

Special Effects

SEEING IS BELIEVING AT ILM

Tornados have come a long way since "The Wizard of Oz."

These days, that funnel cloud had better look so real that people wonder how the camera got so close. Plus, it had better toss trucks, cows, people and entire houses around just like it does in real life . . . or just like we think it does in real life.

Successful movies in the '90s are expected to feature natural disasters, explosions, stalking dinosaurs, transforming aliens and ghosts materializing before our eyes. Leading the way in producing such feats of pseudorealism is George Lucas's Industrial Light and Magic (ILM) in San Rafael, Calif., where the talents of three UC alumni have contributed to our belief that anything is possible.

Our love affair with special effects

began when Lucas's crew astonished us with "Star Wars." Ever since efforts began on the second installment of that space trilogy, "The Empire Strikes Back," UC alumni have had a hand in bringing us such ILM thrillers as "Twister," "The Lost World: Jurassic Park," "Poltergeist," "Men in Black," "Spawn" and "Starship Troopers," as well as fun flicks like Disney's recent live-action version of "101 Dalmatians" and "Flubber," due to open Thanksgiving Day.

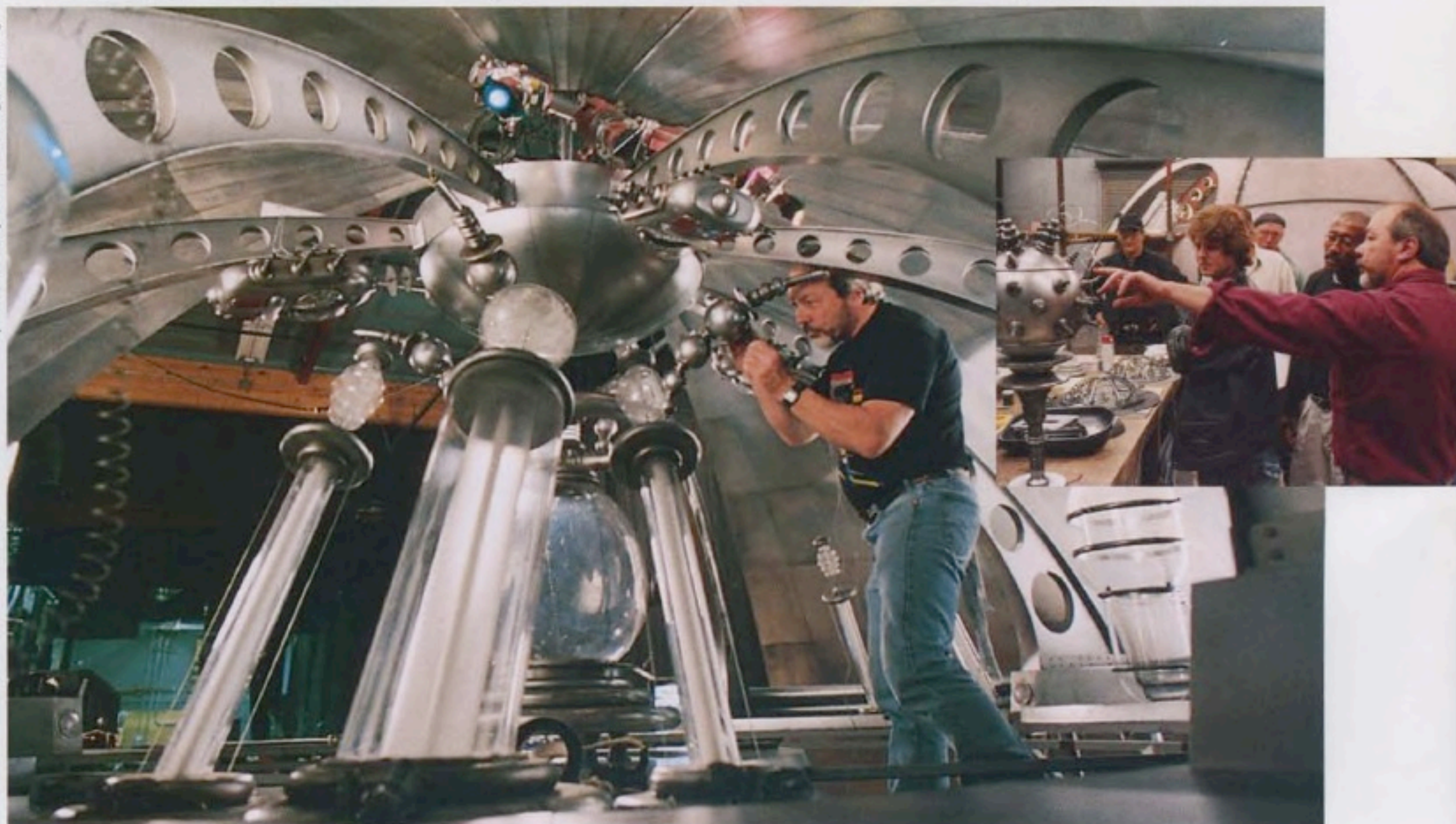
Three industrial design graduates from the UC College of Design, Architecture, Art, and Planning are employed at ILM. Charlie Bailey, DAAP '71, was the first. Not only did

he work on the original "Empire" movie in the late '70s, he most recently helped update the movie's "special edition" and is currently working on the trilogy's "prequel."

