has hit the desktop computer, for instance through rotoscoping, the removal of objects in a moving image and expanding a scene. What used to

be time-consuming and expensive is now just a click or two away. Tasks like rotos, removals and expansions could cost tens of thousands and require 40 workers spending days on them. Now, the cost is nothing. Another significant breakthrough is in AI-driven audio. We can now inexpensively dub multiple languages using AI, adapting actors' mouth movements to match. This means Hollywood no longer holds an advantage in filmmaking. Great movies made in South Korea, for instance, can be dubbed into English, retaining real actors' voices and intonations without appearing out of sync. This shift impacts actors significantly: The Actors' Guild will need to become more global to maintain leverage with studios, who can now produce films anywhere, convert them to English quickly and potentially employ foreign actors without the obligation of residuals.

Quentin Jorquera: I believe that, for now, AI has impacted the film industry more >

in a symbolic way than in a practical way. Rather than what AI is doing now, it's more about what we believe it will be able to do tomorrow. There has already been disruption – look at the strikes – but the main reason here was the potential future uses of AI in the film industry. When we talk about the tools, even though there are thousands of new tools coming out each month for our industry, they are still experimental for now. There are AI tools to help writing, AI tools for scanning in 3D with Nerf and Gaussian Splatting, AI to replace mocap, AI to help editing, AI to help making mood boards – the list goes on. These tools are out there right now, but have they really been used yet at a disruptive scale in the industry? I don't think so.

Def: Can you share examples of successful applications of AI in recent films? Why did these work so well?

DL: A really good example is the forthcoming Hollywood film *Here*, directed by Robert Zemeckis, which Sony Pictures will release in early 2024. The film stars Tom Hanks and Robin Wright, and is based on a graphic novel that covers centuries of history in one room. While shooting in London during 2023, Zemeckis used deepfake technology that can instantly age, or de-age, his stars. The system was developed by



CHATGPT CAN BE GOOD FOR *narrative organisation*, BUT IS BAD AT CREATING *psychologically coherent characters*”

Metaphysic.ai and the brilliant Chris Ume, who showcased his instant deepfaking system on last year's series of *America's Got Talent*.

MB: As well as de-aging, we've seen digital doubles, and even AI generating hyperrealistic backgrounds. The success of these applications often hinges on the seamless integration of AI-generated imagery with live-action footage, resulting in a virtually indistinguishable combination that enhances storytelling without distracting the audience in any way. Only good craftsmanship can achieve this.

Def: AI-generated content has been a hot topic recently. What are your thoughts on the use of AI in generating scripts, characters, etc? How do you see this evolving in the coming year?

DL: Large language models – most prominently ChatGPT 4 – are effective for some parts of the scriptwriting process, but weaker in others. They can generate potential storylines based on a premise, and are good at the structural organisation of a narrative. But dialogue can be dreadful, and I have found them very bad at creating psychologically coherent characters. The resolution of the WGA strike has put scriptwriting AI technology in the hands of the creatives, not the studios, which is great for the creative industry. A lot of screenwriters will begin to incorporate ChatGPT 4 into their workflows in the coming year.

QJ: This subject has been blown out of proportion. Yes these tools are amazing, but definitely not as a creative tool. ChatGPT is a great assistant to help you figure out where to go next, what to explore and which questions to ask yourself. It can be a great script doctor. But it's never going to be a brilliant or original script writer. I see the use of AI more as a helpful assistant – someone who types what you say out loud, who can ask you the right questions to help you find the solution, or point out a weakness – but not replace you.

MB: The core of storytelling is inherently human and emotional, which means AI is currently more of an assistive tool rather than a replacement for human creativity. I see AI as evolving to become a collaborative partner in the creative process, providing suggestions that can inspire writers and designers, rather than dictating the creative direction.

