Ubisoft Montreal
(www.ubi.com)
Montreal, Canada

Autodesk® 3ds Max®
Autodesk® MotionBuilder®
Autodesk® HumanIK®

Renaissance assassin.

Ubisoft Montreal uses Autodesk® 3D pipeline to revisit, revitalize, and reinvent a blockbuster with *Assassin's Creed II*.

Autodesk 3ds Max is at the core of all our content creation. All the characters, all the meshes were created with the software. We also filter all of our motion capture data used for cut and fighting scenes through Autodesk MotionBuilder. That is a lot of data, and MotionBuilder handled it all.

—James Therien
Lead Programmer
Ubisoft Montreal

***Assassin's Creed II*. Image courtesy of Ubisoft.**

Summary

Way back in 2007, Ubisoft Montreal's third-person action-adventure game *Assassin's Creed* vanquished its competition in a manner worthy of its titular hero. Set in both the not-too-distant future of 2012 and the distant past of 1191, the game was an instant success with players and reviewers alike, going on to win a variety of prestigious awards, selling more than 8 million copies, and leaving gamers wanting more.

Ubisoft has used Autodesk® software products in its game pipeline for many years, and *Assassin's Creed II* continues that tradition. The powerful combination of Autodesk® 3ds Max® and Autodesk® MotionBuilder® software, together with Autodesk® HumanIK® animation middleware, helped the company create yet another game for the ages.

The Challenge

The primary challenge to any sequel is to improve on the original while staying true to its spirit. Thanks to a clever backstory taking place in 2012, both *Assassin's Creed* games remain firmly in the future while telling an ancient story.

In the original version, 2012 bartender (and player-controlled protagonist) Desmond Miles is kidnapped by a pharmaceutical company to test a new machine capable of reading his "genetic memories" and then placing Desmond himself to simulate the experiences of his ancestors. As a result, Desmond (and the game player) finds himself in the role of Altaïr ibn La-Ahad, an assassin in the year 1191.

For its part, *Assassin's Creed II* sees Desmond (still in 2012) escaping the pharmaceutical company, only to enter a more powerful version of the original machine and reliving the genetic memories of Ezio Auditore da Firenze, another assassin, but this time wreaking his vengeance during the Renaissance.

"From the start, we were trying to redefine and improve on the first *Assassin's Creed*," says James Therien, lead programmer at Ubisoft Montreal. "Even with such a hugely popular game, we wanted to ensure that this version would be a much more interesting and diverse game to play. We wanted better characters, better acting, and a better script, along with the muscular game play and acrobatic fights that players of the first version would be expecting."

***Assassin's Creed II*. Image courtesy of Ubisoft.**

The Solution

"One of the most important aspects in our vision of *Assassin's Creed II* was a more realistic hero," says Therien. "Through the course of the experience, there is a great deal of acrobatic climbing, together with fighting, flying, interaction with crowds, and more. For the climbing, Autodesk HumanIK middleware was a huge help. It enabled us to create new and better moves through a faster iterative process. With Autodesk HumanIK, we never worried about the quality of the inverse kinematics solving. When a problem with jittering occurred, we could have wasted a lot of time attempting to optimize our compression methods for our basic animation, but by trusting in a stable, high-quality package like HumanIK, we never even have to think about the quality of the results. We simply know that the quality and performance will be there."

To develop an even richer, more immersive experience, the Ubisoft team also significantly enhanced the role of nonplayer characters (NPCs) in *Assassin's Creed II*.

"In the first version, the NPCs were limited to chase scenarios," says Therien. "In the new version, they are right there in your face, which requires more precise animation. HumanIK was invaluable in removing excess jiggle from the NPC arms, ensuring the feet are planted correctly, and that kind of thing. The result was a huge improvement in our cut scenes. We were able to compress much more animation and still deliver great quality."

The Game

Since the release of *Assassin's Creed II*, it seems that the Ubisoft Montreal programming team has accomplished its formidable task. The sequel has been uniformly praised by reviewers while selling 1.6 million copies the first week it was released. To date, that number has topped 8 million.

For Therien and Ubisoft Montreal, using Autodesk software has consistently helped them to raise their own expectations and the game experiences they create. "Autodesk 3ds Max is at the core of all our content creation. All the characters, all the meshes were created with the software. We also filter all of our motion capture data used for cut and fighting scenes through Autodesk MotionBuilder. That is a lot of data, and MotionBuilder handled it all."

To learn more about Autodesk 3ds Max and Autodesk MotionBuilder software, visit **www.autodesk.com/3dsmax** and **www.autodesk.com/motionbuilder**.

For more information about Autodesk HumanIK animation middleware, visit **www.autodesk.com/humanik**.

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