

Daniel Lay, VFX artist

Daniel Lay worked as a VFX artist for more than a decade, specializing in hair simulation on films like *Tron: Legacy* (2010) and *X-Men: First Class* (2011). Lay is best known for starting the blog VFX Soldier, where for years he anonymously discussed the problematic working conditions in the industry. Besides describing his work, Lay offers in-depth criticism of production subsidies and offers proposals for changing the ways the industry operates.

How did you get started in the VFX industry?

My first job was as a technical assistant with Sony Imageworks, which is one of the biggest shops in the VFX industry. I worked from four in the afternoon to two in the morning for about two years straight, watching renders from various artists. Eventually I got to know a lot of people and got to work on a little film called *I Am Legend* (2007), which became a huge success. That boosted my career to move on to places like DreamWorks Animation, where I worked on *Monsters vs. Aliens* (2009) and *Shrek Forever After* (2010), which my mother calls the second-worst *Shrek* she ever watched. And then I moved to Digital Domain, where I specialized in hair and cloth for a lot of characters. I was kind of the hair guru there. I was part of a team of software engineers working on proprietary tools. You can see some of that work on *Tron: Legacy* and *G.I. Joe: The Rise of Cobra* (2009). I had some pretty good jobs, but a lot of my friends got the short end of the stick, which is what compelled me to begin blogging about problems in the industry.

Walk us through a typical workday.

On a film like *Tron: Legacy*, for example, I would come in early in the morning at Digital Domain for dailies and team meet-ups. I would get a list of shots that they would want completed that week or even that day. My goal would be to pick which shots I thought I could finish as soon as possible and try to get director comments and also supervisor comments. There is usually a chain of supervisors, producers, and directors who are all going to have some input. And a lot of them I never met or even saw. I usually just got a list of notes and spent my day working through the list. There'd also be a bit of triage where I would be working between departments, so that could affect my schedule. There is a pipeline of people who put this work together, so I try to get those assets and finish them off so I can pass them on to the next department.

A typical day involves a lot of meetings and then the grind of trying to complete the work, which can be technically difficult. Things can change quickly, too. You might be thinking, oh, I'll be able to get out at around seven or eight in the evening, but then there's this last-minute note or this last-minute shot that they want you to complete. All of a sudden you're pulling an all-nighter. That happens quite often.

How many shots are artists responsible for at one time?

It depends on the complexity, but generally speaking, I can say I've had situations where I run from between five to ten shots in a given week. On *Tron*, where I was responsible for a lot of the hair animation for the characters, I might get a lot of shots that are, "Well, this character is way in the background and only needs a little bit of movement." That shot will run quickly, so I put it together and run it and try to get it rendered. While it's rendering, I'll work on another shot that I think will be technically difficult because it involves a lot of hand animation or a lot of changes in the room.

When does the workday typically start?

Typically, they like people to get in around nine in the morning, or half past. If you have a pretty good day, you're out by seven. But if it's going to be a crazy production, you can see yourself going until nine or ten.

You mentioned that you were lucky to work at fairly good shops throughout your career.

I had niche expertise, the hair expert, which is a unique skill set. That allowed me a bit of leverage to push back on some of the typical problems that a lot of artists

run into, such as unpaid overtime or really late hours. The supervisors didn't want to burn me out. Whereas if you're a traditional compositor, you're just given shots to grind away on, and then after the production they let you go. So you might work for a few weeks and then you're trying to find your next job. I was usually a staff employee. While I write about labor problems in the industry, I am talking about the problems for the vast majority of visual effects workers.

Tell us briefly about your skill set. What made your work so distinctive and valued?

When I was at the University of California, San Diego, I was studying visual arts, but I saw that there was a technical aspect that was going to be needed in the future, so I started studying computer science and learned to work with code and solve some of the technical problems. I'm a bit of a software engineer and an artist. That was how I ended up doing hair.

