

# Industry, Laughter, & Magical Times

In conversation with model shop alumni of the most special of effects companies in the galaxy:  
Industrial Light & Magic

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**I**ndustrial Light & Magic is only a few years younger than Lucasfilm itself, which

celebrates its 50th anniversary this December. Founded by George Lucas in 1975, ILM has blazed a trail in visual effects thanks to the efforts of the innovative artists and technicians who have enjoyed careers there. *Insider* gathered together nine former employees to reminisce over old times, the culture and perks of working there, and being friends with the late, great Grant Imahara.

**Star Wars Insider: Were you Star Wars fans before working at ILM?**

**Carol Bauman:** *Star Wars* is the reason I became interested in visual effects as a career. I was going to “serious” film school in New York when *Star Wars: The Empire Strikes Back* (1980) came out. While the rest of my classmates were sitting in coffee houses all dressed in black, I was

blowing my limited budget on repeat showings of the film.

**Fon Davis:** When we first started working at ILM, fans of *Star Wars* were kind of frowned upon in that culture. We had this little secret society of people within the model shop and within ILM that were fans.

**Adam Savage:** I found fast friends in you guys really early. We formed a small cadre within ILM that deeply loved the franchise for itself, in addition to professionally.

**Kim Smith:** I know of at least one person that did not get a job in the model shop because they were too much of a fan. I think it probably made them nervous that they wouldn't get any work done.

