

# THE ROLE OF MOTION CAPTURE IN EDUCATION IS CHANGING FAST

HOW UNIVERSITIES ARE EVOLVING THEIR MOTION CAPTURE OFFERS TO KEEP PACE WITH THE TECHNOLOGY



*Nick Juschyshyn, Program Director of VR & Immersive Media, Drexel University, USA*



*Alex Counsell, Faculty Technical Adviser for the School of Creative Technologies at the University of Portsmouth, UK*



*Carlos Vilchis, Lecturer of Animation & PhD Student, Tecnológico de Monterrey, Mexico*

As cost and technical barriers of entry to the world of motion capture come down, universities are adapting fast to keep up with both the proliferation and diversification of commercial motion capture applications. Vicon gathered together a panel of leading motion capture educators to discuss how the field is changing and where it might be heading.

“There’s a democratization going on with the technologies,” says Nick Juschyshyn, Program Director of VR & Immersive Media, Drexel University, USA, summing up the overall arc of commercial motion capture as it relates to education.

“Today, there are tools that will just use a single video camera to shoot a video and a machine learning system processes it and produces a moving joint system. It’s not as accurate as a full-blown, studio-grade optical system, but you’ve got an FBX file that you can start animating with. Then, all of a sudden that leap to a full-blown optical system isn’t that big of a step,” says Juschyshyn.

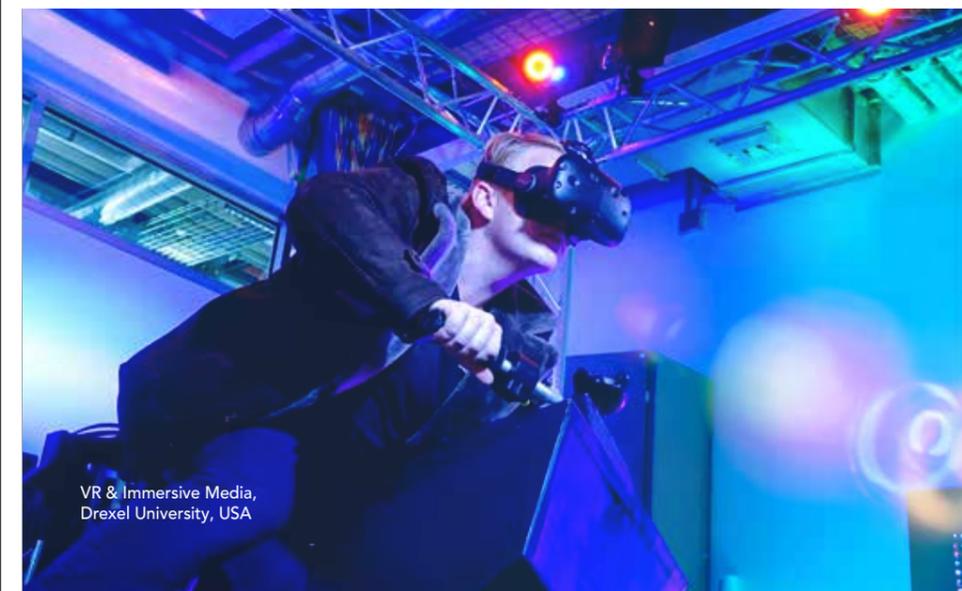
“It’s a great thing, because it just widens the scope of what we can do with motion capture in education,” adds Alex Counsell, Faculty Technical Adviser for the School of Creative Technologies at the University of Portsmouth in the UK.

“We talk about democratization because it’s so much easier now to get amazing results instantly,” he goes on. “Our

volume has become a much more collaborative space through the years. There are more and more people coming in and more and more people trying new things. People are attracted towards it rather than scared of it because it’s not so deeply technical anymore.”

That growing interest is being reflected at an institutional level, according to Carlos Vilchis, Lecturer of Animation & PhD Student at Tecnológico de Monterrey, Mexico. “Universities have started to see that motion capture is more than just making small characters move. It’s amazing the interest we’re seeing now that programs like media want it for virtual production or for digital humans.”

Vilchis, Counsell and Juschyshyn note that within their universities motion capture is being used in fields ranging from fashion to aerospace to architecture, and the jobs available after graduation are in sectors that are just as diverse.



*VR & Immersive Media, Drexel University, USA*



School of Creative Technologies University of Portsmouth, UK



Jesse Woodward,  
Lecturer of Animation  
for the Design  
Department,  
University of  
Wisconsin-Stout, USA

### CHANGING COURSES

To cater to these new fields, universities are increasingly offering courses that break out of the VFX and videogame design silos.

