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Hollywood Faces New Reality****Technology Costs Ever More
And Is Time-Consuming;
Rise of \$200 Million Films****How to Tweak a Pirate's Sneer****By MERISSA MARR and KATE KELLY**
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Growing up in the Chicago suburbs in the early 1990s, Greg and Colin Strause were the ultimate computer geeks. While other teenagers played sports or flirted with girls, the Strause brothers huddled over a computer in their father's basement creating movie-style special effects.

Now, thanks to Hollywood's obsession with expensive computer-generated tricks, the Strause brothers have hit the big time. Having worked on "Titanic," "The Day After Tomorrow" and this summer's "X-Men: The Last Stand," the brothers can afford to live in luxury condos in Marina del Rey, overlooking the ocean.

"We used to get flack for being nerds," says Colin. "Now we're nerds with Ferraris and Bentleys."

Spurred by box-office success, studios are lavishing unprecedented time and money on whiz-bang effects. Their enthusiasm is creating a new dynamic in moviemaking in which technology is replacing on-screen talent as the biggest source of budget inflation. This summer's films, which are packed with digital extravaganzas, are helping set a new benchmark: the \$200 million movie.

But technology can't always deliver the kind of efficiencies to Hollywood that it generally provides to other industries. It has made filmmaking not only more expensive and time-consuming but also more difficult to manage. The people who create special effects consider themselves artists and their agenda is to get it right -- not make it cheaper.

With so much money at stake, tensions have grown between studios, which want to keep costs down, and special-effects houses, which are grappling with escalating costs of hardware and talent. Meanwhile, some filmmakers are finding it hard to resist the allure of technology, which can come at the expense of storytelling.

"Visual effects add the arms and head to the Venus de Milo but should never come up with the entire Venus de Milo," says Scott Ross, founder and chairman of Digital Domain, a

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Many top movies released in 2005 have costly special effects. World-wide box-office gross as of last weekend, in millions:

1. Harry Potter and the Goblet of Fire	\$892.21
2. Star Wars: Episode III	848.80
3. The Chronicles of Narnia	741.60
4. War of the Worlds	591.42
5. King Kong	549.22
6. Madagascar	528.37
7. Mr. & Mrs. Smith	478.21
8. Charlie and the Chocolate Factory	474.97
9. Batman Begins	371.85
10. Hitch	368.10

Source: Box Office Mojo

leading digital-effects company, which has worked on "Titanic" and "Charlie and the Chocolate Factory."

Amid the excitement, studios are beginning to realize that relying on special effects is financially risky. Such big-budget films tend to be bonanzas or busts. If a movie hits the jackpot, it can create a box-office juggernaut that mints money on video and television for years to come. If not, it can burn a massive hole in a studio's finances, as **Sony Corp.** discovered last summer with its expensive aircraft thriller "Stealth." As effects budgets creep toward \$100 million, studios are in combat mode, playing vendors off one another to get the best deal.

Last winter's "King Kong," with its life-like depiction of a giant ape, created a new standard in the effects world -- and in Hollywood. At \$207 million, it was the largest budget ever publicly acknowledged by a studio (executives frequently downplay the true cost of their films).

Now similar numbers are popping up all over town. According to people familiar with the movies, "X-Men," from **News Corp.**'s Twentieth Century Fox, arrives this month at \$210 million, **Walt Disney Co.**'s "Pirates of the Caribbean: Dead Man's Chest" is fast approaching \$225 million, and "Superman Returns," made by **Time Warner Inc.**'s Warner Bros., is likely to weigh in at \$261 million.

Topping them all is Sony's "Spider-Man 3," due for release next year, which people close to the studio say will cost between \$250 million and \$300 million. Some studios say their costs are eased by tax credits, which could, for example, shave \$20 million off the cost of "Superman Returns." For the same reason, Fox says the final tally for "X-Men" is \$165 million.

The price tags underscore that effects, not stars, sell big movies these days. Of the top 10 U.S. all-time box-office hits, all but "The Passion of the Christ" were visual-effects vehicles. Just one of last year's domestic top 10 -- the slapstick romantic comedy "Wedding Crashers" -- had actors, rather than effects as its star.

To keep drawing people to theaters, studios feel pressure to keep pushing computer-generated realism to new levels. In 1985, "Back to the Future" featured more than 100 special-effects "shots" -- short sequences of about five seconds -- depicting state-of-the-art fantasies such as a flying sports car and fading body parts. Two decades later, movies can include 2,000-plus effects shots.

For "King Kong," made by **General Electric Co.**'s Universal Pictures, director Peter Jackson accumulated close to 3,500 effects shots, as he navigated armies of dinosaurs and tinkered with the finer features of the giant ape. According to executives at Mr. Jackson's digital-effects company, 500 shots were started and not finished and another 350 hit the cutting-room floor.

Around the time of the film's release in December, Universal publicly pegged the tab at \$207 million, after originally budgeting around \$150 million. Two people involved with the movie say the final cost was closer to \$250 million.

Many newcomers flooding into the business like the Strause brothers were inspired by such seminal movies as the 1991 "Terminator 2." Starring Arnold Schwarzenegger as a cyborg from the future, it revolutionized the effects world with scenes featuring T-1000, a robot warrior made of liquid metal that could emulate both a human and inanimate objects.

Most of those effects were the brainchild of Industrial Light & Magic, a company set up by director George Lucas in 1975 to handle the special effects for his "Star Wars" movies. The granddaddy of the effects world, ILM dominated for years with groundbreaking work on movies from "E.T." to "Jurassic Park" and "Mission: Impossible."

ILM's success spawned a wave of copycat houses, some set up by ambitious ILM alumni, others by technically adventurous filmmakers. In 1993 Mr. Jackson and a group of partners set up an effects house in New Zealand, Weta Digital Ltd., which did most of the work for his "Lord of the Rings" trilogy.

