



## INTERVIEW WITH LIAM KEMP

Liam Kemp is currently working on his personal film “The Normals” and his test clip on YouTube™ of his characters has generated a lot of buzz and views, over 70,258 as of this writing. His characters show an amazing level of detail and skill in rigging, down to great subtle details in the moment of the eye and neck. He has been kind enough to spend some time away from working on his project to talk to me about the rigging process and how he has done all this being self taught at 3d.

*I read that you got your start in CG on a neighbours computer and are self taught, how do you think this has influenced you as an artist and how you approach your work on the computer?*

Being self-taught has meant that I have had to solve all technical and creative problems without assistance or guidance, and so that has been very good exercise for the creative brain. The disadvantage of this is that you can end up doing things the hard way. When I need to find a solution to a particular problem, I like to take the 'scenic route' as opposed to going straight forward to the easiest solution. Working in this manner means that quite often I pick up some interesting things along the way.

*When it comes to character set-up, how did you go about learning the tools and do you enjoy the process?*

Before I begin working a particular area that is new to me, I like to thoroughly read through the user reference of the tools I need to use. I am not in the habit of intuitively clicking buttons here and there and seeing what happens - I like to know *exactly* what each features does before I decide to use them. I do find learning new tools and software more of a strain as I get older, though when a tool/plugin/script comes along where I can see its potential within a project I am working on, the learning process becomes much more fluid.

*The face rig I read was muscle based, how did you go about setting that up?*

The deformation of the face was based upon the behaviour of the associated muscles, though I decided not to build muscles that would drive the skin. I studied all the muscles within the face, along with their behaviour before proceeding with the morph target creation. I wanted to understand which muscles contributed to every facial expression, and once I understood this, I was then able to create all the morph targets based upon single muscle movements.

## Inspired 3D Advanced Rigging and Deformations



*How did you deal with skin slide and other deformation issues to get the realistic feel on the face?*

There were several facial deformations that were a combination of morph targets in different states that were then blended together as the values changed. The eyelids opening and closing, for example, had 4 states - when the eye is looking upward, the skin above the eyelid puffs out, and as the eye rolls down, the skin folds back in on itself, and then when it reaches the lowest point, the lower eyelid begins to deform.

*What was the hardest character problem you feel you solved? How did you approach solving it?*

Of all the aspects of character creation, I would say the facial rig proved to be the most strenuous; the muscle system in particular was the biggest challenge. It took me 8 months of trying different approaches and testing each one thoroughly before settling upon the one I'd like to use.

I tried many, many different methods to achieve the tightening and relaxing of the platysmus tendons in the neck, and because these tendons have to react to the turning of the head, and also because of their varying degrees of tightened and relaxed states, a simple displacement map effect wouldn't suffice.

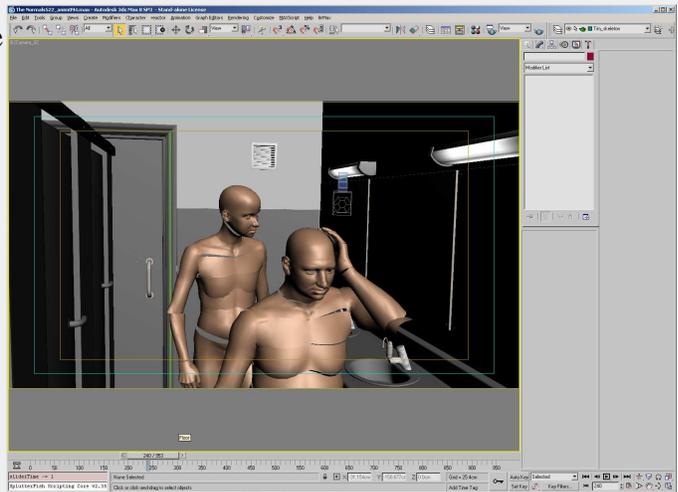
*Often times I find it interesting to talk about the ones that did not work, what other approaches did you try? And when did you know to stop the current rigging method on the face and try a different one?*

The methods for simulating the platysmus tendons that I found unsatisfactory were displacement maps, morph targets and cloth simulation. When I begin to feel uncomfortable with a particular method, that is usually the sign that I should move on to a different solution. The early tests produced good results under limited conditions but couldn't be relied upon to work for all combinations of head movement and facial expressions. The problem that I had to solve was that of keeping the integrity of the contracted tendons as the head moved in all directions, and also as they relax they should come to rest upon the muscles beneath.

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*Can you talk about how being an animator affects the way you rig a character and vice versa, since your the animator on the Normals?*

When rigging the character, the most important consideration for me is that it must fast and easy to manipulate. Secondly, it must give me the freedom to do what I need when it comes to getting the body into all the positions. Finally, the character must be animatable and play back within an acceptable framerate.