As a model maker, Bailey created Darth Vader's big white star destroyer, snow walkers, snow speeders, the hospital ship and X-wing ships for "Empire." He has also made a spaceship for "E.T.: The Extra-Terrestrial," whales for "Star Trek IV," lava flows for "Congo," mine tunnels and mining cars for "Indiana Jones and the Temple of Doom," and a water creature for "The Abyss." The last two films won Academy Awards for Best Visual Effects, as did "Empire Strikes Back"

DAAP alumnus Charlie Bailey works on a miniature set that appeared eight times larger on the screen and served as the interior of the flying saucer in "Mars Attacks!"

photos courtesy of Industrial, Light and Magic



and "Raiders of the Lost Ark."

Bailey's job description changes with projects: model maker, set constructor, sculptor, creature manager, puppeteer or a supervisor. So does the job description for each of his DAAP colleagues — George Hull, DAAP '93, and Scott Leberecht, DAAP '94 — who work in the art department as storyboard or concept artists and visual effects art directors.

As storyboard artists, Hull and Leberecht are the first to get the scripts, creating a series of drawings to illustrate the action and composition of a shot, including technical notes for the effect and for camera work. "The director describes what he wants to see in a scene," Leberecht explains, "and the storyboard artist visualizes it and draws it until the director says, 'That's it.' I'm the communicator between the director and the people creating the special effects."

When serving as art directors, Hull and Leberecht analyze films from each day's shooting, judging camera angles and the realism of artificially created

elements such as shadows and lighting. "You're wanted for your head and your eye," Leberecht says. "It's a lot harder than it sounds."

It may be hard, but sometimes it is also exciting. Hull once flew to London to meet director Brian De Palma and actor Tom Cruise to plan an effects sequence for "Mission: Impossible." Bailey, on the other hand, once got selected to be an impromptu actor for "Star Trek IV." (He was the whale boat pilot.)

Yet on a day-to-day basis, their jobs are far from a fantasy land. Bailey often hears the comment, "You get paid for this?" "It's a tough business," he says. "Budgets and schedules keep us from enjoying our work."

"We demand near-perfection, if not perfection, of ourselves. There is a constant hammering for bigger and better, for faster and cheaper. We're always pushing the envelope for human performance. People expect more as they get used to seeing more."

All that pushing means the inevitable long hours that surface

throughout Hollywood. Bailey remembers typical 18-hour days during production of the original "Empire," but says ideal schedules are 8:30 a.m. to 7:30 p.m., five days a week. Everyone expects six days a week as a film nears its release, yet anything can happen as editors make changes right up to the last two days before an opening, Bailey notes.

"When George (Lucas) released 'Empire Strikes Back,' we actually changed the film after the release date," he recalls. "We all saw it in the theater on opening night, then George decided to change the last scene, so we went back to work for two solid days nonstop, and he traded those films for the old films in the theaters."

Sweating around the clock for two days was actually an easy stint compared to Bailey's "nightmare" — building 20 duck costumes for the ill-fated "Howard the Duck." "We had to work 24 hours a day, sleep at work and shove pizza in our mouths as we ran around. It nearly killed us, but we reached a new level of animatronic design through it."

Achieving new levels of design is the motivation. "We've done a lot of firsts at ILM," he says. He worked on the first radio-controlled free-swimming creatures, which were the whales in "Star Trek IV"; the first fluid, on-screen transformation of one object into another, called morphing, in "Willow"; and the first computer-generated main character, in "Terminator 2: Judgement Day," which also won an Oscar for Best Visual Effects in '91.

Another enticement is the variety of their projects. "By working on movies," Hull says, "you get to design architecture, figures, costumes, interiors — not just a single product."

Hull's film designs have included buildings for the new Choruscant city at the end of the "Return of the Jedi: Special Edition," buildings for Cloud City's new cityscape on the "Empire" special edition and the tunnel in which a helicopter explodes in "Mission: Impossible." He was also a visual effects art director on the re-released "Empire" special edition and "Mission: Impossible," as well as "The Lost World," "Twister" and "Jumanji."

Leberecht was a concept artist on "Jumanji" and "101 Dalmatians," plus

Charlie also helped create the transformer (*inset, at left*) and the aliens' specimen tank (*below*) for the "Mars Attacks!" movie, in which he was ILM's model supervisor.



a visual effects art director on "Flubber," "Spawn" and "Eraser."