**John Goodson:** I don't think I ever hid my affection for any of it. I didn't care what other people thought.

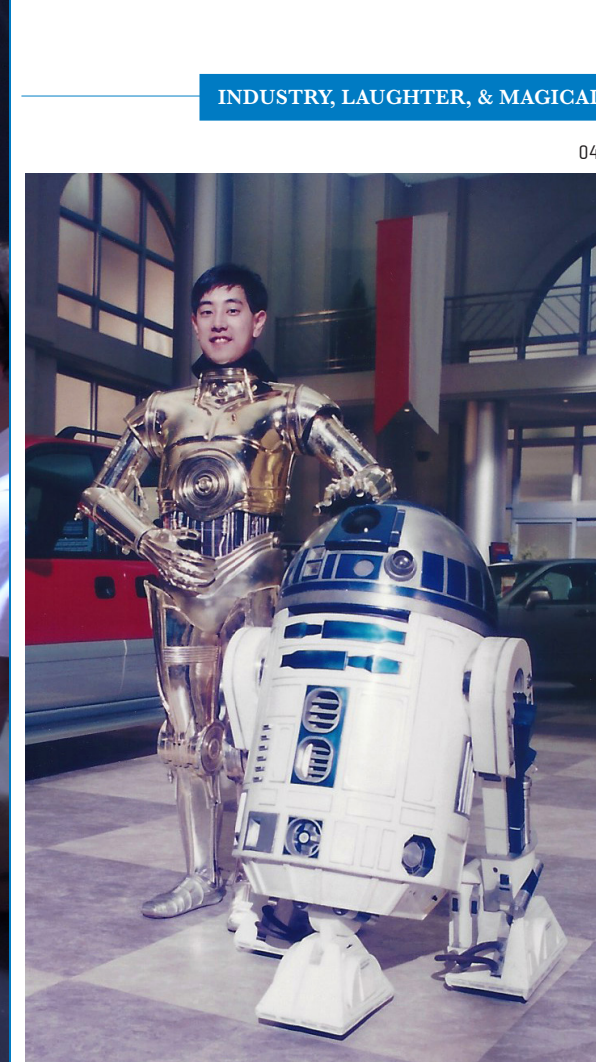
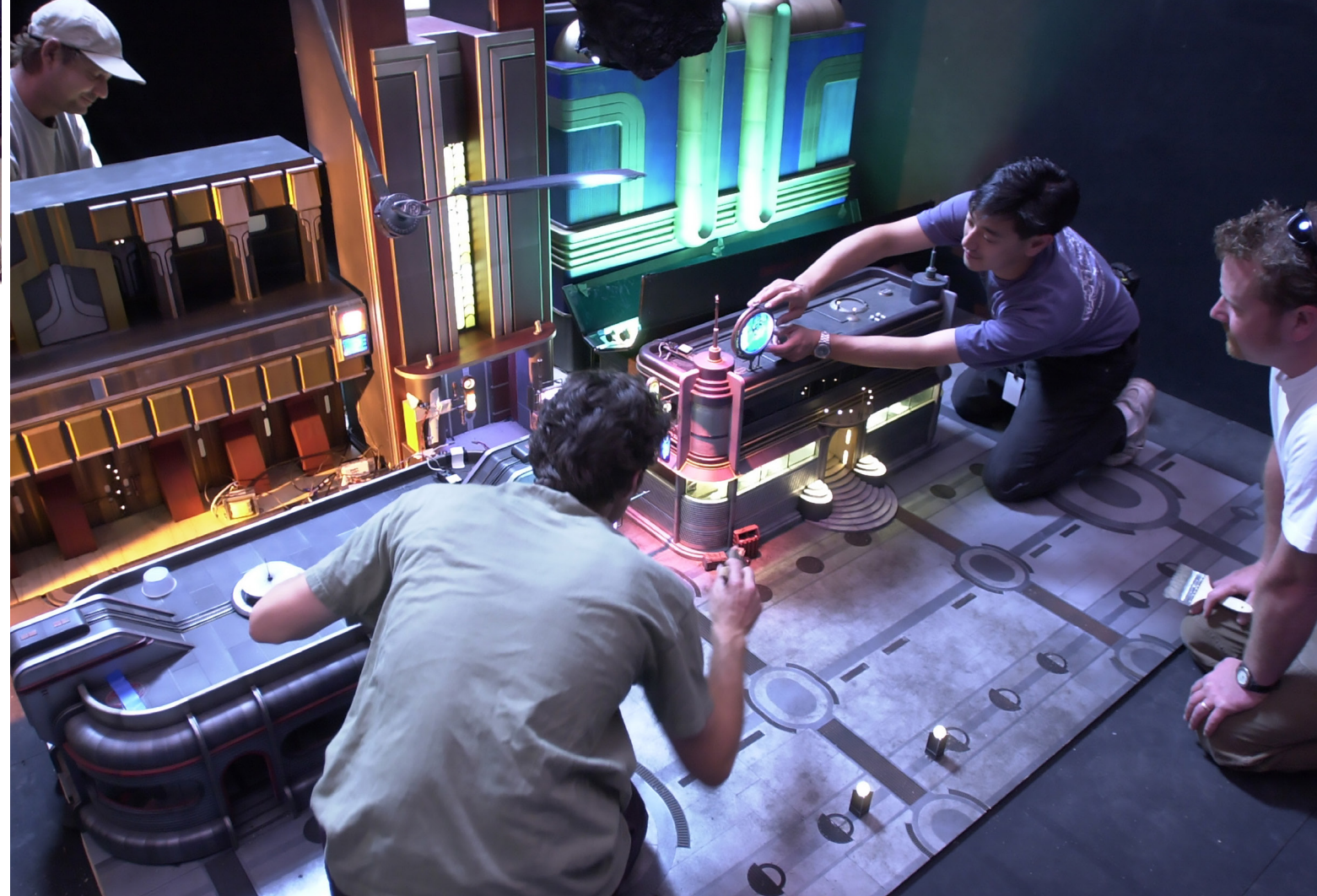
**Don Bies:** We had the R2 Builders Group at ILM, started in 2000.

**AS:** Romeo Delta! The secret R2 group.

**DB:** The idea was we were going to make our own R2-D2 but we couldn't use the molds. We were going to make everything from

01 Don Bies (far left) and members of the model shop crew with the fleet of R2-D2s they built for *Star Wars: Attack of the Clones* (2002).





## REMEMBERING GRANT IMAHARA

What's clear from all the former-ILMers at *Insider's* roundtable chat, each of them had huge respect and affection for their late colleague, Grant Imahara, who sadly passed away at the age of 49 in 2020. Here they share some ILM memories of their friend:

**Fon Davis:** Grant was always first to volunteer to do favors for people, especially if it involved making something cool. Everything I know about electronics I learned from Grant and Jon Foreman. Those guys taught me the proper way to do everything.

**Nelson Hall:** He came to ILM from THX in 1996, and he was a huge success. Everybody loved Grant. He fit right in, and had an incredible work ethic—super productive, and funny and entertaining. We were getting busy, the Special Editions were on deck, and that was it, he was there to stay, at least until *MythBusters* came along.

