

THE RIGHT STUFF

Previs & postvis help studios streamline production



Proof's London office handled previs for *Guardians of the Galaxy*, while its LA location took on postvis.

Previs and postvis have become the norm in feature film and commercial production today. Once viewed as a simple way to envision a shot prior to production or act as a placeholder for editors waiting for the final shot, industry pros such as Ron Frankel, president and creative director at Proof (www.proof-inc.com), say that previs and postvis have become essential tools to “push the creative dialogue” and “finesse creative decision making.” Here, *Post* speaks with a number of creatives about why the previs and postvis process is essential for addressing a number of production and post challenges, and often times results in saving valuable time and money.

PROOF

According to Frankel, whose company is headquartered in Los Angeles, with branches in London and Sydney, postvis, in particular, has gained ground recently.



FRANKEL

“At first, postvis was considered slap comps or temp comps to give a rough idea of the VFX, but now they’re described as the first animation pass: We can hand off data to the final VFX vendor,” he explains. “The level of quality we can achieve is pretty remarkable. Postvis is done at about the 80 percent level. We’ve even done some final shots — not hero creature shots, but simpler paint outs and speed changes, or adding a CG element to a shot that wasn’t intended to have VFX.”

In many instances, previs and postvis are completed by the same company. For instance, Proof’s London office handled previs for Marvel’s *Guardians of the Galaxy*, a recent Academy Award nominee in the Visual Effects category, while its LA home base took on postvis duties. “This wasn’t just a sci-fi film but an imagined world filled with imagined aliens,” says Frankel. “We had to start previs before the art department had done all the designs.”

While Proof’s postvis has become more finished in quality, the company has been pushing previs to be “more loose and stylized.” It’s Proof’s aim to resolve the uncanny valley concept, a theory in which as characters become more and more realistic they become “offputting and creepy” instead of empathetic.

“I felt previs was falling into the uncanny

valley, so we developed techniques, created with our proprietary Toon Shader software, that are more illustrative” and work hand-in-hand with Autodesk Maya, Frankel explains. “Characters are still three-dimensional, accurate and to scale, but the visual style is more like illustration and clients really respond to them. We’re using Toon Shader on almost every project now; it makes it easy to transition from previs to postvis: The underlying geometry and animation is the same, but how we skin the characters is different.”

For *Guardians of the Galaxy*, Toon Shader enabled Proof to create “rough rerepresentations” of the alien worlds. “We could convey the idea of a clean, modern city or high-tech industrial mining without the minutiae the art department wasn’t ready for. Then we’d fold in the art department’s ideas as they were completed,” Frankel says.

Proof did previs for “almost the entire movie — not just action scenes but lots of dialogue scenes, too. It was especially important for scenes featuring Rocket and Groot, where we had to make sure that creatures of such different scales would mix with the actors.”

Frankel estimates that the company made over 6,500 individual cameras, or shots, for the previs process. Postvis tallied 1,450 shots, each with two or three versions. “I don’t think there was anything we didn’t touch,” he says. Detailed, refined postvis — done at the 80 percent level — served as placeholders through screenings while VFX vendors completed the final shots.

Frankel looks for Virtual Reality to be the next big market for previs. “Everyone is very interested in it, sparked by Oculus Rift,” the VR headset for gaming, he says. “But no one knows how to develop the narrative in a VR environment that completely surrounds you — it’s a whole new way of storytelling. So there’s a need for previs to time events, design cues, dress the environment.”

Related to that is the idea of bringing VR technology into the previs process. “If a feature art department is creating a big set, could we put on the [VR] goggles and walk through it?” Frankel muses. Proof is already partnering with an Augmented Reality technology company to develop an on-set or on-location process for realtime visualization that will put CG characters into an environment, move them around and scale them up or down

“so you get a very visceral sense of what CG elements will look like during the scouting or filming process.”

BY CHRISTINE BUNISH

MPC FILM

MPC Film Previs in Santa Monica (www.moving-picture.com) creates previs and postvis for feature films, including *Dawn of the Planet of the Apes*, the most recent in the franchise and also a recent Academy Award VFX nominee.



FLOCH



LEVI

The level of detail required by clients for previs has increased dramatically, notes Duane Floch, head of department at MPC Film Previs. “The days of anything resembling sliding characters or gray-scale environments are long gone,” he says. “There’s a lot more lighting, atmospheric, character animation and expression. We’re excited about game engine accessibility coming into its own and are exploring how to develop a pipeline to make an easy transition with it. Game engines give wonderful realtime lighting, atmospheric, water, depth of field, shadows. They also can handle a good deal more geometry, so you’re not dealing with a system with limitations.”