*What kind of interface to a character do you find you use for animation like, gui window, and in screen controls?*

For my facial rig, I've created sliders that are positioned in front of the face, with each slider placed near to the area of the face that it's controlling. I prefer to work this way, as my eyes don't have to dart back and forth between interface and animated face.

*How do you manage to keep the number of on screen controls clean and easy to select while still having enough control to animate all the detail your getting on the "Normals" faces? I also like in view controls but find it difficult at times to keep it efficient with a lot of fine detail to animate.*

The controls I have created don't obstruct the view of the face too much, and the selectable area of each slider is a semi-transparent triangle that simply slides along the length of a spline. They are all positioned on one plane and are placed logically in front of the face so it's easy to navigate around all the different controls.

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*What lead me to your work was the deformation test video for your characters in your short film "The Normals, I was very impressed at the level of attention to detail you put in to the faces and the rigging. How much time did you allow yourself for Research and Development on the rigging?*

The whole facial/muscle rig took 8 months to come together. I wanted the whole system to be transferable between characters with minimum fuss, and so I had to bear that in mind throughout the process.

*What steps do you take to deal with the transferring the rig between characters?*

The most important thing to consider when I create the initial generic mesh that will be used as the template for all the other characters is to make sure that the topology will be suitable for all of them. For example, the Reg character is noticeably fatter than Eugene or Keith, and so additional rows of polygons were needed for areas such as the fold of fat under the chin. The same goes for the rig. When building the mesh/rig/facial system I was constantly aware that this procedure has work for several characters.

*Where there times when you were worried that you would not be able to get the results you wanted? How did you overcome this?*

When I approach a problem, I always do it with the belief that I will find the solution, and so I never fear I'll be facing a brick wall. There are, of course, times when it seems like resignation is the only sensible option, but when these moments occur I'll get back to basics and approach the problem from a different angle.

*Having taught myself scripting in Max and a few other scripting systems, I would love to hear how you approached it when it came time to script your face rig.?*

I had no previous experience in coding and so I had no idea if it was something that I could grasp sufficiently to enable me to create simple tools for facial rigging. Like everything else, I started at the beginning and worked my way through the manual slowly in order to comprehend the rudimentary functions of Maxscript. I am still very much a novice in this area, though it is something I would like to develop further in the future.

## Inspired 3D Advanced Rigging and Deformations

*How many custom scripts do you use and how many have you created just for “The Normals”? What are your top 5 max scripts?*

The simple scripts that I have written are for the facial rig only; they control when automated morph targets are introduced when certain conditions are met, their relationship to the sliders, and enable multiple morph target manipulation simultaneously. Also, with the platysmus tendons, each individual 'string' of the tendon tightens independently in relation to which facial muscle is triggering this, and as it tightens, the tension fluctuates creating a fluttering effect. I can't recall any scripts that I have used regularly on The Normals, but there are probably a few that may come in useful from time to time.

*I am even more impressed that your creating this level of work with the core Max tools, and goes to show the point that hard work and attention to details really pays off vs.. thinking that a plugin or script will make the final character be better.*

Yes, I'm a firm believer in squeezing the most of a program before resorting to assistance elsewhere. Max's tools can be incredibly flexible and I often use some of them for things other than what they were intended for.

*Have you been able to say a character is done or do you find it hard to stop “tweaking” a rig/texture/model?*

I do spend an awful lot of time tweaking all aspects of a character, but when I move on to the next stage such as animation, the tweaking stops. I'll only go back if there is something I feel particularly uncomfortable with.

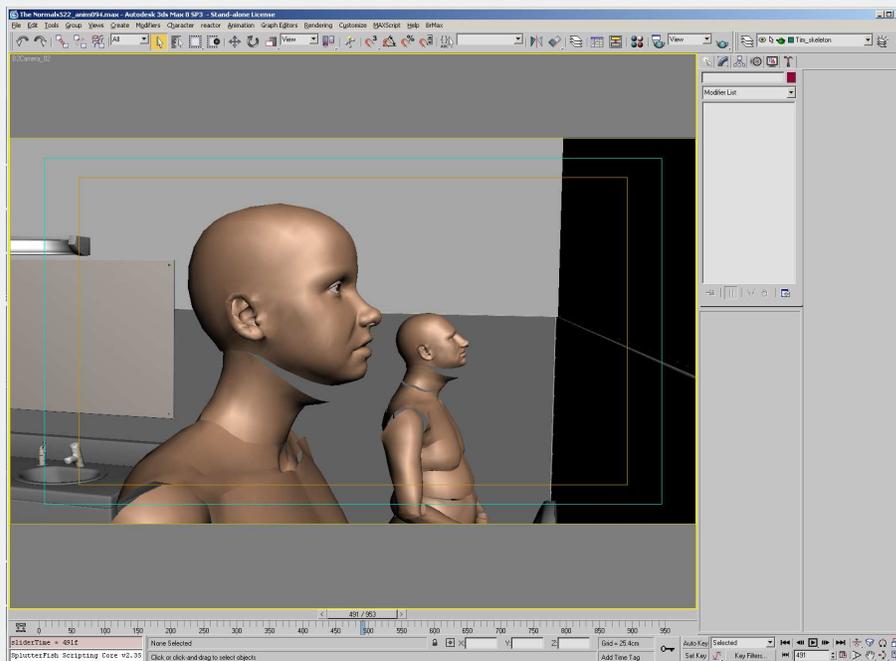
*Once you started animation did you run in to technical issues that you did not anticipate?*

There are constant technical issues that I am forever having to deal with, though because I tested the character rigs thoroughly before I began animating, I have, so far, not come across any issues that have made me have to re-work any aspects of my set-up.