When you're watching a shot, nobody notices hair. An animator or lighter manipulates the total look of what you see in the shot and is responsible for every element. I was involved in just this one little element, so it didn't have a lot of cachet, but it helped me find a lot of work, and that's what made me say that I was a lucky guy. When I first started at Sony Pictures Imageworks, there was a huge need for hair and cloth artists for films like *Beowulf* (2007) and *I Am Legend*, and they just couldn't find the people. So I was able to move up very quickly.

How do visual effects artists get associated with a specific technique like hair or cloth?

The biggest mistake anybody can make coming out of school is to say, "I am going to be an expert on just this one thing." Usually what you do is start off very broad. I tell a lot of young artists that they should work on commercials where you have to run the whole gauntlet. You have to do animation. You have to do lighting. You have to touch every little element. It's so fast. Once you gain that expertise and you move on to bigger and bigger projects, they are looking for people who specialize in things, and that's when you get your foot in the door. They can't find the expert, but they see that you've touched on this aspect before, and they'll give you a few shots to test you out. If you're okay, you get your first feature film credit and it goes on your demo reel and then you are considered an expert. It's not something that you go to school for.

Let's talk about the artistic dimension of your career. Of all the films you've worked on, do you have a favorite?

Some of the best work I've done was on *Tron: Legacy*. As you know, it starred Jeff Bridges, who was in his early sixties at the time, and they wanted a young version of him, called Clu, to be the villain. It was very important that we had a real, life-size actor,

which meant that we replaced basically everything from the neck up with CG effects. Digital Domain did work on *The Curious Case of Benjamin Button* (2008), where they took Brad Pitt and made him look like a very old person. With *Tron* we had to make Jeff Bridges into a very young person. We actually developed our own set of tools with a huge software development team. We had a whole team of people working on just his head: software developers, shader writers [VFX artists who create shading and texture], and others, figuring out how to get the light working with the hair correctly. Some of the shots are just a few seconds long, but I would work a good month or two on them. Multiple iterations. A lot of craftsmanship. A lot of technical work that needs to be done by a lot of very talented people. If you don't notice our work, we did our job.

Some of these shots go through dozens and dozens of versions. Why? Who in their right mind would order so many changes?

It may sound expensive, but it's not. At least it's not for the studio, because they don't have to pay for the changes. It's a fixed bid. They don't have to worry about change orders. To make an analogy, when UC Santa Barbara needed to build the Pollock Theater, they probably went to a contractor and asked, how much is it going to cost for this building? The contractor made blueprints and they all agreed on the design, the textures, the wood, everything, before they got started. If any of the elements are changed during construction, there's a change order. Maybe you want to make it two stories instead of one. Well, that wasn't in the contract or the blueprint. We have to agree on how much it will cost to change the design and the contract.

In the visual effects industry, it's different. "Make me a tiger." Okay, well, is there a blueprint for what kind of tiger you want? What stripes does it have? How long is its hair? Its teeth? How does it move? Those are all moving and changing parts, and there is no blueprint.

With the fixed bidding system you have a studio saying, make me a tiger. Digital Domain says it can make it for \$12 million. Rhythm & Hues says it will do it for \$10 million. Oh, wait, there's a company in the UK, Double Negative, that says it can make the tiger for \$12 million, but the bid comes with a 25 percent government rebate for the producers. That means the studio can get it for \$9 million. So the studio says, let's do the work in London. You have a lot of these subsidies, which are a great deal for the studios, but the VFX shops are all working from a fixed bid that they make on a project with a very vague blueprint.

The studio is saying, make me a tiger for this amount of money. It's almost like you're jumping in a taxi and saying, take me down to the Santa Barbara airport, but along the way you get to change directions. Can we drive along the coast? Go down by the zoo? Will you wait here while I take a walk on the wharf? But you're not going to change the price at all. It's still going to be \$10. That's a key reason why the visual effects industry has suffered, because of these fixed bids.

You mentioned subsidies, which brings us to the issue of globalization. Besides subsidies, what are some of the other issues raised by globalization?

