

AUTODESK: THE SECRET STAR BEHIND OSCAR-WINNING VISUAL EFFECTS

BY E.B. BOYD



No matter which film walks away with the Oscar for Best Visual Effects on Sunday, one organization that has previously made *Fast Company's* Most Innovative Companies list will be a clear winner: Autodesk. Every single movie nominated this year—from *Alice in Wonderland* to *Harry Potter and the Deathly Hallows, Part 1*, *Herafter* to *Inception* to *Iron Man 2*—used its software to craft some portion of their effects.

And while Autodesk is best known for its architecture tools, less well known is its Media & Entertainment line of products, which are used to create effects in films, television, and video games. The tools are so well highly valued within the industry that they have been part of the toolbox used to construct scenes in every single film that has won Best Visual Effects at the Academy Awards in the last 15 years.

Autodesk's MotionBuilder, for example, was central to last year's *Avatar*. The tool was able to instantly transform the motion data it was capturing into an image of what the characters and scene would look like in the final film. So while Sam Worthington and Zoe Saldana romped around the set in black suits and funny-looking headgear (see video, below), director James Cameron could watch a monitor where blue Na'vi characters were performing the scene against the Pandora landscape. That meant he could see the movie—in real-time—essentially as it was going to appear in its final form, and make any adjustments right there and then.

Autodesk's Maya was used to map Brad Pitt's performance onto the older version of himself in 2008's *The Curious Case of Benjamin Button*. MudBox, which was originally created by New Zealand's Skymatter and later acquired by Autodesk, was used to sculpt the ape in 2005's *King Kong*. And Maya was used as far back as 1997, in *Titanic*, to place virtual characters on top of the doomed ship as it sailed out of harbor. That film also used Inferno, a compositing software that allowed the filmmakers, for example, to add smoke to the Titanic's smokestack and have it track tightly with the ship's movement.

Much of the core competency Autodesk brings to the table lies in developing complicated mathematical models of how objects look and behave in the real world, then baking that into the software, so that artists and designers can essentially push a button to run an algorithm and have the result applied to the element on screen—a much more sophisticated version of what happens when you apply an effect to an image in photo editing software.

"Our job," Jos Stam, senior research scientist at Autodesk and inventor of Maya Fluid Effects, tells *Fast Company*, "is to hide all the math."

But he's humble about the tools' ultimate contribution to what viewers see at the movies.

"We create these tools," he says, "and I'm always amazed by what the artists can do with them. It's like creating brushes and then seeing a Rembrandt. You can improve the brushes, but it still takes an artist to really create amazing effects."

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E.B. BOYD

E.B. Boyd (@ebboyd) has holed up in conference rooms with pioneers in Silicon Valley and hunkered down in bunkers with soldiers in Afghanistan.
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MICHAEL SOILEAU > **E.B. BOYD** 5 YEARS AGO

Houdini is pretty awesome, unfortunately, they shot themselves in the foot making it so difficult for students to use it. They give you a crappy student PLE version, Autodesk gives students a three-year full-featured license, just no use of these products on commercial projects.

Autodesk wins by default though because of the great training series developed about it. Cinema 4D pretty much has one shop, (cineversity), but great

companies like Digital Tutors, Lynda, CG Institute, and more have detailed training on most of Autodesk's products. Gnomon comes the closest to providing all around training, but that's because they're awesome.

I agree with integrating Maya and 3DS, they are essentially the same products, but Softimage is a separate and distinct thing. Integrating that would create a bloated interface, and anyone who has used Maya/3ds notices it's a little hefty around the belly. I haven't yet used Modo or Nuke for 3d projects, sadly, not able to find good training on it like I can with Autodesk. Those companies need to get their trainers out to Lynda, VTC, and other "enthusiast/professional" web sites that like that provide training in broad skills. Specialist schools like Gnomon/Digital Tutors are great, but they are converting the already converted.



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MATT WILSTEIN > **E.B. BOYD** 5 YEARS AGO

The Oscars got auto-tuned last night, and it was awesome:
<http://gtcha.me/efeCyj>



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SERIOUSLY > **E.B. BOYD** 5 YEARS AGO

Seriously?

Autodesk acquires companies. They buy them. Then they let them DIE. They do not innovate. They consummate. They cannibalize. They don't even hybridize.

They own Softimage, Maya, & 3D Studio Max; they haven't merged the three into one super-program. Instead they continue to herd the market into little

fragmented localized havens.

Innovative? Not if you actually think of innovation in terms of its actual definition.

Then you would have to look towards SideFX Houdini, with its amazing procedural approach to everything, or Luxology Modo, with its total re-jiggering of the modular approach to 3D interfaces and its desire to bring 3D into the cloud with real-time rendering; or even The Foundry with its fearless deconstructionist evolution of all things CG and VFX.

And the innumerable Oscar's go to.....the artists continually utilizing workarounds. They are the true innovators.



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