Jake Loniak

Customer Success Story

Autodesk® Alias® Automotive

With Alias software, it's really easy to do many different design iterations quickly, while staying true to the technical components. It helps me put together a design that fits a technical package in about a day.

—Jake Loniak
Student at Art Center College of Design

Suiting Up for the Fast Lane.

College junior designs wearable motorcycle using Autodesk Alias software.

Image courtesy of Jake Loniak.

Project Summary

A student at Art Center College of Design in Pasadena, California, Jake Loniak's life has been anything but ordinary. He's worked as a Marine Corps aviation electrician, a power company technician, and a machinist for the small business he founded with his brother. When Jake qualified for a government grant to go to college, he immediately shifted gears to follow his passion: designing vehicles. In his junior year, Jake took Bumsuk Lim's motorcycle-design class and fulfilled his childhood dream of creating an entirely new kind of cycle. Using Autodesk® Alias® software, part of the Autodesk® solution for Digital Prototyping, Jake was able to:

- Create an innovative wearable motorcycle the rider straps on
- Fit his design into a realistic technical package
- Showcase his design talent to industry professionals and future employers
- Earn high praise from *Popular Science* magazine and industry insiders

The Challenge

To jumpstart his career as a designer, Jake took night classes at Art Center College of Design. Eager to go to the college full-time, he petitioned the government to give him a grant that would fund his four-year degree. Jake's perseverance paid off. With the promise of funding, Jake spent the next few years fine-tuning his draftsmanship and understanding of the design process so that he could gain entry to the highly competitive school.

"I worked really hard to improve my portfolio and skills," Jake says. "I had to convince the department chairs I'd be good for the school—it wasn't easy." The school's bet on Jake was a good one. "I made the dean's list and impressed a lot of people," continues Jake. "I was exactly where I belonged."

When Art Center changed its curriculum to better prepare students for the work world, Jake got his chance to really flex his designing muscles. Instructor Bumsuk Lim offered a motorcycle-design class, the first of its kind at the college, and tasked students with creating an innovative cycle design.

The Solution

Jake sketched three different concepts oriented around a singular goal. "I set out to create a new riding experience—I call it diving acceleration," he says. "I knew I wanted the motorcycle to shift positions according to speed and the rider's position to be under-slung. I also knew the vehicle would be electric."

Autodesk®

Alias software helps create a motorcycle *Popular Science* calls "one of the most innovative concept vehicles we've seen in ages."

Using Autodesk Alias software helped Jake flesh out his designs. "I turned to Autodesk when it was time to decide exactly what technology I'd use," he explains. "I built a 3D model around different technical components, such as batteries and the electrical motor."

The design's turning point came when Jake decided to use pneumatic muscles made by Festo to steer the bike. "Once I started packaging the Festo system, which is based on the human muscular-skeletal system, my design crystallized," says Jake. "I sketched over a few of those muscles, my accumulator, air compressor, and batteries. When I brought the concept to class, everyone agreed: this was it."

Fast Design Iterations

Now settled on a wearable motorcycle concept that he called Deus Ex Machina, Jake set out to refine his design. He played with sculpting forms around his technical components using the software's flexible modeling tools, and used the advanced surfacing tools to quickly iterate realistic-looking surfaces.

"A flashy sketch is nice, but if one can't understand a surface or transition, it's worthless," Jake says. "With Alias, it's really easy to do many different design iterations quickly, while staying true to the technical components. It helps me put together a design that fits a technical package in about a day."

Jake points to the ability to customize his menus as a huge time saver. "When your tools are scattered, you waste a lot of time looking for what you need," explains Jake. "With Alias, I take my marking menu, drop in the tools that I'm using, and then they're right there when I need them."

Realistic Visualizations

Achieving the right look for Deus Ex Machina was paramount. "I wanted this to be a lifestyle vehicle that Oakley, Motorola, Ducati, and Puma could co-brand," Jake notes. "Just as you wear Ducati leathers away from your bike, I wanted the wearable aspects of the Deus Ex Machina to extend beyond the vehicle. It needed a spectacular, appealing aesthetic."

Using Autodesk Alias software helped Jake clearly visualize his designs, so he'd know whether he was achieving the right look. "I like the hardware shader, lighting, and cinematic effects," Jake explains. "I can easily build an environment to render my design in context, which helps me see where I should make design adjustments."

The Result

The Deus Ex Machina proved to be an incredibly innovative design. When parked, the bike would stand upright, allowing the rider to step in and strap it on like a full-body suit. Thirty-six pneumatic muscles would take commands from the rider's body movements to steer the vehicle. Powered by lithium-ion batteries and ultracapacitors, the bike is theoretically capable of 75 mph. In the words of *Popular Science*, "It's one of the most innovative concept vehicles we've seen in ages."

Not only did Jake's design grab the attention of media, it also garnered interest from transportation industry people, catapulting his prospects post-graduation. "Typically, a student project is seen by a dozen people," he says. "I had a chance to show Deus Ex Machina to Syd Mead, of *Blade Runner* fame, and David Robb, the design boss for BMW's motorcycle business. I never imagined getting this kind of exposure."

When asked about the role of Autodesk Alias software in his success, Jake says, "Alias software provides remarkable surfacing tools. If you want really nice surfaces, make them in Autodesk Alias software."

Image courtesy of Jake Loniak.

Even while he's finishing school, Jake is already experiencing career benefits. He's designing a motorcycle for an Indian company and an electrical bicycle with a company in California. Even so, Jake hasn't abandoned his primary goal. "I've gotten such great opportunity, so many doors have opened," he says. "But I'm working first on getting my degree—that's my main goal right now."

Learn More

To learn about creating innovative designs, visit **www.autodesk.com/alias**

Image courtesy of Jake Loniak.

> Alias software provides remarkable surfacing tools. If you really want nice surfaces, make them with Autodesk Alias software.
>
> —Jake Loniak
> Student at Art Center College of Design

Autodesk®