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*Is there one particular area or problem that has come up or keeps coming up and if you can, talk about how you like to trouble shoot them.*

When it comes to animation, the most common problem that I find is the behaviour of the skin when the character moves into positions involving a lot of shoulder/chest deformation. A typical example would be when an arm is moved across the upper body and the fat from the upper arm and chest intersect. I managed to create a kind of collision detection that pushes the skin of the chest away from the upper arm, causing the fat from the chest to bulge as the arm moves across the body.



*What do you still see as major challenges for bringing realistic 3d characters to life if any?*

I think giving a character personality - giving them a brain, is the most challenging, as that isn't measurable in the same way that modelling or texturing is. Eye movement is extremely important, and needs careful study in order for the viewer to believe that the character is actually 'seeing' as opposed to looking..

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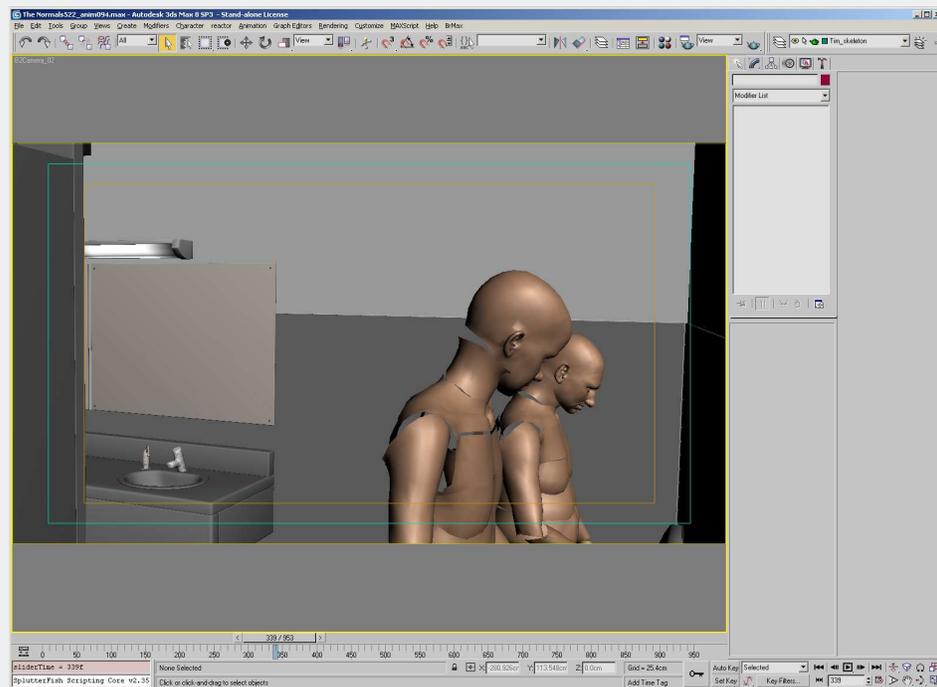
*What kind of reference material are you using to help with the “seeing” issue, that seems to have been a problem on some current realistic characters.?*

Video recording myself is very useful for things like this. I observe things such as how much an eyeball is realistically permitted to move within a frame, how long it might hold before moving away and how 'stepped' the movement is.

*How do you approach learning so many different aspects of production? What areas excite you most?*

I always take one step at a time when working on projects. I'll never go back and forth from modelling, to rigging, to texturing, for example. My order is simple and rigid - modelling, texturing, rigging, animating, dynamics. I get most excitement from problem solving - the facial/muscle rig was particularly challenging, though feeling the character's personalities develop is both very satisfying and fun.

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*Any last tips or advice you can give our readers that want to improve their skills either working at a studio or thinking about taking on a large personal project like you have?*

When undertaking a personal project, the most important thing is to keep focused and don't let yourself be lead towards another project idea that has just popped into your head - keep these new ideas brewing, writing them down as potential future projects. You will encounter many problems that you will have to solve, as creating an animated short involves working in just about every single area of CG, and so they must be tackled in a positive frame of mind, with the constant belief that there is always a solution to be found. Finally, don't give yourself the option of quitting - once you've started, the only way is forward.

Thank you very much for your time and giving us a very insightful interview Liam, we wish you the best of luck on your film and look forward to seeing it completed.