

Could Hollywood technology help your health?

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CAMERA aims to develop technology that captures information from every pixel, without the need for markers or special suits. Credit: Nic Delves-Broughton, University of Bath

The same technology used by the entertainment industry to animate

characters such as Gollum in The Lord of The Rings films, will be used to help train elite athletes, for medical diagnosis and even to help improve prosthetic limb development, in a new research centre at the University of Bath launched today (Friday 20 May).

Motion capture technology was first developed by the biomechanics field to help train [elite athletes](#) by studying their gait and movement and was later applied by the [entertainment industry](#) to make computer animation in films and games more realistic.

The new £5 million [Centre for the Analysis of Motion, Entertainment Research & Applications](#) (CAMERA) now plans to take the technology full circle in applying it to training elite athletes to rehabilitating injured service personnel.

The motion capture techniques currently used by the film and gaming industries to animate non-human characters require actors to wear a special spotted motion capture suit. The movement of the spots on the close-fitting suit are tracked by a series of high resolution cameras as the performer moves, transferring the movement of the actor onto the animation.

Researchers at CAMERA will be working in partnership with top visual effects companies including The Imaginarium and The Foundry to develop the technology so that actors no longer have to wear [motion capture](#) suits.

One project the team is currently working on is software to translate an actor's movement to different physiologies, for example a four-legged animal character.



Researchers have been studying the movements of Maggie the dog to make animal animations look more realistic. Credit: Nic Delves-Broughton, University of Bath

Dr Darren Cosker, Royal Society Industry Fellow from the University's Department of Computer Science, is leading the Centre in collaboration with the University's Department for Health. He commented: "It's very difficult to portray emotion in an animated character in a biomechanically authentic way - currently this is very time-consuming.

"We're aiming to automate the process of animating a non-human creature using input from a human actor.

"But it's not just about making films and computer games more realistic; the same technology can also be used to track and analyse a person's gait. This can be used to enhance the performance of elite athletes and help develop assistive technologies such as designing better fitting prosthetic limbs.

"CAMERA is a really exciting venture as it brings together researchers and industry partners to apply fundamental research to commercial problems, which will in turn throw up new research questions to feed back into our work. This unique approach will speed up the application of research into the marketplace.

"The south west is a growing hub for tech companies at the moment, and we're really excited to be part of this, in offering our facilities commercially as well as our research expertise to explore a diverse range of applications."

The team is collaborating with top visual effects companies including The Imaginarium and The Foundry, and will also work in partnership with BMT Defence Services, British Skeleton, The Ministry of Defence, Bath & North East Somerset Council, the West of England Local Enterprise Partnership and the Bath Innovation Centre to develop the technology alongside a wide range of users, from elite athletes to injured servicemen.

The new facility, funded by the Engineering & Physical Sciences Research Council, will also be used by the Centre for Digital Entertainment (CDE), a doctoral training centre based at the University of Bath in partnership with Bournemouth University.

Provided by University of Bath

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