Muqeem Khan, *a Pakistani digital designer and academician, who has worked for Hollywood creations as a visual effects artist, is currently working as assistant professor of graphic and interior design at Virginia Commonwealth University in Qatar (VCUQ).*

Khan received his Master of Arts in Industrial Design in 1996 with specialisation in computer graphics and animation from Advanced Computing Center for Arts and Design (ACCAD) and Department of Industrial, Interior, and Visual Communication at Ohio State University, Columbus, Ohio. He also obtained his Bachelor of Science degree in Industrial Design from the same university in 1994. His research interests include teaching methodologies, collaborative activity across multiple disciplines and computer graphic tools for artists and designers. His motion picture credits, as a visual effects artist with Walt Disney, are Deep Rising, George of the Jungle, Flubber *and* Armageddon.

After Walt Disney Company, he worked for Square USA in Honolulu, Hawaii, for the motion picture Final Fantasy: The Spirits Within, *the first full-length feature with a cast made-up entirely of photo-realistic humans.*

Khan recently gave a presentation entitled 'Thinking with Virtualization' at the Pecha Kucha Night held at the Waqif Art Centre. Speaking to Qatar Tribune's **L N Mallick**, *Khan spoke in detail about his passion for digital designing. Excerpts:*

Interview

What is computer graphics and how has it been used in the realm of design?

Well, any graphics or visual representations created or manipulated by computers are called computer graphics. The history goes back to 1961 when Ivan Sutherland, MIT student created a drawing programme called Sketchpad. There are vector and pixels-based graphic programmes. The easiest way to understand these two types of graphics is to remember that vector graphics cannot represent continuous tone images and is composed of path. Raster formats on the other hand work well for continuous tone images and composed of pixels. I always tell my students to understand that these are just different forms of pencils and pen on your drafting table. It is the user's knowledge and choices to use and when to use either.

What is difference between computer-assisted and computer-generated animations?

Computer-assisted animation is used to help artists in the production of two-dimensional animation with 2D vector and pixel-based applications. Whereas computer generated animation is the process by which the computer generates a realistic three-dimensional imagery under the direction of human-designed database and animation controls. The term animation in an academic and professional environment is quite popular and different too these days.

How did you happen to come into this field?

Basically I studied design, interior design and visual communication design, from Ohio State University. During my first year of undergraduate studies, I realised that design education barely imparts enough practical instruction to keep me up to an ever-widening practice of design that has grown to include digital media as a major component of the design equation. I had a clear picture that computers will no longer be just tools and will become the medium and vehicle of messages very soon. Fortunately, my professors at OSU recognised the rapid technological advancement of computer-related design, and to incorporate these new dimensions into their design curricula.

I realised that my instructors were constantly praising my innovative design projects during my undergraduate years. That gave me an incentive to learn further and made myself a sponge. I would try to learn anything and everything that came my way. With this mentality, I planned my graduate studies in design and started digging into the design thinking and emerging technologies with expert guidance.
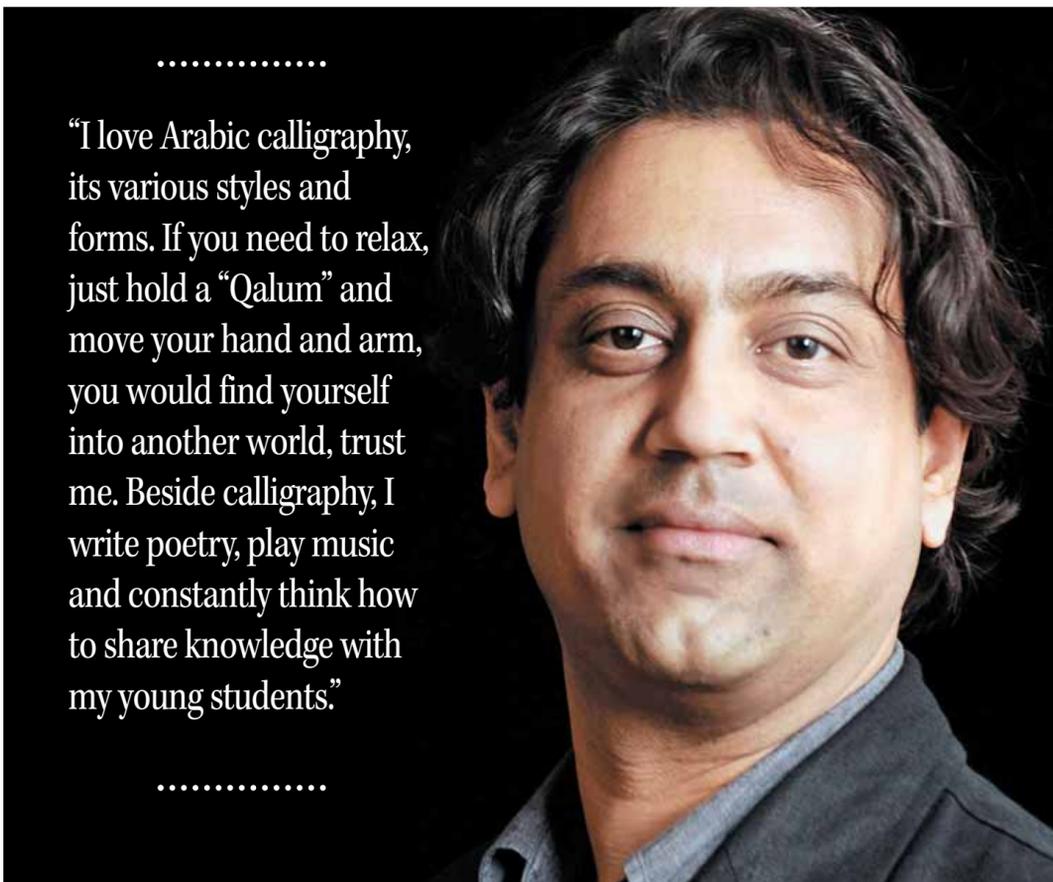
How did you get your break into working in Hollywood blockbusters? What are your future plans?

