AI-Powered Experimentation Fueled By Extreme Compute Power

Digital Artist GMUNK Evolves CG Artistry with AI and Advanced Cloud Simulations in new Milky Chance "Synchronize" Music Video

Over the past year, AI-powered creative tools have radically transformed digital artistry. The explosive growth of AI tools designed for content creators, visual effects artists, designers, and animators have the potential to generate stunning visuals, and many professional artists are embracing AI for everything from automating mundane tasks, to concept inspiration, and as a quick way to iterate visual reference materials. The power of AI to take repetitive tasks off of artist's plates, enabling them to focus on elevating creative output is also pushing smaller teams and solo creators to achieve projects on a grander scale. These AI tools, supported by bolstered compute power, are allowing creators to punch above their weight today more than ever

Renowned digital artist and director Bradley G Munkowitz aka GMUNK has been breaking new ground in experimental filmmaking and digital art for more than 20 years using tools such as Autodesk Maya and Adobe Creative Cloud. Challenged to take his artistry to the next level as one of the creators behind a new music video for German alt-pop duo Milky Chance, he evolved his creative craft into compute-intensive cloud simulations and AI-powered experimentation.

Powering new workflows and creative iteration

The dance anthem 'Synchronize' from Milky Chance is a feel-good synth-filled track. Synchronization took on a different meaning for GMUNK and a team of Z by HP global ambassadors who collaborated across continents to produce a stunning CG music video for the song. When approaching a project like "Synchronize," GMUNK needed to make sure his aspirations were matched in power and capacity by his creative hardware and software toolsets. His advanced creative approach included complex simulations, real-time rendering, ray tracing, global illumination, and AI, all requiring significant computational resources.

GMUNK created visuals of rotating clouds using EmberGen, a real-time fluid simulation software from JangaFX. In the earliest stages of the project, he ran tests morphing those simulations through AI-powered tools, including Stable Diffusion and Topaz Labs, to iterate on various looks.

EmberGen is based on real-world physics with controls to manage combustion, emission of fuel, flames, temperature, and smoke, and it's up to the artist to combine them and determine how they react in the final simulation. The software runs 100%

> "Until about a year ago there was one way to achieve these types of effects. Now with AI and the power of the Z8 Fury, there are 10 ways to do it and the results are all incredible,"

-Bradley G Munkowitz aka "GMUNK"

on the GPU, as does the terrain generation software, Gaia from Procedural Worlds that GMUNK used to build landscapes. He also used the VideoAI tool from Topaz Labs to interpolate slowdowns of smoke simulation flythroughs from 24 frames-per-second to 200 frames-per-second to get better results out of Stable Diffusion in his early look development tests. While those tests don't appear in the music video, they did serve as visual inspiration for his "Breathing Bali Moon" digital art piece, which was recently sold at auction by Christie's during Art Basel in December of 2023.

With experimentation at the heart of his work, GMUNK uncovered another technique running smoke simulations through a mesh built in SideFX's Houdini so that the color and movement of the smoke drive quickly moving and morphing triangles, creating a spectacular shattered glass effect.

"As I continued to experiment with these simulations, they got more interesting. I'm very excited about a breakthrough new technique that produced a fantastic mosaic-like effect that is an homage to stained glass windows. This was done as a post-process of the simulations in Houdini where we mapped all the pixels to a triangulated mesh capturing the color values of the smoke simulation underneath the distortion."

In terms of rendering those heavy simulations using the Maxon renderer Redshift, GMUNK noted that having a powerful workstation enabled him to run some massive 225 million voxel sims that were still very interactive. "I can see exactly what I'm doing. It's extraordinary to have this kind of computing power at my fingertips."

Even when it came to tasks he's been doing for years, like modeling and animating in Autodesk Maya, an application that favors clock speed over the number of cores, and is largely reliant on the CPU, GMUNK said, "The Z8 Fury is rendering Maya scenes almost in real-time. Depending on the software I'm running, it's five to ten times faster than any other computer I've ever used. Everything I'm doing in Maya, in EmberGen, in rendering – it's all super-powered. As a creator, that feels large, like an extension of my mind is constantly giving me feedback instantly in all realms of what I'm doing. The fluidity of the process with this computer is really gratifying."

Said GMUNK, "We use the power of these workstations to learn, and we use these projects to push us to be uncomfortable. We find our way in the process because the power makes it so fluid. The power makes it so gratifying, and that's why we are inspired. We harness the energy that we're given and just run with it."

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