Julian Levi, executive producer at MPC Film and MPC Film Previs, notes that an artist using a game engine “spends time working on the shot and animating the shot. Then he puts the shot through the engine where it inherits all the parameters he’s set up for the global environment for that scene. It’s built right in.”

MPC Film Previs had more than two dozen artists working on the previs for *Dawn of the Planet of the Apes*.



The Third Floor's Albert Cheng says he's seeing more commercials taking advantage of the previs and postvis processes, like this TV spot for Mercedes-Benz, *Fable*, that ran during Super Bowl.



That kind of speed and efficiency means the process is "more about shot creation and less about shot enhancement," says Floch.

The division has already integrated into its pipeline some proprietary tools from MPC VFX for crowds, destruction and other techniques. "We can take advantage of what exists in MPC's vast trove of assets," says Levi. "We can tap that library to pull not just characters but animation cycles and plates."

MPC Film Previs worked on *Rise of the Planet of the Apes*, the reboot of the franchise, and returned for the sequel. At the height of previs, it had upwards of 16 artists working in Santa Monica and 18 in New Orleans, where the film was shot. Artists were armed with Maya, Adobe Photoshop, Adobe After Effects for compositing and enhancing shots, and custom rigging tools to help the animators.

"For the first film, the studio had an edict that every shot with an ape had to be previs," says Floch. "The second time around, everyone knew what the characters would look like, so they were more selective about previs. We focused on key shots, including the colony attack — some 500 marauding apes and human characters — where it was important to manage the sheer number of characters and be efficient with the storytelling."

Previs was done with three levels of detail, he explains. "Close-up storytelling with the main characters, and midground and background hordes. We did run-and-shoot cycles for the deep background and midground — the characters weren't on rigs — to simplify things and make them manageable." The close-up storytelling was told from three perspectives: Dreyfus on the human side; Koba, the leader of the marauding apes; and

Caesar's son Blue Eyes.

While Weta built VFX shots in New Zealand, MPC Film Previs was creating postvis sequences as needed. "Typically postvis happens at a very fast pace in the cutting room when they need to turn previs into postvis with the footage they've shot," says Levi. "It happens months before the final assets for VFX are complete. Our postvis was embedded with the editorial at Fox Studios; we were moving at speed to keep up with the pace of the edit."

Floch notes, "more and more directors are coming around to how to use previs. The number of first-time users is going down. It's becoming a more familiar and trusted tool."

ALAN BELL

As the editor of *The Hunger Games: Catching Fire* and *The Hunger Games: Mockingjay — Part 1* and *Mockingjay — Part 2*, Alan Edward Bell, ACE, has seen his share of previs and postvis.



"Previs is a huge part of any large action or VFX movie to show what's going to happen before you shoot to the executives, the director, 2nd unit, even the editor — I'm often cutting before they shoot any frames," Bell explains.

Later, postvis informs the cut and becomes "a step towards the final shot" when he's editing the live-action footage. While he hasn't seen any postvis shots turn into finals on *The Hunger Games* films, Bell concedes that "the technology has become more and more advanced, and it's conceivable that it could happen."

The new trend for Bell is his ability to take some of this process into his own

hands. Using Blackmagic Design's Fusion compositing software, he can create postvis composites that "integrate well with Avid and animation done in [Maxon] Cinema 4D," he says. "The scene where they fly to rescue Peeta from the capital in *Mockingjay — Part 1* was all shot blue-screen, and there wasn't a lot of time to get the previs company involved," Bell recalls. "So I compo'd together various elements using Fusion, which informed the sound crew, the studio and the director until they got the final shots from the VFX vendors. My postvis remained in the cut for quite a long time — even through all the friends and family screenings."

More often, Bell uses Fusion to create a new shot. "I'll composite performances — a moment from Take 1, another from Take 2, and I've got a new take that doesn't really exist," he explains. "I can jump cut or morph in Avid, or retime the performance. I can capture a reaction before I cut away. I've essentially created a VFX shot because of the enhancements, but it's all done inside the cut and plays quickly and naturally. It's all seamless due to Fusion — an amazing tool to have as an editor. I used it extensively on *Mockingjay — Part One* and it's now a permanent part of my toolbox."

THE THIRD FLOOR

Albert Cheng, previs and postvis supervisor at The Third Floor London (www.thethirdfloorinc.com), finds that more and more commercials are taking advantage of the processes, especially when turnaround time is short — as it often is. Cheng led previs artists in London — the company also has a full studio in LA — in



previs for the Mercedes-Benz Super Bowl spot, *Fable*, from Merkle + Partners/ NY. Robert Stromberg directed for RSA Films; MPC Advertising in New York and LA did the animation for the clever commercial, which updates the tale of the tortoise and the hare. When the speedy, self-confident hare stops to play poker with some woodland pals, the tortoise discovers a Mercedes-Benz plant and drives off in the high-performance AMG GT S to (spoiler alert) win the race.

