The AI Factor

By: David Barbour

Using artificial intelligence to transform production design for theatre and other live events

An image produced by McCann's prompts calling for windows, cool light, and a sense of mystery. AI "allows me to brainstorm ideas in a much faster way," he says.

It is no secret that digital technology has reshaped the process of design for theatre and other forms of entertainment. Now the technology is finding its way into scenic design in the form of artificial intelligence. As the illustrations on these pages show, it's a design approach that can result in eye-catching looks as well as fresh ideas about classic works.

One early adopter is Jason Jamerson, professor of virtual production and immersive media at Louisiana State University. He has worked extensively Off Broadway and in regional theatres, in addition to designing corporate events and serving as an assistant designer on Broadway shows. Another is Gary McCann, an Irish scenic and costume designer based in the UK. He works extensively in opera and musical theatre, although his design for Lee Hall's drama The Pitmen Painters was seen on Broadway in 2010. *LSA* readers will remember his design for the Vienna State Opera production of Carl Maria von Weber's *Der Freischütz* (October 2018). The designers' mutual enthusiasm for AI technology has put them in an ongoing dialogue, exploring its possibilities as a design tool.

"Gary and I have often talked about how we work mostly alone during the design process," Jamerson says. "Basically, we do research, ponder the script, and spit out a design." The search for new tools led him to AI. "It allows you to look at history and art and create new materials," he says. "AI is strangely compelling in the way

that it combines concepts. That's what drew Gary's eye, too."

Jamerson began posting examples of AI-influenced production designs on his Instagram account, and McCann was intrigued. "I'm very familiar with 3D digital modeling," McCann says. "I have used Cinema 4D for 15 years, which has been a game-changer for me. The way it can visualize ideas is so much more powerful than traditional means, giving high-quality visuals with textures, lighting, and set pieces." AI, he adds, "seemed like a really interesting way to delve further into digital technology. It allows me to brainstorm ideas in a much faster way, as well as requesting very specific design outputs."

Part of the fascination of AI as a design tool, McCann adds, is the new vistas it opens up. "We're encouraging something to develop images that don't exist. We're uniquely placed to harness this technology because we deal in fantasy and strangeness. I mostly design operas, so I'm always looking for a visual counterpart of the music. I've made a name for myself designing visual worlds which fuse multiple periods and contrasting aesthetics. AI creates poetic, peculiar, unexpected, and incredibly evocative ideas. I'm an extremely busy designer, so it's exciting to find something helps me come up with fresh thoughts. AI generates ideas that we would never consider, but, when presented with them, can see their potential in a performative context."

At the same time, McCann makes clear that AI isn't a vending machine producing finished concepts on demand; indeed, it marks only the beginning of the design process, providing ideas and visual stimuli. "Anyone can generate content in ten minutes," he says. "The skill comes in translating the ideas to three-dimensional spaces in a way that makes sense, dramaturgically."

Expanding on this point, Jamerson says, "Gary and I share a passion for dreamlike design. AI helps with that. It

Top: An image produced by McCann's prompt of a flooded ballroom at Versailles.
Bottom: Jamerson used Midjourney to produce this vision of *Oklahoma!* in the style of Claude Monet.

McCann's request for a room with staircase yielded this image.

pulls from billions of pictures that it has scraped from the Internet. Anyone who puts pictures online chooses the most evocative images; AI learns from them and makes something totally new."

Both designers use Midjourney, described by Wikipedia as "an independent research lab that produces a proprietary artificial intelligence program that creates images from textual descriptions." The tool is in open Beta. "You enter a chat program called Discord and type to Midjourney, which

responds with pictures," Jamerson says. "I think about different moods, concepts, and historical periods. Then I create prompts saying, for example, '19th century, Italian palazzo, jealousy.' Midjourney will present a mixture of different approaches. I've asked it, 'Show me what *Oklahoma!* would look like if designed by Claude Monet,' or 'What if Jeff Koons designed *Richard III*?'"

"You can send it in any direction," McCann says. "One thing I find fascinating is the chance to freely experi-

ment with splicing together unlimited styles, environments, textures, and concepts. You could enter an entire libretto and who knows what would pop out?" Jamerson adds, "You can put in a lot of historical details, and it will blend them in all sorts of ways. It gives you four images at a time; you can choose one or ask for similar ideas. It can spit out a thousand images a day."

"My work has been defined by this approach over the last four years," says McCann, who, at the time of this interview, was designing a production of *The Phantom of the Opera*. For that production, "I've been generating costume ideas and angels for the proscenium arch. I type in "/imagine: a huge, malevolent pipe organ, gothic baroque style." Selecting an image, he changed its aspect ratio, then developed it further into a matte painting style, adding in dozens of scenic details. Also, he says, he applied AI to the show's "Don Juan Triumphant" sequence, featuring the opera, composed by the Phantom, that figures in the show's climax. "The director wants something hallucinogenic, so I typed in 'M.C. Escher, architect of madness, 19th-century interior.' I'm also have real success with costume renderings."

Jamerson obtained this image in response to the question, "What if Jeff Koons desisgned *Richard III* ?"

Both designers are aware that the technique can be controversial. "People have attacked it as taking away jobs, which is a legitimate concern," Jamerson says. "It's certainly the thing that the media is focusing on. There was an art competition where someone submitted a painting done in Midjourney and it won. Somebody told me. 'You're making a generation of kids who think curation is design.' But it's a great tool for brainstorming.

"And, to us, design lies in taking an idea and implementing it in a three-dimensional space," he continues. "For example, I've been working on *Craters*, a new play about generational trauma in the African American community, hearkening back to the Civil War, so I've been generating dreamscapes of Civil War battlefields using the styles of Matthew Brady and Jan Saudek for chemical overlays. I also have on Instagram images of costumes for *The Tempest* as possibly envisioned by [the 18th-century Japanese artist] Hokusai."

Other programs include Dall-E 2, which Jamerson says, creates hyper-real images, and Stable Diffusion, which, he says, "You can install on your computer rather than going through the Internet." For his money, however, Midjourney creates the most compelling images.

Interestingly, McCann says, "I may be moving into film production design, and I'm using Midjourney to create storyboards; there is a challenge in creating consistency among the images. There's something called the Puppet Process, which allows you to instruct the program to develop better levels of similarity between characters and spaces in multiple images. But it is currently better for suggesting mood and atmosphere rather than consistency of imagery."

Also, he says, "I'm working on a production of the *The Queen of Spades* for the Grange Festival [in Hampshire, UK]. I've used AI throughout the process, from generating spec-

Jamerson filtered *A Streetcar Named Desire* through the style of Jackson Pollock for this Midjourney image.

tral deconstructed Russian interiors in the early stages, to the creation of gouache-style costume renderings which I then finish in Photoshop and Procreate on my iPad pro. Overall, the process is hugely time-saving: I can spend two days creating a cyclorama in Photoshop, or I can give the Midjourney interface half-a-dozen instructions. At the moment, you get images that are 2,000 pixels wide: Jason and I are looking how to expand them using other AI interfaces which are designed for this kind of upscaling."

Jamerson adds that he is exploring the use of other tools. "I'm teaching a character sculpting course using

ZBrush," he says, referring to a tool self-described as "a digital sculpting tool that combines 3D/2.5D modeling, texturing, and painting. It uses a proprietary 'pixol' technology which stores lighting, color, material, orientation, and depth information for the points making up all objects on the screen." He educates his students about them all, adding, "It's a way for them to come up with a dozen ideas. It frees them to pursue something. I enjoy taking them on a creative journey." Look for other designers to way new ways of adopting this technology to their personal styles and processes. 🔊