CN: Story is everything, and it's still king. AI can generate ideas for scripts and



MANE ATTRACTION *The Lion King* (2019) famously utilised AI in the animation of its characters



characters, it can mine other characters' voices from past movies, but it can't give a story or character 'your voice'. And every character that works usually has some of 'your voice' infused into it. Even Mickey Mouse and Donald Duck had some qualities of Walt Disney in them! AI will never replace the artisan part of filmmaking at any level. Will AI create automated movies? No doubt. And some studios will attempt to make them. Industry loves to automate, after all. So, I do think the film artists and Writers' and Actors' Guilds need to remain vigilant about AI – which may result in AI-made and human-made categories.

I recently completed a documentary titled *Look Up Now* with Gerd Leonhard, a top futurist, which delves into the challenges of distinguishing between real and AI-synthetic content. Deepfakes and the manipulation of real people's images and voices are concerning – we need to establish strict ethical guidelines, and perhaps even legal frameworks, to ensure this technology isn't used to harm. On the positive side, audiences like watching movies and shows made and performed by real people. That's why theatre has existed for 2500 years.

Def: AI-driven post-production tools have become more accessible. How do you see this affecting post-production workflows and the dynamics between roles?

CN: When photography was invented, there were fears it would replace fine artists. That obviously didn't happen: in fact, it created new art forms and abstract art. With filmmaking, it's been a continuous technological evolution artists have had to keep up with, but also expand on. Again, from a protopian mindset, I see AI as simplifying workflows and expanding and accelerating post-production potential. This is already happening at warp speed. You no longer need a whole CG production house to do VFX, you can do it on your computer. So a small team or even an individual in their bedroom will be able to make complex and cool movies. As far as dynamics between roles, yes some may shift as AI democratizes the process.

QJ: It seems like a no-brainer that AI-driven chroma keying is going to kill LED walls. My skills in divination are not very developed, and it's somewhat harder to imagine what's going to happen next,

but I've seen AI editing tools which could be a huge benefit for broadcast content, for example.

MB: With the advent of more accessible AI tools, post-production workflows are becoming more streamlined and less labour-intensive for certain tasks. As a result, the dynamic between roles is shifting towards a more supervisory and creative direction, with professionals overseeing AI outputs and focusing more on creative decision-making rather than the execution.

DL: AI systems being incorporated into post-production workflows will massively speed up creative processes. The major issue is quality control: when we become faster, we don't necessarily become better. Oversight by highly experienced professionals will become increasingly necessary and valuable.

Def: What are the potential benefits and drawbacks of AI for film editors and VFX artists in the industry?

MB: The main benefits for film editors and VFX artists include increased

“AI ONLY MAKES OPPORTUNITIES – IT WILL TAKE *human artists* TO EXPAND THE POTENTIAL OF *the medium*”

RISE OF THE ROBOTS Generative AI tools such as ChatGPT (below) and Runway (pictured right) have made their mark in 2023

efficiency, reduced time spent on tedious tasks and the opportunity to focus on more creative aspects of production. As mentioned previously, AI tools can inspire artists and fuel the creative process.

However, there is a valid concern about job displacement for roles that AI can automate. There's also the potential loss of a certain level of artistry that comes with manual work, which can be a drawback for the craft.

DL: There is interesting research going into automated editing, particularly by BBC R&D. This may become useful for stylistically standardised forms of television (for example, quiz shows) but for drama it is irrelevant. Film editors respond to the nuances of actors' performances when they cut a scene – things that no AI will notice. We must remember that some of the world's leading filmmakers, such as Tim Burton, want to continue working with analogue

methods. *Beetlejuice 2* is currently in production in the UK – and Tim Burton will not allow any AI intervention in the film's creation.

CN: Editing is becoming more automated and easier, especially when it comes to complex VFX work. That's a huge benefit. As far as drawbacks, I think if you know how to use the AI tools, you're ahead of the curve. My daughter is a film colourist, and she embraces AI. That's what you need to do in pre-production, production and post-production. Again, it's the artisan mentality. These are just new tools. Former Pixar president Edwin Catmull created the computer graphics, but it took John Lasseter's unique approach to storytelling and characters to make a string of hits like *Toy Story*. I think AI is similar – it only creates the opportunities – but it's going to take the human artists to expand the potential of the medium.

