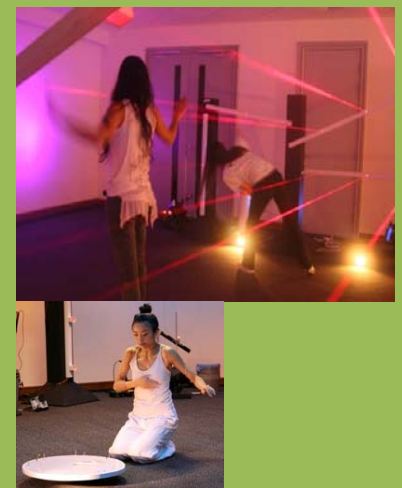


# Engineer, musician, interactive arts designer



*Mr Khoo Eng Tat (3rd from left) with his team members working on Confucius Chat, an interactive media application that helps to bridge generation gaps. Mr Khoo, also uses interactive media technologies to create a new experience for audience, for example, translating body movements into music.*



WHEN Mr Khoo Eng Tat took up Electrical and Computing Engineering for his Bachelor of Engineering degree, he never knew it would open up a world which integrates technology with art and music. For this, he said, he has much to thank his supervisor, Assoc Prof Adrian Cheok, Director, Mixed Reality Lab at NUS.

An engineer, musician and interaction designer, Eng Tat has developed innovative interactive media systems which integrate language, dance forms such as body movements -- and music – on the same platform.

“I have always wondered how a poem would sound, in the form of music. So I have developed a programme which could translate poems into music -- and in real time too. I think music ‘generated’ from poetry will transform the parameters of appreciation for individuals. For example, the music that emerges would depend very much on how a poem is read by individuals as it varies with the cadence and timbre of the voice of the reader,” said Eng Tat who completed his B Eng in 2005 at NUS and is now pursuing his PhD.

He has certainly come a long way from the days when he was first experimenting with mixed reality when he was an undergraduate student at the Faculty of Engineering. Now he is even designing new academic programmes at PSB academy where he is leveraging on his past experience as a PhD student.

“I am appointed by PSB Academy to design a Professional Certificate in Technology Design for Interactive Arts. This programme allows experienced professionals with strong interest for digital technology and interactive arts to gain practical design knowledge and programming skills in the development of social media and games on mobile devices. I am also developing a full diploma programme. As part of the new School of Art and Design, the Diploma in Interactive Design seeks to push the boundaries of conventional multimedia technology and break away from traditional desktop technology design by merging digital and real world design.”

His first art installation made its debut in 2007 at an exhibition by the NUS Museum, where drawings and arts of work “respond” to audience’s reactions. For example, part of a sketch may light up to show more details when people move closer to examine it.



**Age Invaders, an interactive game that brings together children, parents and grandparents.**

offer great opportunity for technology intervention to create new interactive artworks, catering to the audience with advanced digital literacy,” Eng Tat added.

Eng Tat has certainly been very active in this area. He is a founding member and interactive technology consultant of Ingenio Moomba Music Programme, a commercial project to design and develop interactive media for young children to explore and learn music, in a radically new way. He has also been involved in research collaboration with the Design and Performance Lab of Brunel University, UK. Their collaboration work has been performed in various places, including the latest one in Sadler's Wells Theatre, London. In 2009, he founded MiDEA Lab, an inter-disciplinary new media arts research group, supported by NUS Centre for the Arts, where he has managed to get other Engineering students excited in this field.

His involvement with the arts has never stopped. He was already a composer with Rock Publishing, a Taiwan Chinese pop music label, when he was still an undergraduate. When he graduated, he was teaching physical computing for interactive arts degree students at the LaSalle College of the Arts. He was the Artistic Advisor of the 6<sup>th</sup> Asia Europe Art Camp organised by the Asia-Europe Foundation in partnership with International Symposium of Electronic Art (ISEA) 2008. Currently also an Associate Faculty of SIM University and PSB Academy, Eng Tat has wide overseas exposure, including an internship at the NBC Universal Technology Growth Center, Los Angeles in USA.

His passion for the interactive media comes from his love to engage people. Hence his PhD research is in designing novel forms of interactive media to connect family members: grandparents, parents and children, through play. One of his earlier projects, *Age Invaders*, is an interactive electronic game which allows the elderly to play along with their grandchildren -- in physical space – and with parents joining in if they want to, through remote. This very successful project made its debut in Singapore at the Science Centre and GreenField06, a creative community event in 2007. They also took it to Canada and Tokyo where it met with received much media attention.

Concerned about the plight of the elderly – that they seem to be marginalised due to generation gaps and disabilities that come with age – Eng Tat hopes to integrate them back to society through interactive media. Believing that part of the problem stems from the younger generations not understanding the culture of their grandparents and even parents, Eng Tat invented an online system which allows the elderly and their grandchildren to spend time together -- “chatting” with Confucius -- online. The system enables users to ask Confucius questions and get answers in real time. Hence the system bridges a 2,000-year gap -- in history and culture.



**The energy harvesting shoe.**

This work was showcased in SIGGRAPH 2008 at Los Angeles, the leading conference in computer graphics and interactive techniques attended by academics and industry professionals.

His inventions have always taken on interesting streaks. Besides *Age Invaders* and *Confucius Chat*, there have been others – like the *Jukebox Guitar* which he has taken to prototype stage when he was an intern at A\*STAR's Data Storage Institute.

Then there is the Nike prototype power harvesting shoe – not quite an artsy thing – but innovative nevertheless. Eng Tat was part of the team to develop a shoe prototype for NIKE that could harness the energy released when the foot strikes the ground while walking or jogging.

His efforts have not gone unnoticed – he has reaped a host of awards, including the SIGGRAPH Sandbox 2008 2<sup>nd</sup> Best Paper Award (for his work on body music – body movements translated to music), fully sponsored invitation to the Young Investigators' Forum in Culture Technology 2007 and 2009, organised by KAIST, Korea. He is also awarded the Extra Chapter Challenge Fellowship organised by NUS Enterprise. Under this Fellowship, Eng Tat is learning the ropes in commercialisation.

However, the richest reward for Eng Tat is to see people on the fringe being drawn back into the joys of everyday living, and interacting with others – through one of his ingenious inventions.

Said Eng Tat: “The motivation for this work entitled ‘The Passage’ was to enable the audience to become a ‘performer’ as well, exploring the Baba wedding culture through the soundscape and visuals. It occurred to me that this was a fun way for the audience to explore a traditional culture. ‘The Passage’ suggested a journey back to the traditional colorful ceremonial music, re-living certain moments in time, yet it was also the passage of time which made it a diminishing art-form in our contemporary life.”

In Singapore, he has been pioneering the use of interactive media technologies in the arts scene, working with arts companies such as TheatreWorks where he was Associate Artist of V.I.S.T.A Lab of the company from 2007 to 2008, lending his artistic talent and engineering expertise in conceptualising a 4<sup>th</sup> dimensional experience for the audience through merging seamlessly, the virtual world with the real.

“In this region, such art form fusing interactive technology has not been all that common except for Japan. But I am really hoping that Singapore can be a pioneer in the region.” It may be worthy to point out that Singapore and ASEAN countries are rich in cultural heritage and deep-rooted traditional arts form. These