**Don Bies:** He came back a few times on the breaks from *MythBusters* to help us on a couple of projects when we were really up against the wall. We were devastated when he left ILM.

**Tony Preciado:** When Grant and I started in 1996, we knew *Star Wars* was coming up. We hadn't been put on a show yet, but we were in the building so we knew it could happen. Grant said, "We're going to work on *Star Wars*!" It was at that moment that he and I became friends.

**Adam Savage:** Grant exemplified a really important part of film work, that you have to be super adaptive, you've got to be able to improvise.

▶ scratch. Being model makers, we all made patterns. Adam, I think you were the first one to actually complete your R2.

**AS:** Yeah, between *MythBusters* seasons two and three, I think, way back in 2005.

**DB:** My last interaction with Grant Imahara was when he finished his R2, a few weeks before he passed away, and he sent me a picture. It was somehow appropriate that was our last communication.

Being at the Archives, I basically had the keys to the candy store at Skywalker Ranch. A lot of people would come and want a tour, so we got to know a lot of people. That's where I first met Grant. I found out he was an electrical engineer and thought, "Hey, R2 could always use upgrading." We had twelve R2-D2s in the Archives, but there was only one that was still in good shape, and we would take out for appearances. It had this 1981 technology in it, and I was constantly mending it. In the mid 1990s I asked Grant, "Do you think you can fix this up?" And he did. We hit it off really well, and had a lot of fun, especially those late days and weekends at the Ranch, just laughing and telling stories.

**FD:** Everyone there was a nerd, but to be a fan of *Star Wars* was a different kind of nerd than to be an engineer or a mathematician or a builder. I was a huge fan growing up, but at ILM no one knew that except for a couple of people.

**CB:** When I was applying for work in the industry, I didn't let on what *Star Wars* meant to me. It wasn't until the prequels were in development that it became okay to acknowledge that yes, I'm a *Star Wars* nerd!

**KS:** I think everybody is a nerd now.

02 The ILM Bodyparts Club included staff who had appeared as extras in a *Star Wars* movie.

03 The model shop crew prepare the Dex's Diner miniature.

04 Grant Imahara played C-3PO in an automobile commercial.

05 Don Bies wore the Boba Fett armor for the *Return of the Jedi* Special Edition

### Did any of you get the chance to be extras in the films?

**DB:** We had a yearbook at ILM. In the 1990s they started doing clubs like a high-school yearbook. They had the ILM Body Parts Club, which was all the people who had been a hand or an elbow or something in a film. I think everybody got a chance to be in a film because they needed extras. Sometimes you happened to be standing in the right place at the right time and you could fit in the costume. That's how I got to be Boba Fett.

**Nelson Hall:** I was a human wipe for the *Star Wars: A New Hope* (1977) Special Edition. There was this lift that was picking up R2-D2 and dropping him in the back of the X-wing. A few frames had to be cut to eliminate a line of dialogue, which created an unnatural skip in R2's progress. So, I dressed up in a technician's suit with hoses wrapped over my

shoulder and walked across screen so they could cover that little maneuver with R2 unnoticed.

**DB:** Nelson and I were stormtroopers in the Special Edition shot when Han Solo turns the corner. There were four other people so we're like every sixth stormtrooper. And then we put on Imperial officer costumes and we're like every sixth of those too.

**FD:** In the Special Edition, Tony and I were in the Coruscant celebration scene three times. The camera pans over a huge crowd, but they only had enough extras for a third of it, so we each stood in different places to create a big enough crowd.

**Melanie Walas:** I saw myself on screen! They shot a bunch of people at ILM in costume to be in the background of the podrace scene.

**KS:** The only time I was ever on camera was in a crowd of people in one of the arena scenes in *Star Wars: Attack of the Clones* (2002). ▶







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► I don't think I ever looked for myself. We all got the chance to dress up for that one.

**Tony Preciado:** I got totally done up as a Jedi for the fight in the Geonosis arena. I had that moment where it hit me, "I'm going to be a Jedi Knight in *Star Wars*!" We did several shots, but when they selected the ones they were going to use I don't think I was in view. At least I got to dress up as a Jedi and swing around a lightsaber for a while.

**KS:** John [Goodson] got to stand in for Samuel L. Jackson.

**JG:** I was the right size to fit his costume. It was over the shoulder from behind. I think he's talking to Yoda. I was basically a mannequin.