Five or six years ago the *Huffington Post* did an article saying that VFX work is being sent to places like India because computers have made it so easy to ship this kind of work around the world. I checked around the industry and what I found was that the simple work, what we call rotoscoping and paint, was mostly being sent to India, but it gets very complicated once you move above that level to simulation effects like hair or character animation. A lot of that wasn't being sent to India. The reason why is because it's hard to produce high-quality elements in the low-cost labor regions. They've been trying and they've been improving, but it hasn't come through.

That's when I started the VFX Soldier blog, saying the work was actually going to very expensive places: the UK, Canada, Australia, and New Zealand. I was getting offers to go to New Zealand and I would say, why is the work going there, where it's more expensive? The reason why is because the government there was offering a huge kickback to the producers. So let's say I'm a producer with a project that would cost \$10 million to do here in Los Angeles, but the government in British Columbia says it will give me a rebate of 60 percent on each person's salary. I will essentially get a \$6 million rebate if I spend \$10 million doing the work in Vancouver. And before you even get that check, you can use the rebate as collateral to go to a bank in Canada for financing on your film. That's liquid cash.

What made you decide to start VFX Soldier?

Even though things were comfortable for me, a long-term gig in this industry isn't actually so long. I had the luxury of working three years at Sony Pictures Imageworks, three years at DreamWorks Animation, and three years at Digital Domain, and I only got laid off once. Yet even in my situation, the future was always a question mark. And for a lot of compositors and a lot of animators it's much worse. They have to find new work every few months or so.

On top of that, the competition between VFX companies is so fierce that they keep going bankrupt and people lose their jobs. Why is it that these blockbuster films like *Avatar* (2009) are making so much money, yet the people who create the visual effects, which are considered to be the big stars of these films, are not only not getting their fair share, but actually being treated quite poorly relative to movie actors or directors or anybody else in the industry?

A lot of people started saying computerization was the culprit because now all the work can be done in India. I started my blog—as a soldier in the trenches—to say, that is not what's really happening. The big threat to the industry is

not cheap labor in Asia, but actually subsidized labor that is creating a cycle of displacement. I predicted that, even if you were a really good artist, you wouldn't be able to escape the effects of government subsidies. When I look back at the predictions I made in 2010, most of them turned out to be true. You can see it in some of the hacked Sony documents that verify a lot of things I was saying about the industry.

Describe some of the smoking guns in the Sony documents that confirmed your suspicions and predictions.

When I was writing in 2010, I would point to documents from people in the financial industry that would say, "Look, there is going to be a 10 to 15 percent rise in labor rates in places like India and the quality isn't going to rise as fast." And I predicted that we would not be in India for very much longer.

The Sony hack documents revealed many of the executives talking about closing Sony Pictures Imageworks India, a division they opened in 2006. The Sony hacks were pointing out that there was a 10 to 15 percent rise in labor rates every year, so it wasn't cheap anymore to do work there. The quality of the work they could get in places like Canada was better and more cost effective because the government was paying 60 percent of the salaries for people working in the visual effects industry.

But there are a lot of other examples, too. For example, the documents show wage rates that make it possible for workers to know where they stand when they negotiate with an employer.

Are you saying that other than internal studio documents, there was no reliable information about wage rates?

That's correct. There's a company called Croner that does a lot of wage surveys. They go to companies individually and say, "Would you like to participate in our wage survey? We won't reveal the individual wages that each company pays, but we will give you this study that shows baseline wages and best-in-class wages." So, they collect information from the executive level all the way down to the low-level, beginning technical director level. It can be a very useful tool for human resources managers to figure out compensation packages for employees. But then the unions wanted to get involved and asked to buy that information too, so they could adequately negotiate rates for our workers. I believe that Croner said no. I think they were worried that if they got the unions involved, all of their other customers would not want to participate. It's not in their interest to share any of that information with workers. This is some of the information we found in the Sony documents.

Why was VFX Soldier anonymous?

