

Autodesk Games Insight

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Image courtesy of Mixamo

Mixamo combines cutting-edge research and Autodesk games technology to help accelerate the character animation process

Mixamo is an online animation service that helps users to create production-quality 3D character animations on the web, that are customized and retargeted to their own characters. The Mixamo website (www.mixamo.com) offers a large collection of motion models, which can be customized for many game studio needs using an intuitive interface powered by advanced technology underneath.

“Mixamo is geared toward game studios who face project constraints, whether that’s related to reduced budget or production cycle deadlines,” says Jon Burns, Product Marketing Manager for Mixamo. “The coolest thing we offer is the initial baseline lifting for game artists, which frees them up to focus on the creative aspect of their character animation. It fits quite well with iPhone and other mobile/handheld game developers who don’t have much time, yet want high quality productions.”

The underlying technology of Mixamo stems from 4 years of research by Stefano Corazza, CTO, at the Stanford Biomotion Lab. His research was focused on two concepts: markerless motion capture and generative models. Using generative models helps give Mixamo users the ability to customize motions into hundreds

of thousands of unique combinations using intuitive sliders. Mixamo also uses markerless motion capture technology which enables difficult motion captures, such as quadruped animals, which will be rolled out on the service soon.

To implement Mixamo, the team relied on several key Autodesk technologies. Autodesk® MotionBuilder® software is used extensively for the motion capture of the clips, Autodesk® HumanIK® animation middleware is integrated into the website service to provide real-time IK adjustments and Autodesk® FBX® was chosen as the format to manage and move data.

“Our mocap pipeline relies heavily on MotionBuilder — which we love,” states Stefano. “It’s very important that what we see on the web is the same as what we see in MotionBuilder. That’s why we use HumanIK. The huge advantage of HumanIK is that it’s extremely fast and optimized from a code perspective. We’re running everything in real-time.”

“Other services have approaches where you tweak a model or animation, and it takes several seconds or minutes to update the result. Mixamo animation customization is all real-time. We needed something that responds very quickly, which HumanIK provides. Since we’re using FBX and the fact that HumanIK, MotionBuilder and FBX are integrated, there was added value in using all three technologies collectively.”

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— Stefano Corazza
Chief Technology Officer
Mixamo

Why did such a capable team decide to integrate HumanIK instead of writing their own animation middleware? “From the moment we got HumanIK to the moment we were first able to run it on our pipeline was approximately one week. This is very fast in terms of integration. The product is very modular and can be plugged easily into existing pipelines.”

“If you were to write your own IK system, you would develop for 6 months to 1 year and wouldn’t really be sure if it met the quality bar until that initial, heavy investment,” continues Stefano. “This is a huge unknown especially for a start up. It was a risk management decision. Because HumanIK is integrated into MotionBuilder, we were able to test it before buying the middleware. We knew that HumanIK would deliver the same thing. This was a good way of testing the product before we integrated it.”

Mixamo demonstrates the merging of several impressive technologies: generative models and markerless motion capture with Autodesk HumanIK, MotionBuilder and FBX. This combination improves the 3D character animation process, helping to reduce production times and boost the creative output of 3D game artists and design professionals.

For more information on Autodesk games software and middleware please visit www.autodesk.com/games.

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