

## Press Release

### **Autodesk Technologies Help Immerse Viewers in Björk's 'Black Lake' Currently at MoMA**

*Director Andrew Thomas Huang, Wolf & Crow and xRez Studio Use Autodesk Maya, Flame, Mudbox, ReCap and Memento to Create a New CG Landscape and VFX for Short Film*

**LAS VEGAS, April 12, 2015** — [Björk](#)'s "Black Lake" multimedia experience debuted at New York's [Museum of Modern Art](#) (MoMA) on March 2 with ethereal CG and visual effects (VFX) created with [Autodesk Maya](#) 3D animation software, [Flame](#) creative finishing software, [Mudbox](#) digital sculpting software, reality capture solutions [ReCap](#) and [Memento](#) for the first time. Under the direction of [Andrew Thomas Huang](#), Björk designed the 10-minute music video film experience in collaboration with MoMA, architecture firm [The Living](#) (an Autodesk company) and Autodesk. 'Black Lake' was the centerpiece of the retrospective exhibition charting Björk's prolific career, the exhibition immerses visitors into the world of "Black Lake" – a song from her new album *Vulnicura*. It occupies its own unique space in the exhibit and features stunning panoramic visuals created by VFX studios [Wolf & Crow](#) and [xRez Studio](#).

Upon entering "Black Lake," MoMA visitors are engulfed in a dark cave-like environment, sculpted from the audio track and inspired by the Icelandic ravine where the original music video was shot. It houses two screens on each side of the room that display different angles and scenes from the music video, and walls and ceiling affixed with 7,000 felt cones and 49 speakers that carry the song throughout the room. As the video loops, the landscape is as much a character in the film as Björk. With a complex vision in mind for the project, Björk and Huang turned to Autodesk and The Living for assistance. Autodesk Director of Emerging Technologies, Brian Pene, explains that he helped, "facilitate the tools required for the VFX artists at Wolf & Crow and xRez Studio to bring Björk's innovative vision to life."

Footage was shot in Iceland, and post-shoot, Wolf & Crow began building digital assets, as well as a CG version of Björk to interact with various CG elements and environments. The signature body suit worn by Björk in the video was designed by Dutch designer Iris Van Herpen, a leader in combining haute couture with 3D printing, and additional elements were then 3D printed at Autodesk to augment the creation. David Benjamin from The Living also provided resources to transform the physical installation space into a visual extension of the "Black Lake."

Wolf & Crow completed post production while its artists were also developing looks for the CG portion of the video, from re-creation of environments, to stitching scenes together. Using Flame 2015, the Wolf & Crow team handled the edit with ease; they were able to link to footage straight from camera cards at a lower resolution/debayer. After quickly making the required changes, they then upgraded the footage to full resolution, using the new "Format Options" feature in the Flame timeline before bringing it online. The software made it easier for Wolf & Crow to work with and play back large volumes of 4K and 5K footage, so that they could accommodate Huang's needs and meet the project delivery schedule. The team also relied extensively on Flame's planar tracker to overlook lighting changes and occlusions in the timeline.

“To say we were excited to join forces when Andrew approached us to work on a project for Bjork and MoMA is an understatement. One of our biggest challenges was integrating effects as an emotional punctuation, without having them overtake the process, which we were able to achieve using Maya as the backbone of our workflow, and adding a lovely Flame gloss on top,” said Kevin Shapiro, founder, Wolf & Crow. “The team at Autodesk really helped us out. Given the massive dimensions of this film (4:1 ratio) and dealing with 4 and 5K images, Flame was essential to accommodate a fluid creative process and keep the production on track.”

xRez Studio created the video’s immersive landscape scenery using a combination of high-resolution terrestrial and aerial photogrammetry from drone photography and laser scanning, which together captured the region’s topography. xRez’s team of artists then turned to ReCap to bring the photogrammetry to life on screen, Maya to build the 3D scene and tie the visuals together, and Memento and Mudbox to clean meshes.

“It was exciting to work on a project that gave us the creative freedom to combine technologies in innovative new ways. Though there was a great deal of data to manage and integrate, our Autodesk tools performed smoothly throughout,” shared Greg Downing, president, xRez Studio. “They gave us the flexibility to get from point A to point B without hitting any roadblocks, while also supporting the large resolutions this project required, including 14,000,000 polygons and 32,000 pixel textures.”

“Black Lake,” runs through June 7, 2015 at MOMA in New York and offers a retrospective covering more than 20 years of the multifaceted work of composer, musician, and singer Björk. For more details, see: <http://www.moma.org/visit/calendar/exhibitions/1501>. To view the trailer of “Black Lake,” visit: <https://www.youtube.com/watch?v=EiXQ5qaUGDI>.

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