It was actually much more innocent than it seemed. A lot of people thought it was anonymous because there was somebody nefarious behind the blog trying to go after certain companies or something like that. That wasn't the case. I wanted to give the idea that this was somebody in the trenches, and that this wasn't about me. I didn't want my position in the industry or how things were going for me to dictate what I was writing about on the blog. But my anonymity also was an effective tool. It caused certain companies to wonder, "Hm, is VFX Soldier working at my company? If so, I should be careful about what I'm doing and saying, because I don't want it to end up on this blog."

The blog provided a cover for me and others to blow the whistle. The comments section became a place to share information. It gave people a place to let others know what was happening in their shop. People in the industry would rather come to my blog than go to their supervisors or human resources director. That's kind of sad. People trusted somebody who was anonymous talking about the problems in the industry more than the people they worked with daily.

So partly it's an issue of trust, but it also seems like many people fear retribution. Is there a culture of fear in the VFX business?

Obviously when people talk about unionization, some people respond skeptically in part because artists tend to be individualistic and competitive. There is also concern that there might be some nefarious issue or event that could work against their personal interest. And there is a culture of intimidation in the industry. It is similar to football where there is this jock-like mentality: some people openly boast about how many hours they work or the fact that they are willing to move overseas or sacrifice anything for these projects. Anyone who doesn't think that way isn't considered part of the team. There's an attempt to marginalize people who think rationally about work in this industry.

So that's one kind of fear. Another has to do with subsidies. In places like Vancouver or New Zealand, people are threatened by any attempt to shed light on how subsidy programs work. They know they're not sustainable, but they know in the short term, they benefit. So they try to instill fear that getting rid of subsidies will destroy their industry or that it will lead to all the work going back to California. There is a lot of fearmongering, and that has led to a huge amount of distrust in the industry, which makes it hard to solve the problems that would be relatively easy to manage if people came together.

You mentioned a football mentality. Do you think it's useful to compare what's going on with VFX to the controversy over concussions in the football industry? It took so

long for the NFL to acknowledge the problem even though everybody knew about it. And now everybody acknowledges the problem, but they don't know what to do about it, because it's so bred into the institution itself.

Absolutely. I am a former football player. I remember wearing T-shirts that said "Pain is temporary, pride is forever," and that is true of visual effects. A lot of people are too proud of what they do, and it's treated as the gospel: You have to work on *Star Wars*. You should not doubt anything about the movie *Star Wars*. You're working on the visual effects, and it's a privilege to be here. You just have to accept things. You should be very proud to work in this industry.

When you make it seem like it's a privilege, any concern about pain or unpaid overtime or anything like that gets swept under the rug. In football it's very much the same. If you're an NFL player, it's a privilege. I know people who made it into the NFL, and the reality is that your average NFL football player only plays for three years, and you don't get the pension unless you're in there for five years. For those players who fall in that donut hole, which is many of them, they don't have very good careers, and many of them have lifelong debilitating injuries. Of course, the amount of money being paid in the NFL is much larger than in VFX. And it's not the same; I mean, obviously we're talking about physical injuries in the NFL. But in the visual effects industry, there are similar situations regarding the way workers are treated and the problems they go through.

So what are the possible solutions? What is ADAPT's approach to these issues? [ADAPT, or the Association of Digital Artists, Professionals, and Technicians, filed a lawsuit to levy a financial penalty against studios that benefit from production subsidies. Daniel Lay and Scott Ross dissolved the entity and dropped the case in January 2015 due to burdensome legal expenses.]

Subsidies are a huge problem, causing a lot of price distortion in the industry. That's the reason a lot of companies went out of business here in California. Do any of you have Nike shoes on right now? They're probably made in Vietnam, where the government offers big subsidies. New Balance, which is based in the United States, makes shoes here, and they are being injured by those subsidies. What did they do to alleviate that injury? They went to a federal court in New York that allows for countervailing duties to be placed on subsidized goods coming from overseas. They invoked anti-subsidy laws that effectively negate the effect of those government subsidies.

