New system makes 3-D animation easy

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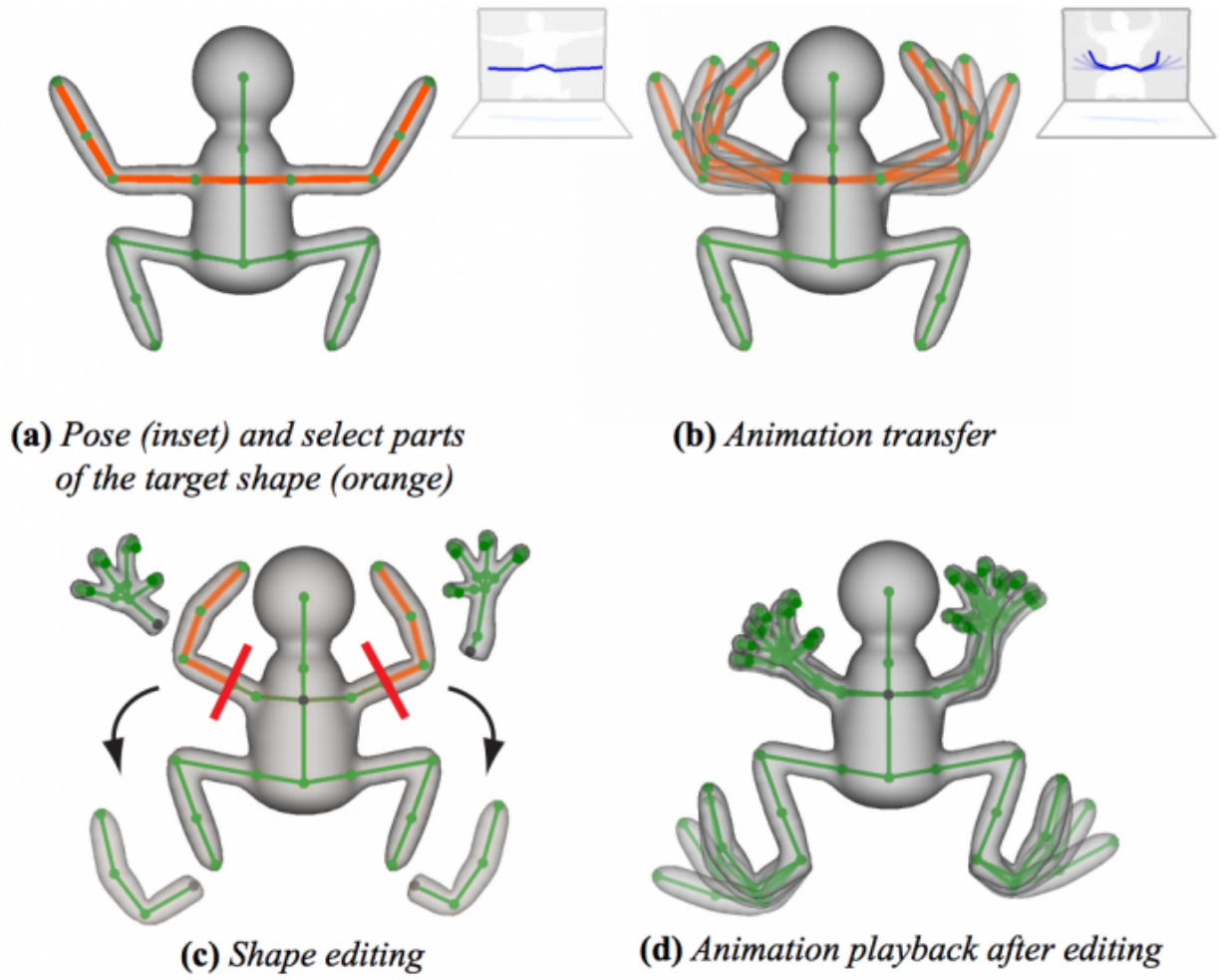

(a) *Pose (inset) and select parts of the target shape (orange)*

(b) *Animation transfer*

(c) *Shape editing*

(d) *Animation playback after editing*

Andy Nealen, an assistant professor of game engineering, computer

graphics, and perceptual science at the NYU Polytechnic School of Engineering, has created a system that makes it possible for even beginners to create sophisticated and complex 3D animation. AniMesh, as he and his fellow researchers are calling the system, supports interleaved modeling and animation creation and editing and is particularly suitable for rapid prototyping.

The character animation pipeline in use by video game designers and makers of films typically requires the creation of detailed 3D characters, high quality rigs—skeletal bones and skin weights binding the surface to them—and lively motion sequences. Each stage in the lengthy process is time-consuming and requires task-specific proficiency, making the process largely inaccessible to novices. Furthermore, the process is completely linear, meaning that a model cannot be edited once it has been rigged and animated, impeding iterative design.

AniMesh, by contrast, unifies modeling and animation. Surfaces can be refined, sculpted, or assembled; skeleton and skin weights can be re-designed and re-painted as often as desired; and animations can be quickly prototyped and verified.

"I like to describe AniMesh as a form of Legos for animators, because it allows for building elaborate 'structures' with only the most rudimentary skills needed," Nealen says. "Another analogy that could be made is that this could one day do for animation what Photoshop has done for the art of photography, democratizing the process."

Provided by New York University

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