**AS:** I was going to be Jango Fett's hand for a shot, but just as we were about to film the VFX supervisor asked me to build something that took me away from the soundstage.

**When you weren't building secret R2s, or dressing up to be in background shots, what was it like working at ILM?**

**DB:** The old question of, "How many people worked at ILM? About half."

**KS:** It's the place where you learn teamwork. If you can't be part of a

06 All hands on deck during construction of the *Invisible Hand*'s hangar bay for *Revenge of the Sith* (2005).

07 ILM staffers in *Star Wars* costume.

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08 Adding detail to large miniature sets was a long and laborious process, but it allowed time for the model shop crew to bond.

09 Fon Davis and Tony Preciado were pressed into service as extras in the *Return of the Jedi* Special Edition Coruscant celebration scene.

team in the model shop, you can't be there. We had to be cooperative in every way, including sometimes physically climbing on top of each other to fix something. There would literally be five of us crammed underneath a model, doing something that had to be done.

**TP:** Carol and I did all night shoots together for the arena set for *Attack of the Clones*. She made everything easy because she had all the answers.

**CB:** I hadn't really worked with you that much before. We tried to make it as fun as it could be. It was a good group of people.

**TP:** No complaints from me. I couldn't believe that I was one of the stage-support people on one of the coolest *Star Wars* sets you could

## INDUSTRIAL MAGICIANS

**CAROL BAUMAN**  
Model and creature maker, 1993-2006  
Currently a designer at TraumaFX Solutions

**DON BIES**  
Puppeteer and model maker, 1987-2004  
R2-D2 operator and head of the prequel's Droid Department, archivist, and personal appearance coordinator at Lucasfilm

**FON DAVIS**  
Model maker, 1996-2006  
Creative director of Fonco Studios, which recently made models for *The Mandalorian* (2019-present)

**JOHN GOODSON**  
Model maker and digital artist, 1988-2019  
ILM contractor making practical models, including the *Razor Crest* and the Imperial light cruiser for *The Mandalorian*

**NELSON HALL**  
Model maker and model shop assistant manager, 1988-2006  
Archivist and personal appearance coordinator at Lucasfilm



# THE MODERN MODEL



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Despite the rise of computer-generated effects, there's still a place for physical models in the *Star Wars* galaxy. *Insider* asked Roger Guyett, VFX supervisor on *Star Wars: The Rise of Skywalker* (2019), and ILM executive creative director John Knoll how they incorporate the old methods into modern movies.

*Star Wars Insider*: The sequel trilogy and *The Mandalorian* (2019-present) made use of practical effects and models alongside modern techniques like 3D printing. How does the legacy of ILM's previous work help in achieving shots such as the sandcrawler in *Star Wars: The Rise of Skywalker* (2019)?

Roger Guyett: We wanted to incorporate some practical effects within the movie to bookend all the incredible VFX work that the *Star Wars* franchise has created. When we decided to use a practical model of the sandcrawler we were very inspired by the original movies and wanted to

10 Visual effects supervisor John Knoll (left) and modelmaker John Goodson (right).

11 Filming the sandcrawler miniature built for *The Rise of Skywalker* (2019).

12 ILM's physical model of the *Razor Crest*.

pay homage to *Star Wars: A New Hope* (1977). In fact, the miniature model of the sandcrawler we built was based on the original plans from that movie. Although using practical miniature effects is not a common approach in today's VFX movies, the quality of that technique can still be very high if you design the shots correctly. We are always striving for the best possible result, regardless of technique.

John Knoll: Practical effects and miniatures are in our DNA, so that experience absolutely influences how we look at things, regardless of the technique ultimately employed. A good example of this is the digital kitbash library we built on *Rogue One: A Star Wars Story* (2016). We scanned hundreds of parts from vintage plastic model kits—the same ones that were used to detail miniatures on the original trilogy. We then built CG models of these parts and had them available for our modelers when they were building ships. This allowed our digital modelers to work in much the same way as our physical counterparts did back in the day.

When shooting motion control shots of the *Razor Crest*, did modern tools make the task any easier?