The visual effects industries could do something similar. If \$10 million of visual effects work earns a \$6 million subsidy in British Columbia, the US government could levy a \$6 million duty on the imported work, essentially negating the subsidy. So it disciplines the system. There's a process to do that, but it has never been

done before for electronic media like ours. I flew out to Washington, DC, about two years ago and met with a law firm. We formed ADAPT, and we're looking to challenge these international subsidies for visual effects in the court of international trade.

Let's say you are successful, and countervailing duties are applied on these subsidized productions. What's to stop North Carolina from coming up with its own subsidies?

Great question. I get that asked a lot. Our countervailing duty effort only affects international subsidies. So let's say that North Carolina says, well, we want to get those visual effects workers here, we're going to offer that same 60 percent rebate. Our proposed law wouldn't apply. But what have we seen with the state subsidies in Florida and New Mexico? They are incredibly volatile and they mostly focus on principal photography, which only lasts a couple of months. Even in states that have subsidies, there are still a lot of debates. *House of Cards* (2013–ongoing) was lured into shooting in Maryland because of huge rebates there, but now they are threatening to move somewhere else because the state government is putting a cap on the program or somebody else is offering more. A lot of states are questioning whether or not they should continue. It has become volatile for the producers. Their job is to manage risk. So it's great to go to a place like New Mexico or Louisiana for principal photography, but effects are different.

For the visual effects industry, projects usually last one to two years and you need to move a huge number of people around. So you need the backing of a national government in order to maintain the effectiveness of the subsidy, because otherwise it could get capped or removed while you're in the middle of a project. I should add, there is not much [feature film] visual effects work in US locations outside of California. Some, but not much—not as substantial as the UK, British Columbia, or New Zealand. And the reason why is because of this volatility. If you move your production there, you may get a subsidy one time, but then after that you're going to have to move again.

What about the flip side of the argument? Looking at it from the perspective of New Zealand or the UK, what's wrong with subsidizing work that will help to build their capacity in creative industries?

I think it's great for the short term. A lot of the international readers of *VFX Soldier* say, you know what, I love these subsidies. I get to live in the UK. I get to live in New Zealand. But what they soon find is that, oh, somebody else is offering more money. Even though producers may be getting subsidies in New Zealand, they'll say, either you increase them or we're going to make your workers move somewhere else. So effects workers are affected by what I call a cycle of displacement in the industry. Even

if you play this game—let's say you move to British Columbia, you move your family there—and you think it's great, but then suddenly Montreal is matching the BC subsidy and on top of that they offer a 25 percent subsidy on nonlabor costs. Now they are actually losing a lot of work in Vancouver and the jobs are shifting to Montreal. And that's the key here: we're not against subsidies. If you have, let's say, a farm industry in your country and you want to subsidize your own farming industry, that's fine. It's the causing of injuries to other industries in other countries that is the issue.

The irony with VFX subsidies is, if you're in the UK and you think you're building your own industry there, you're not. You're actually just trying to get US studios to do the work there, and they will probably leave the minute those subsidies are gone. They leave the minute you offer one penny less. So you're not building a sustainable industry. Look at places that have built their industry. In India, for example, they are doing visual effects for their own films in India. And they haven't done it with subsidies. They've been able to do it with just the content that they create there.

You're saying that imported VFX shots are content, but the studios are saying that they are buying services that are conveyed electronically, not content. On the other hand, they want copyright protection for their films and television shows that are recorded and distributed electronically.

This is one of the big issues. Countervailing duties can only be placed on goods, not services. And the argument is, well, electronic signals coming through the Internet are not goods because they're not tangible. I can't drop one on your foot and send you to the hospital. A few weeks ago I got a phone call from the law firm saying, hey, guess what? There was an obscure patent infringement case concerning 3D models of dental braces that were being created in Pakistan and sent here via the Internet. The judge wanted to know, Are these data? Are they goods? And does this court have jurisdiction over that? If it is a good, they do. If not, they don't. Well, the judge asked for public consultation. Who shows up? The Motion Picture Association of America. And they argued that encoded data are goods. Why did they say that? Because they want to protect their line on piracy of digitally encoded versions of films and television shows. So, interestingly, we may be able to use the most powerful tool the MPAA has created, their antipiracy laws, to end their subsidies. It's ironic. It's sort of a storybook ending. We may be able to use Sauron's most powerful weapon against him.