Cheng met Stromberg when the latter was a production designer on features. Cheng did a previs pitch for Disney's *Maleficent*, for which Stromberg directed, and The Third Floor London later did previs. "Robert loves previs and approached us for *Fable*," which combined whimsical character animation with live-action running footage and some real forest locations. Cheng says.

"Robert gave us his brief and the boards he had drawn, and we dug into our own assets to find creatures to fill out the woodland — a fox, crow, squirrels, hedgehog — and built the lush fantasy forest from a concept painting of his."

From those elements, The Third Floor created a "realistic but very stylized" previs for the spot that "represented the flavor of the main characters. They were animated but didn't have sophisticated facial controls," he explains. "The previs helped determine what shots were needed and how to shoot them — the camera angles, the timing. It was a launching point for MPC to refine the shots and add personality as they created final animation."

Previs and postvis have become commonplace for spots and features today, he notes, "especially those very dependent on CG environments and characters. It's part of the creative and post process." The Biblical epic, *Exodus: Gods and Kings*, for which The Third Floor created previs and postvis, was a recent client. "Postvis played a significant role with so many virtual environments and the need to see shots cut in context," Cheng says. The Third Floor received two VES nominations for Virtual Cinematography for *Edge of Tomorrow* and *X-Men: Days of Future Past*, the latter of which won the category.

The Third Floor London, which uses Maya as its primary animation tool, recently added Unreal Engine 4, a suite of integrated tools for game developers, to its arsenal. "It lets us walk around in

scenes and render scenes with lights and effects in realtime," says Cheng.

Game engine integration "ties together nicely" with the VR tools the company has begun to use in previs. "We've done virtual cameras for years with directors like Robert Zemeckis," Cheng notes. "VR takes virtual cameras to the next level. Imagine a production designer or director able to walk around and scout the set in VR. We hope to see it used more and more to get a sense of space and scale, especially for CG environments."

BARABOOM!

Culver City, CA's Baraboom! is also looking at the role VR might play in previs. "We're playing with Oculus, to see how it fits in the pipeline," says founder and previs supervisor, Pepe Valencia. "You need to embrace all new technologies."

About two years ago the company invested in 3D printers, so it has the option to print out scaled previs characters and sets in three dimensions. "It's a really effective tool for art directors and production designers," he says. "We did previs for a live-action feature where a character was a 30-foot creature; we could print her out to see the scale and volume related to the set."

Even Maya is "much more powerful today," Valencia reports. Running Viewport using the DirectX 11 rendering engine gives one-click, realtime access to depth of field, motion blur, effects shaders and displacement mapping, he notes, "allowing us to get a look closer to the final product. We just did previs for a commercial using a preview of fluid simulations in Maya. It looked finished — but we didn't intend for it to be a final shot. Just a tool to help the director envision and anticipate the shoot."

Baraboom! did extensive previs for the 3D animated feature from Reel FX Creative Studios, *The Book of Life*, which was released last fall and is now available on DVD. A universal tale of love and loss, it's based on Mexican folklore and was co-written and directed by Jorge Gutierrez.

Valencia met the director years ago and admired his first short, *Carmelo*. They kept in touch as he developed the idea for *The Book of Life*. "Almost all the film's sequences were laid out with

storyboards except for the bullfighting scene, the scale of the giant bull and the action sequences," he explains. "There was a script but no storyboards, and Jorge wanted to know how to shoot these scenes, where to place the camera" before the animators got to work.

A Spaniard who's familiar with bullfighting, Valencia led a team of eight artists who delivered 18 minutes of bullfighting and action scene previs representing close to 300 shots. "Jorge came up with a reference for the sequence: Sergio Leone spaghetti westerns," says Valencia. "It was like a shoot out between the bull and Manolo the bullfighter with really specific close ups beautifully integrated with the environment."

"Jorge wanted to explore the camera lenses, the POV of the camera in the plaza, the scale of this huge bull. We provided coverage, giving him options and variations to send to editorial to create the pace and timing. The first sequence we did gave him 90 percent of the camera moves he used; it wasn't our intention to be that close to the final but Jorge told us we really nailed it with the Sergio Leone reference."

Baraboom! needed to develop some facial expressions for the animated characters, which can be time consuming in previs, Valencia notes. So artists grabbed facial expressions from the character designs — sadness, smiles, surprise — and applied them to the lead actors.

The company also did previs for the chase at the film's conclusion, a dynamic sequence when the villains come to fight the villagers. "We previs'd more than 50 characters at once, really intensive work, and were really happy with the results," he says. "Previs was instrumental in materializing Jorge's creativity." **P**

Baraboom! did extensive previs for the 3D animated feature *The Book of Life*.