JK: I used to shoot miniatures with motion control cameras, so it is a method I know well. We weren't shy about using newer technology where it made more sense, though. I shot with a digital still camera because the quality was better than film and I could see the results immediately. When we were shooting the reveal shot of the light cruiser, I would shoot a test, load it up on a high-resolution monitor, and then John Goodson and I would study it to make a list of areas that could benefit from extra detailing. John would work on those areas of the model, and then I'd repeat the process until we were both happy.

How fluid is the line between practical and digital models in today's effects world, where both techniques might be used in conjunction?

RG: Extremely fluid! The digital tools give you great opportunities to not only deal with both practical and digital elements but also blur the line between them. For example, match-moving and scanning tools allow you to accurately create representations of any real practical element. Those elements can be augmented or accounted for in a digital scene so, for example, you could cast a shadow from a real object onto a digital object.

JK: We originally built the *Razor Crest* miniature at Jon Favreau's request since he felt something didn't look exactly right with our CG model. After we had built the miniature and shot a number of elements, we reworked the CG model to better match things we really liked about the miniature photography. In that way, the miniature improved the CG even though it appeared in a limited number of shots.

It's not inexpensive to build and shoot a miniature, but sometimes it's worth it. When Jon Favreau wants a miniature in the show, we're happy to oblige!

## INDUSTRY, LAUGHTER, & MAGICAL TIMES



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► sat under there for a week, wiring lights and getting to know each other. We have been friends ever since.

**KS:** The glue that holds together the members of the model shop, and the greater ILM diaspora, is unchanging. We are always there for each other—for births, disasters, weddings, funerals, fires—whatever happens.

**FD:** My experience at ILM really shaped everything about the culture that we try to foster at Fonco Studios. Grant and I wanted to recreate everything we thought was special about ILM.

**DB:** I feel so lucky to have been involved in some of the stuff that we worked on.

### What are some of your fondest memories from your time at ILM?

**CB:** Grant and I traveled the world with the Energizer bunny. He was the main electrical guy on that. We went together to these exotic locales and had a lot of fun doing it.

**NH:** Don and I traveled domestically and abroad to support exhibitions, and Don, Grant, and I traveled to locations around the world



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13 Nelson Hall worked on the maquette of Joh Yowza, the singer added to Max Rebo's band for the *Return of the Jedi* Special Edition.

14 Grant Imahara (far left) and Fon Davis (far right) as Yin and Yang at an ILM costume party.

for *Star Wars* character appearances and commercials.

**DB:** ILM always had a Halloween party and they started out casual. People would dress up, there was a lot of creativity there. Some would get elaborate.

**NH:** I had come up with the idea of the Main Street Electrical Parade from Disneyland. I approached Grant about it. He wired it all, we used the same kind of batteries we used for R2-D2. Grant was Pete's Dragon, I was riding in the train. We won second prize.

**AS:** Always the bridesmaid.

**TP:** We started a superhero party where superheroes and supervillains alike could attend. As long as you were at the party, a truce was called. And if anyone demonstrated their superpower, they would win a trophy. It was a lot of fun.

**FD:** The night before one of the parties, Grant and I were working late at ILM, as we often did. I said, "Maybe we should do something together. Why don't we go as Yin and Yang?" We laser cut a shield that was a yin and yang symbol and each of us had one half of it with a handle on the back. The costumes weren't that extravagant but because of the theatrics of it, we did actually win that year.

**MW:** I was always jealous of Grant, because I would spend all this time on my costumes and inevitably he would win.

**AS:** I felt like a full-grown adult when I was working at ILM, and I now look back and I'm like, "I was so not an adult."

**NH:** We worked with you Adam, we can vouch for the fact that you were not an adult. 🐼

## INDUSTRIAL MAGICIANS

**GRANT IMAHARA**  
Model maker, 1992-2005  
Former co-host of *MythBusters* and *White Rabbit Project*. Consulted with Walt Disney Imagineering, and had a workshop at Fonco Studios

**TONY PRECIADO**  
Model maker, 1996-2003  
Currently fabrication manager at Laika working on stop-motion animated features

**ADAM SAVAGE**  
Model maker, 1998-2003  
Former co-host of *MythBusters*, host of *Tested*, and creative director of SiliCon

**KIM SMITH**  
Model maker and digital artist, 1988-2007  
Worked at Tippet Studios, now retired

**MELANIE WALAS**  
Model shop and digital painter, 1996-2018  
Still working as a painter in the industry