Where do things currently stand with the subsidy issue?

It used to be that the vast majority of US states were offering huge film subsidies. They are starting to scale those back significantly. Louisiana offers huge subsidies

for the film industry, and they are taking a look at it because of the amount of the debt their government is accumulating. Even in Canada, we've had two provinces—Quebec and Ontario—announce already this year that they are going to cut back their subsidies. There are smaller provinces that have virtually ended them. There is a big debate right now in Nova Scotia about ending the film subsidy there because it just costs too much. A while back, I think Saskatchewan ended their film subsidies when they realized that one side is making a commitment for long term—the government wants to have the studios there for life—but the studios are in it strictly for money, if they get a better deal elsewhere, they're gone. It's like a bad marriage.

Governments are rethinking this stuff. Nevada is a good example. They offered film subsidies for movies like *Paul Blart: Mall Cop 2* (2015). Then they started talking to Elon Musk of Tesla and realized, "We can offer the same amount of subsidies to Tesla and they will build a factory where they would have to stay." So they decided to cut the film subsidies and used some of that money for Tesla. On the other hand, the big boys—New Zealand, the UK, Vancouver, British Columbia—have been trying to increase their subsidies. It's going to get interesting as we go forward: as things start changing, as deficits get larger, at some point governments are going to have to say, "We can't keep cutting teacher pay and health care while giving \$300 or \$400 million to a film industry that doesn't make any commitment to us."

What happened to the countervailing duty suit?

The law firm we were going through was in Washington, DC, and they were doing great work. We talked to folks at the Department of Commerce, and they were receptive. This was going to be about a one- to two-year process. The next step was to get funding to pay the law firm to do the work. We tried approaching the California State Legislature for funding, because this past year they passed a \$300 million subsidy bill to try to lure some of the industry back. I testified in numerous meetings, saying, "You can take a fraction of that amount and pay for our legal effort and you could end the game completely." They gave us verbal support but said they would not be able to give us financial support. Given how small the industry is, and given the amount of money that we needed, and the fact that a lot of people were unemployed, there simply wasn't the funding there. So we knew where we wanted to go, we had the vehicle to drive there, and we needed people to pitch in for gas money, but unfortunately, we just didn't get enough gas in the tank.

If you had won, it seems that the implications would have been enormous.

If you look at the Sony hack documents, there were emails between the head legal honcho at Sony, the MPAA, the Sony executives, and the executives at other stu-

dios. At the end of one of the emails an attorney says, frankly, the VFX guys did a good job turning this one around on us. They were concerned. They were in a real bind. I was already being invited by MPAA officials to Paramount studios to initiate some talks. They were concerned about what we were doing with the California subsidy bill AB 1839. They were concerned about us already getting wording in there that was supportive of our effort. They were afraid that if this were to snowball, we would have had a chance to negotiate something with them.

How much would it have taken to keep going forward?

At the end of the day, we were looking at something that was going to cost \$1 million over two years. This is the first time I'm revealing this publicly. You're talking about a top-notch law firm working about two years to solve this problem, but unfortunately, we couldn't make it there.

Isn't there a deep-pocketed angry angel out there?

Fund-raising is very difficult. I have learned such incredible lessons about non-profit fund-raising. You have to be an expert to do it, and the amount of money that you get at the end of the day is often very little. You also have to remember that for me there were personal costs. I was doing this pro bono. I was flying to places like Washington, DC, New York, San Francisco, and Vancouver to lobby for this. Scott Ross and I talked about it, and we talked about it with the ADAPT team, and we said, look, the personal costs are going to be too high for us to get to the finish line. It's unfortunate. I wish we could have done it.