Today, their projects frequently incorporate computer graphics, referred to as "CG." Ironically, when CG animation took off with "Jurassic Park," ILM employees feared that the new techniques for visual effects would eliminate their jobs. Instead, ILM business is instead soaring, for several reasons: 1) CG created increased interest in special effects; 2) CG is too time-consuming and expensive to use exclusively; and 3) animators and ILM's visual effects people have found a common ground for interfacing and using a combination of their techniques within the same films.

"Mars Attacks!" is a perfect example. Bailey was model project supervisor for building miniature sets to serve as the inside of the flying saucers. The Martians, however, were CG. The result is that the audience often cannot identify which creations have substance and which ones are total illusion.

"101 Dalmatians" is another example. Some of the dogs were real. Some were not. Because no one can control

101 dogs, Leberecht drew puppies in different poses, placed the drawings in scenes and handed them over to computer animators.

Sometimes real puppies romped in real sets. Sometimes CG puppies were placed before matte backgrounds. It's hard to tell the difference.

That proves ILM did its job well. "This stuff is supposed to fool you into thinking it's real," Leberecht says. "The biggest part of the job is understanding how things work to reflect reality as much as possible."

"It takes a trained eye to understand how light works, how it bounces off different textured objects and how a shadow would be cast at a particular time of day in a particular atmosphere. Everybody can look at a bad scene and see something wrong, but we have to know exactly what's wrong."

Therein lies the value of a DAAP education. Leberecht, Hull and Bailey are not simply artists or model makers. They are designers who have a keen

understanding of the problem-solving process — something DAAP entrenches in the minds of its industrial designers.

Leberecht, for instance, had to thoroughly research crocodiles for the movie "Eraser." "Deciding how to make a crocodile took the same problem-solving process we used in school to design a power tool," he says. He likes the challenge that comes from being a designer.

In just the last few years, DAAP students have begun realizing the film industry is an option for them. That wasn't true for these three alumni who started the UC program expecting employment in more traditional areas of product design.

Hull co-oped several times with Chrysler in Detroit, where he could have had a job after graduation. By his senior year, though, he shifted the focus of his projects to reflect his love of entertainment, then moved to San Francisco after graduation with the

These photos from "101 Dalmatians" illustrate how a dog can be photographed against a green screen, then superimposed onto a matte painting, which is the background scene. As a concept and storyboard artist for this movie, Scott Leberecht also attended "dailies" to critique the previous day's filming.



goal of getting hired at ILM. He landed a summer internship there, then spent the next year beefing up his portfolio until he got hired.

Leberecht similarly expected to go into traditional product design, but actually came home crying after one co-op quarter, struck by the realization that his heart wasn't in the career. Because Bailey and Hull had gone into the film industry before him, he cleverly tailored his projects at school to relate to films and landed a co-op job at Kenner, making promotional toys for movies. Like Hull, he got an ILM internship, then worked elsewhere to fine-tune his portfolio before getting hired.

Bailey's story is different. "I kind of hate to admit this," he says, "but when I was in school (in the late '60s and early '70s), this industry didn't really exist. It wasn't like I said, 'Gee, I'd like to go work on 'Star Wars.'"

Oddly enough, he had the chance to do just that a few years after gradua-

tion, but declined. Although he was employed on the West Coast as a contract model maker and toy designer, ILM was too far away to commute, and the name "Star Wars" did not exist. When the offer came again for "Empire," he sold his house, packed his bags and moved, based only on a promise of a three-month job. The gamble paid off.

Bailey's success set the stage for Hull and Leberecht. Because of him, both men knew that ILM was reality for a DAAP industrial designer, and professors couldn't scoff at their ambition to work in the field, Leberecht says. No one considers scoffing in 1997. Nearly 25 percent of the majors at least consider the option of entering the entertainment industry, estimates DAAP associate professor Brad Hammond.

The public's love for visual effects is cyclical, Bailey says. Right now, it is on the crest of a giant wave, he and his colleagues agree. Yet no one fears

MEMORABLE QUOTES

"The first time I saw my work blown up, it was distressful. It's actually fun now, but it took a couple years to get there."

— Charlie Bailey, on making miniature sets to be demolished in films

"In the benefit of being able to draw anything is also the challenge of *having* to draw everything."

— George Hull

"There is an amazing amount of time, money and number of people employed for a 15-second shot."

— Scott Leberecht

That robotic creature (*at right*) is a flea that was seen hopping through the Energizer bunny's pink hair on a commercial last year. Scott Leberecht did all the concept work and storyboards to design the flea. On the set, Scott (*below, farthest left, facing the camera*) discusses the performance of the puppeteers with the director.

losing their jobs to CG animation. The expense and time is only one reason. Leberecht says the bigger issue is intangible: "It's very difficult to get much 'soul' into computer animation. There is more involved here than just technique."