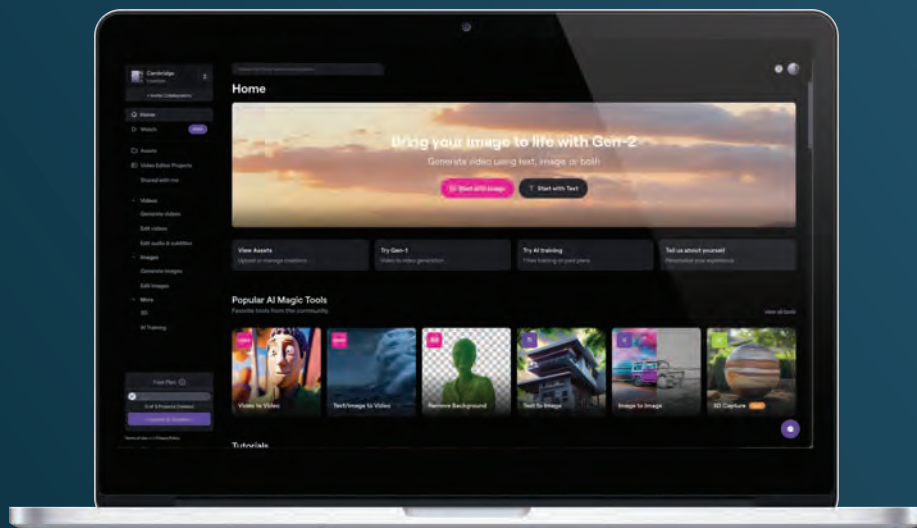


QJ: AI will replace the repetitive and boring tasks like conforming, derushing, but we'll always want a human being in control. What we're looking for is not just a button pusher, but an artistic input.

Def: How is AI impacting virtual production techniques — and what are the practical and creative implications?

DL: I've been impressed recently by the merging of analogue and digital processes in VP. VFX supervisors are commissioning model makers to construct miniature worlds, which are subsequently 3D scanned, and this data becomes the basis of the virtual production backdrop in a sound stage. Supervisors get real control over the VP imaging, and they retain some of the qualities of analogue production.

QJ: In virtual production, I wouldn't be surprised if LED walls ended up being



replaced by AI chroma keying and even AI live reflection of an IBL. Right now, I see the use of AI in virtual production mostly with scanning techniques for asset creation, a bit of DLSS and to help treat tracking data live.

CN: Industrial Light & Magic pioneered the use of high-def LED video walls, now those are becoming commonplace. These days, AI programs like Cuebic work with Stable Diffusion and Unreal Engine to generate plates quickly and more cheaply. As Midjourney improves to more and more hyperrealism and 2.5 programs like Pika and Runway provide depth and motion, more AI studios will be born. In fact, we are building a hybrid AI studio, a model which uses real actors and crew but also uses the volume, AI-generated plates and Unreal Engine to create movies and documentaries.

Def: Are there any specific AI tools you would recommend, and why?

DL: So many! We should all be playing with Runway Gen-2. The important thing is to have creative fun with the technology, and then think hard about how it should or shouldn't be used.

CN: For pre-production, NolanAI looks good for scriptwriting (it's a co-pilot program), while for previs and in some cases background plates, check out Midjourney and Pika. For post: the entire Adobe Creative Suite, Resolve and Topaz.

MB: As well as Runway, I recommend Luma AI, which offers a convenient way

to turn videos of environments to 3D models and text to 3D generation. These tools are recommended for their ease of use and the value they add to the creative process.

QJ: The first one I'd advise everyone to learn how to use is ChatGPT. It gives you a glimpse of the future, and from where we are standing now, we're able to see the 'guts' of the machine and understand how it works. In five years from now, I'm not sure we'll have the same crude tools we are using now: that's when it may be too late for those who didn't get to grips with them earlier.