A company hired me right after my graduation

studies in design and I pursued my Masters alongside the job. During that time I coincidentally ended up giving an interview at Walt Disney. I was lucky to have been hired but luck is a combination of two things: preparation and timing, which I made sure were both right. I got the break and started with the team of *George of the Jungle*. My first shot involved the interaction of the CG character Shep, the elephant that thinks he is a dog, with the ground and the behaviour of particles and debris. Now, we did not have the kind of tools then like we have now. We had to use customised tools or delve into R&D to accomplish our tasks. I remember I'd played around in dust just to observe its behaviour because the representation had to be strong and believable.

I then worked on *Flubber* and *Armageddon*.

ROBIN WILLIAMS
Disney's FLUBBER
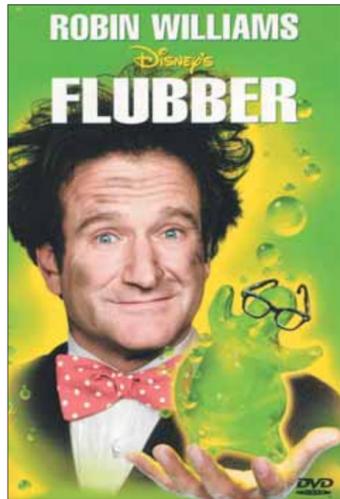
Among the many scenes in *Armageddon*, the scene at the beginning of the movie wherein a space shuttle is destroyed by a meteor shower was completely mine. I then kept working on various teams and movies, both in R&D and production. I then went to Hawaii for the huge setup for *Final Fantasy: The Spirits Within*. For an entire year, we conducted research on the destruction of concrete, explosions and debris, etc. I then worked with that team in an intense collaborative environment for three years. It was just an amazing experience, as we were all one team collaborating under an amazing supervisor.

Currently, I am working as an assistant professor at VCUQ and recently decided to be with them for one more year. It is prudent for me not to say what my future plans are after

June 2010. I do hope that my best is yet to come.

A growing number of people, especially students are interested in learning graphics these days. What do you suggest?

If you really want to make it big into digital design, start by conducting a research regarding this field and related fields. Try and ascertain what it is all about and where it's headed instead of jumping into it blindly. Try asking existing professionals in the field.

Then analyse yourself, understand your attitudes and what you want to do, ask questions such as whether you would be comfortable with extended job hours. Once this is done, issues regarding your future and its direction will be deciphered automatically. You can always see my work and work done by my students on my site www.muqeemkhan.com and gather more information about the field.

Do you think we will be able to attain 100 percent realism with computer graphics one day?

I'm perplexed as to where digital design and technologies will end up, as honestly, I believe this is just the beginning! I do believe that pretty soon, a whole new world of 3D interactivity and holography will come into being. Ten years down the line, you might decorate your living room with virtual objects; computer screens and boxes will give way to holographic fields and objects. You can see and touch your computers today; a time will come when they might be sewn into your clothes; you may get your very own copy of encyclopedia Britannica tattooed on your arm. And it won't take long before the line between fake and real starts blurring and almost total realism is achieved through computer graphics. We will certainly experience other sort of problems and challenges by then. One of them could be a "digital divide" which may segregate a social structure. Fortunately, we have already pointed out some of the things and I am quite optimistic about the future and its direction.

What are your favourite design and animation tools, and why? What tools did you use while working on those Hollywood blockbusters?

The most important tool for me is the brain; followed by hand, pencil, and paper. I do not really have a favourite software tool but I used alias while working for Disney, besides Maya in *Armageddon*. I used Pixar's RenderMan along with Maya for *Final Fantasy*. Again, these are mere tools. I always used to have a sketchpad beside my keyboard when working. I first used to explore and capture the drama, the tension between elements in a scene and the overall harmony in it through paper and pencil. And you don't really need to be an expert sketcher; whatever you sketch should just communicate well with your brain in a bid to clarify the thinking process. You do whatever it takes to complete the project in time with utmost quality. Sometimes, I had to work with core programmers to develop tools for production and at others it was strictly related to design and artistic activity. I think that right after you know that you know then you really do not know. This is the most important thinking one should have in a team environment, including the leader of the team.

Would you like to tell our readers about your other passions? And how do you mange to do several things?

I love Arabic calligraphy, its various styles and forms. If you need to relax, just hold a "Qalum" and move your hand and arm, you would find yourself into another world, trust me. Beside calligraphy, I write poetry, play music and constantly think how to share knowledge with my young students. I think, music, teaching, arts and design, these are all various mediums of expression and I find them rewarding because I can express myself in different manners and moods. Yes, they are indeed all interrelated. How do I manage to do justice to them? I believe "time" is an irrefutable entity in everybody's life; one that's always by your side and yet somehow constantly ahead of you. You can never get hold of it; at best, you can try and minimise the damages. So, I manage my time. I utterly love the morning in Doha city. It's beautiful and if you can catch the morning, you can get a hold of lots of stuff in your life. I make daily plans each morning and then evaluate them at night. I then extend them to weekly and monthly plans. Too mechanical, one might say? It's not if you allow some level of flexibility.

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Blending real with virtual

Disney's GEORGE OF THE JUNGLE