"Where Drexel traditionally had a game design program and we've had an animation program or visual effects program, we saw an opportunity to create a new offer," Juschyshyn says. "VR and Immersive Media pulls in components of all of those disciplines and brings them together. It's virtual production, motion capture, virtual reality, augmented reality, full dome projection and projection walls, all of that working together."

Counsell says that in the UK, where getting a course accredited can be a long process, having degrees that feature a variety of different digital production techniques is useful. "It allows us to be reactive and agile within the course, rather than having to establish a new program and get it accredited," he says.

"That's one thing we've definitely been doing over the last few years - these open-ended modules and programs that allow experimentation. They allow the music students to talk with the students doing mocap, for example, and this collaborative work becomes easier and builds skillsets."

"I'm struggling to try to keep up with the amount of demand that there is for these kinds of skills, this real mix and match of all these skills that bring different elements together," Counsell adds.

### BEYOND THE TECHNICAL

The increasing accessibility of motion capture hasn't only changed the applications teachers are covering. It has also changed the skills they are teaching. As the tools have become simpler to use, educators are able to shift focus beyond the more technical aspects of tracking.

Juschyshyn agrees. "There are always problems to be solved, even though

the front-end user interface has been optimized and it's easier to get through a calibration process. Well, that gives you more time for motion capture, and it gives you more time for creativity and experimentation. When that experiment didn't turn out the way you thought it would, you wonder why. You dig in under the hood - what's the calculation going on there? Is there a way that we could make a Python script to automate something and make this a little bit more efficient, more repeatable, etc.? So there's always more to be done."

Jesse Woodward, Lecturer of Animation at the University of Wisconsin-Stout, USA, gives an example. "A couple of weeks ago we did a motion capture shoot for our animation production class. In one of their shots, the main character is walking on a tightrope. And I said, if you try to do standard walking, foot after foot on a flat surface, it's not going to look the same. So we decided to get a

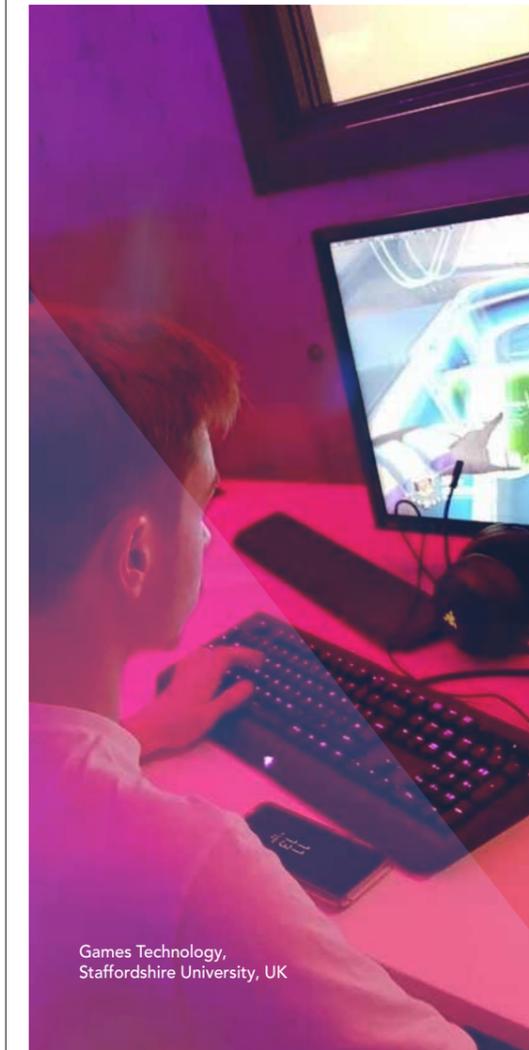
standard two by four, put it on the ground and have them stand on it, because that's a much better feeling. It looked a lot more genuine. Creative problem solving can be something as simple as just putting a board down for a prop."

### SOFT SKILLS

One element of motion capture work that's getting more teaching time now is soft skills. Part of that, Woodward adds, is teamwork. "Whoever is going to be in the suit, whoever's working with props and whatnot, the first and most important thing is to make sure that they feel comfortable in what they're doing, and feel comfortable in the suit, and making sure that it's a good experience for them."

*For more insights into the present and future of motion capture in education, see the full panel discussion on Vicon's YouTube channel.*

" Teaching is creativity and problem-solving rather than showing students really mundane, repetitive processes that will drive them mad."



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