Def: As AI becomes more integrated into the industry, what do you think are the most important skills/knowledge areas for emerging filmmakers and professionals to gain?

CN: I see the most important skills as creativity, imagination and storytelling. It goes back to the fine artists during the days of photography. They used their artisan skills to reinvent traditional art to become modern art. Impressionism, expressionism and abstract art. That's how you keep ahead of AI, keep pushing the artistic vision of the industry farther into realms we've yet imagined – and use AI as a tool to get you there. You are still the visionary. AI follows your lead.

DL: The accessibility of the new AI tools makes us think we should know how to use them all. But this is a danger for an emerging film professional: you still need to show that you have specific expertise in a small number of creative areas, >



which make you stand out as unique. Choose the tools that you think are most significant for future filmmaking (not just the ones that excite you) and become an expert in creative work with them.

MB: As AI becomes more prevalent, understanding the basics of data science and machine learning will become increasingly valuable, as will skills in supervising and integrating AI tools into the creative workflow. Additionally, soft skills such as adaptability, problem-solving and creative thinking will be crucial for working alongside AI effectively.

QJ: Return to the basics! It's absolutely major right now that filmmakers go back to reading their dusty copies of Homer and Shakespeare – they have more to teach you about how to make a film than any AI out there. The more the tools become accessible, the more the need to cultivate yourself so you don't end up creating a bunch of meaningless and formatted content. AI will never tell you how to create something disruptive.

Def: What do you think are the main ways that AI will impact our industry in 2024, and beyond?

CN: Right now, streamers and studios have a supply and demand problem. People are bingeing movies and shows faster than they can make them. And right now, the prices for these shows can reach \$100 million to \$250 million. That's unsustainable for the studios, they can't charge subscribers enough to pay for those costs. So ideally, AI will bring down costs and accelerate more filmmaking, more production, more post-production. This will allow everyone, even those not in Hollywood or the studio system, to make more cool, amazing films, programme




FOREVER YOUNG Scorsese's *The Irishman* aged Pacino and De Niro down half a century using AI

faster and more efficiently, and allow for films that would never be made to become a reality.

DL: Things are moving so fast that we should always remember William Goldman's words: 'nobody knows anything'. He clarified this later: 'what I meant by it was nobody has the least idea what will work'. This applies to AI: we are rightly excited (and sometimes a little scared) at the developments, but we don't yet know which systems will work and which will fail. The big test is with the audience. How much generative content will they tolerate, or will there be a backlash? Will the most successful films in 2024 follow Tim Burton's decision to reject AI? Or will audiences love the expanding visual worlds that become possible with generative AI?

QJ: The current strike might be over, but I fear the next may be coming. Also, people are realising that there's more return on investment on a \$5

TikTok video than a \$100 million series. This might bring on the downfall of the current profit-orientated film economy as it will try the sincerity of consortiums like Disney to be dedicated to storytelling. Will Disney, Warner and Netflix sink with the ship, or will they try to jump before it's too late, signalling at the same time the end of an era? In any case, I'm seeing a brilliant future for smaller productions: I believe the under \$10 million market will thrive. Yes, actors won't be able to be paid \$30 million per film any more, but this will never stop people from wanting and needing to tell stories, perform and create images. AI could definitely be the tool that smaller producers and creators need today to tell the stories of tomorrow, in a completely revamped, more modest – but maybe also more sincere and creative film industry.

MB: Looking into 2024 and beyond, AI will likely continue to automate more aspects of production and post-production, while also opening up new creative possibilities. Ethical considerations, particularly concerning deepfakes and AI-generated content, will also come to the forefront. The industry will need to establish new standards and regulations to address these challenges. AI could also democratise content creation, allowing independent filmmakers access to tools that were previously only available to large studios, which could lead to a surge in innovative and diverse content. 



AS AI BECOMES MORE PREVALENT, THE BASICS OF *data science and machine learning* ARE VALUABLE”