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The making of a virtual rock star

UB supercomputer aids Buffalo animation studio

By FRED O. WILLIAMS
News Business Reporter
6/24/2005

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Star Wars Episode III Jedi Knight Obi-Wan Kenobi wields a guitar instead of a light saber in IBC Digital's "Video Mod" of "Take Me Out" by Glasgow rock group Franz Ferdinand.

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Yoda takes a turn at the drums in the "Video Mod" that will air at 8 p.m. tonight on MTV2.

Obi-Wan Kenobi swings a guitar instead of a light saber. Yoda tries his Jedi moves on a drum set, pounding out the rhythm to "Take Me Out" by Glasgow rock group Franz Ferdinand. Usually seen in a movie or video game, the characters from Star Wars Episode III become virtual rock stars on MTV2 tonight - with help from Buffalo animation studio IBC Digital and the supercomputer at the University at Buffalo.

"Part of our pitch was the (supercomputer) center . . . We could never have done it without them," IBC Digital president Benjamin Porcari said. "It's a monumental amount of data."

Porcari's company is producing a series of "Video Mods," a blend of video games and music videos. The segment featuring animated characters from the Star Wars video game is one of four scheduled to appear at 8 p.m. tonight, the launch of a monthly series.

"This is a tremendous jump for IBC Digital," Porcari said - and one that raises Buffalo's profile in the burgeoning field of digital imagery.

For the program, IBC takes characters from video games and makes them leap and dance to the beat of pop tunes. A contact in

New York lined up Porcari's company for the job in January, after a predecessor made an initial batch of Video Mods for MTV2 last year. Work on the series will bring a "seven figure"

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paycheck for IBC, Porcari said, declining to be more specific.

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Making the video involved a blend of live-action and digital techniques called "motion capture" technology, Porcari said. Actors and musicians performed for the video wearing specially marked suits. Cameras recorded the position of the marks, whose coordinates were converted into a digital record. The position data provides choreography for the motion of video game characters, who step into the roles of the live actors.

"We hired Christina Aguilera's dancers to do dance steps that we put on storm troopers," Porcari said.

The Buffalo studio handed off the calculation-intensive task of "rendering" the animation - creating the 30 images per second of the final show - to the UB Center for Computational Research.

"A lot of geometry and a lot of mathematics gets fed into a single frame of video," said Russ Miller, director of the supercomputer center.

It might sound like an unusual gig for the UB center, which powers computer research on serious subjects like vaccine development and earthquake-resistant buildings. But one of the center's goals is to help the economy by opening its doors to local companies, Miller said.

"We're working with a half-dozen companies at any given time," he said. The center is compensated for the use of machines and expertise, Miller said, declining to reveal details of financial agreements.

Although the MTV2 videos were produced using software and techniques from the entertainment industry, the field is related to data-intensive computer modeling that is increasingly used in science and engineering. The UB center's "visualization" projects have included three-dimensional studies of the Buffalo Niagara Medical Campus and Olmstead Parks, as well as proposed Peace Bridge designs.

Besides, the center's multi-processor machines seem to have an affinity for music, having been tagged with names like Crosby, Nash and Lennon by system administrators.

It was the center's new Dell cluster of processors, named U2, that helped create the animation for IBC Digital.

"What we feed into it are coordinates of where characters go, and where you assume the sun is, so you know where shadows go," Miller said.

Calculating the shapes and shadows for each digital image, it took the Dell cluster 10 hours to complete the four-minute Star Wars video, using 300 of its 1,600 processors, said Martins Innus, visualization specialist at the center. It would have taken a single computer some 3,000 hours to perform the task, he said, making the monthly deadlines of the MTV project impossible to meet.

Having access to the neighborhood supercomputer gave IBC Digital, a 20 person company on Elk Street, enough number-crunching power to take on projects normally handled by big Hollywood studios like Pixar or Industrial Light and Magic, Porcari said.

"A place like CCR has serious firepower," he said. The center's "Joplin" cluster ranks as the world's 200th fastest computer, performing 2 trillion operations per second, according to the latest Top500.org supercomputer list.

IBC Digital has produced segments for Sesame Street, handled special effects for commercials and provided digital scenes for a Harry Potter movie, Porcari said. In addition to IBC's role, Buffalo companies Chameleon West Studios and Crosswater Digital provided work on sound for portions of the show.

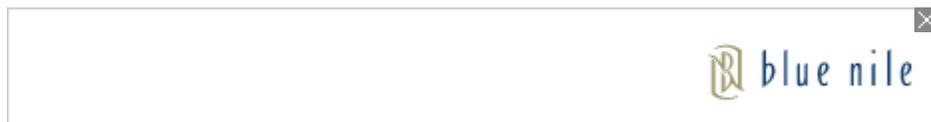
The idea behind Video Mods is to draw young viewers by blending their twin passions for



tunes and games, MTV2 spokesman Jeff Castaneda said. In addition to the Franz Ferdinand-Star Wars III video, tonight's show is to include Sum 41's "Pieces" blended with characters from Destroy All Humans!, Good Charlotte's "Predictable" with Darkwatch characters, and "My Chemical Romance's "I'm Not Okay (I Promise)" with the creatures of Death Jr. MTV2 is owned by MTV Networks.

"It gets old watching people just whaling on a guitar, so we attempted to tell a story," Porcari said. In the Star Wars mod, for example, a concert scene weaves in and out of a battle scene - Anakin Skywalker deflects bolts with his light saber while belting out lyrics. "We want actors to find the character as well," Porcari said. "Not just play the song."

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