That same year another rival, Digital Domain, was created by ILM alumnus Mr. Ross with James Cameron, the director and producer behind the "Terminator" movies and the 1997 box-office buster "Titanic."

In a sign of the conflicting interests of effects artists and filmmakers, Mr. Ross and Mr. Cameron ended up falling out over the shipwreck epic. Mr. Ross accused Mr. Cameron in published reports of endlessly refining the movie's effects to such a degree that the company lost money on the project. Bert Fields, an attorney for Mr. Cameron, says the director disputes Mr. Ross's account and adds that Digital Domain didn't fulfill its contract. Mr. Cameron subsequently resigned from Digital Domain's board. Mr. Ross declines to comment on the dispute.

The Strause brothers got their big break as a result of that feud. In 1997, when Mr. Cameron was frantically casting around for extra artists to work on "Titanic," they were brought on board to create the ship's nemesis iceberg. Using a team of eight artists, the brothers spent three months creating 12 shots, each lasting four seconds.

As teenagers in Waukegan, Ill., they got their start creating logos for small local companies on a primitive 1980s computer. Their father later bought a more powerful machine to help them win bigger accounts. It worked, earning the boys \$25,000 to create an animated eagle used in an ad for a local gas station.



Greg Strause

Greg, 31 years old, and Colin, 29, moved to Los Angeles in 1995 to work on music videos and television shows. Four years after setting up their company, Hydraulx, the Strause brothers now own multiple computer workstations costing \$300,000 each. New high-end monitors costing \$30,000 flicker through the dim light of their new studio in Santa Monica, Calif. The brothers also built a \$1 million screening room for clients. Greg Strause estimates that computer maintenance alone costs \$300,000 a year. And that's for a relatively small studio.

One of their most recent projects was "X-Men," set for release May 26. For flashback sequences, they took 25 years off the movie's main actors -- including Sir Ian McKellen and Patrick Stewart -- by smoothing out their wrinkles and shaving pounds off their faces. A plastic surgeon advised them during the process.

Despite their technological sophistication, visual effects are still labor-intensive, requiring human artists and ever-more expensive computer tools. To achieve realistic effects, each image requires hundreds of hours of minute adjustments. Hardware is also wildly expensive and computers need to be constantly upgraded.

For this summer's \$160 million disaster movie "Poseidon," for instance, ILM created a three-minute opening sequence of a cruise ship at sea that was almost entirely computer-generated. ILM says it took a

year. Each shot in the sequence required 4,000 frames. Each frame took 25 hours to make on the company's most sophisticated computers.

On a recent morning, ILM animation director Hal Hickel tinkered with a sample image of Davy Jones, villain of this summer's "Pirates of the Caribbean" sequel. Staring at an image of Davy with his octopus beard in the screen's top right, Mr. Hickel used his mouse to delicately shift the character's facial features. For Davy Jones' upper lip alone, Mr. Hickel's computer has 24 commands for manipulating the sneer by minute degrees. Every few seconds of animated footage took 10 days or more to complete, he says.

"When you're doing really realistic stuff, there are just so many little details," Mr. Hickel says.

The entirely digital character is based on actor, Bill Nighy, who was filmed in a "motion capture" jumpsuit that recorded his movements so they could later be manipulated by a computer. The character has a crab claw, a pirate outfit and a beard of more than a dozen independently-moving octopus tentacles. More than 500 artists worked on "Pirates of the Caribbean." Manpower is by far the most costly element of the special-effects business.

"You have to make the audience believe it's a real character," says Jerry Bruckheimer, the producer of many effects-laden movies, including the "Pirates" series. "They can never see the edges or the workings of the digital imagery."

Today's effects breakthroughs, however, are short-lived, one reason why companies are constantly reaching for the next big thing.

"The amazing liquid metal effects in 'Terminator 2' were in tire commercials within six months," recalls Yair Landau, vice chairman of Sony Pictures Entertainment, the studio behind the "Spider-Man" movies. "A lot of imagery and technology gets assimilated into culture and you have to raise the bar to give audiences a superior experience every time."

With such firepower at their finger tips, filmmakers have to face a question: When do they stop? In the past, filmmakers would often settle for the first special-effects sequence created, so cumbersome was the production process. Now, filmmakers have multiple options and spend many nights holed up in editing suites perfecting sequences.

"In the old days, five to 10 iterations of one shot was normal, now it's not impossible to have 50 to 60 iterations for complex shots," says Greg Strause.

The simultaneous rise of cosmetic effects, which can fix anything from an actor's acne to bad lightning, has created even more opportunities for tinkering in post-production. Filming with new digital cameras creates a sharper, cleaner look, but one that shows up every blemish and wrinkle. A filmmaker can add weeks of work and about \$250,000 getting rid of facial hair, a wig line, or bags under an actor's eyes.

ILM says such late-stage, or "911," work is common. ILM says it frequently charges anywhere from \$20 million to \$80 million for work on an effects-heavy movie.

Production crunches are common and effects houses often race to meet tight deadlines -- something that pushes costs even higher. For the latest "Pirates of the Caribbean," Disney has a tight window to finish the elaborate effects; the studio expects to be working on the film until close to its July 7 release, say people involved with the movie.

Sometimes, there isn't enough time, forcing filmmakers to do things the old-fashioned way. In a scene from "Harry Potter and the Goblet of Fire," in which the hero does battle with a dragon, ILM wasn't satisfied with the computer-generated fire, says Tim Alexander, a visual-effects supervisor.

Rather than spending more long days fiddling with each spark, ILM hired a flame-thrower that it filmed on stage. Then it superimposed the footage onto the sequence. The tab for a day like that, ILM says: \$40,000 or \$50,000.

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