

Interview with Kelly Leff from Touch International

Kelly M. Leff has been the Director of Marketing at Touch International since 2008 and oversees product development and brand awareness. An expert in her field, she specializes in interactive multi-media and computer science. Since joining the company, Kelly has worked to promote brand awareness and shape Touch International into the specialty touch screen design house that it is today.



Please give us some background information about Touch International. Touch International was founded in 2002 by long-time industry veterans Michael Woolstrum and Gary L. Barrett, and is a global touch screen and display enhancement solutions provider specializing in the Aerospace, Medical, Military and POI/POS industries. The company, with its partner DMC, Co. Ltd. in Osaka, Japan, operates seven manufacturing facilities worldwide with 1,200 employees producing over 5 million touch screens each year and growing.

Are you primarily focused on providing your customers with a complete display solution, or do you tend to sell touch screens separately? One of the things that differentiates Touch International from other touch screen manufacturers is that we can provide a complete, in-house display solution which often starts with a custom touch screen design and display enhancements, and ends with optical bonding and touch screen integration. Although most of our volume is made up of touch screens most of our customers require custom solutions; since many of our customers have very tough regulatory requirements, they often need a complete solution (often flame retardant and self-extinguishing no less). The biggest benefits of working with us through the whole process are that 1) it is most time effective 2) we are well versed with difficult designs, and 3) we can fully test the unit after assembly to ensure optimal performance. In addition to touch screens, we also offer an entire line of display enhancements which often makes us a valuable partner; we are able to produce non-touch display windows with enhancements, or we can build enhancements into the touch product. This component of the business is crucial to some of our customers who require EMI shielding, LCD heaters, privacy filters, night vision or anti-microbial coatings, anti-reflection filters, and the like.

Do you prefer to think of your products as keyboard-like input devices or as display-like output devices? We think of our touch screens in anyway our customers want to. We supply the cool touch input, with their device and their software, they turn them into magic devices.

Do you care if your touch solutions are affixed to LCDs, or are other display technologies equally important to you? Our touch solutions are most often affixed to LCDs, but can be designed to work with other display technologies depending on customer requirements. Since we have no “standard” parts, the customer is able to choose the display technology that is most important to them. Large projections screens and white boards are other places where we see increased use.

New touch screen designs complete with custom graphics and cover-glass cut-outs are growing in popularity within the in-flight entertainment market, says Touch International. The touch screen manufacturer anticipates 30 percent growth in aerospace market for 2011



Tell us about your manufacturing operations. We have 7 complementary manufacturing facilities worldwide. The Austin, Texas facility concentrates on high-mix, low-volume touch screen prototypes and production for specialty designs and military, medical and aerospace products. In-line sub-assemblies and high-volume final assemblies are run through our Asian factories. Our factories and facilities are complementary; the Austin office

secures sales opportunities and product designs, which then feed and fuel the Asian factories. Having a presence in Asia allows us to provide cost-reduction roadmaps and easy access to materials worldwide. In addition, duplicity between the factories provides for greater capacity increments.

Your operations in Japan were damaged by the earthquake/tsunami – please give us an update on the overall impact and current status. What happened in Japan was devastating and we are grateful that all of our team members and their families are safe. One of those factories is still not operational; however, by having duplicity between several of our Asian factories, we have been able to continue our production schedule with minimal disruption.

Do you develop your own touch controllers? Yes, in many cases. Some of our customers point to another product and ask us to build a touch interface similar to it which includes the electronics. Other customers have a much greater involvement in the touch interface, and they will specify a lot of the subsystem and tell us which electronic interface they have chosen to use. We are happy to design the touch electronics or build a sensor to work with the parameters of the customer's choice.

Do you have a “sweet spot” in terms of panel size to support your touch panels? Do you plan to migrate to larger displays? Does size impact the touch capability? Does size impact the cost? We typically see requests for touch screens ranging from 3.5” up to 22” due to the industries we play in. Many of the touch screens currently in production are between 7” – 15”; we are seeing an increased interest in larger sizes, however, and do anticipate having a large format projected capacitive in the beginning of 2012. Size can affect the touch capabilities and performance depending on what the end requirements are. Generally, as the size goes up, the cost will also increase.

Tell us about your MARS technology. Are there different usage scenarios between your analog resistive and projected capacitive solutions? Our Multi-Touch Analog Resistive (MARS) technology provides a small segment of the market with a great multi-touch alternative to projected capacitive while still delivering quick and accurate, drift-free performance. MARS is essentially a 4-wire resistive sensor cut up into many smaller 4-wire touch screens. The advantage to using MARS is that it works very well with bare fingers, gloved fingers and pen input because it is pressure sensitive. An example of where MARS would be chosen over PCAP is in a military application where pressure sensing and multiple input methods are a necessity. Soldiers often wear extremely thick leather gloves - this is where projected capacitive would struggle pulling any capacitance through the gloves, even with heightened sensitivity. There are many times when a customer could choose either technology for its application. Some of the questions they should consider when evaluating MARS vs. PCAP are 1) How long does my product need to last and what are the usage requirements? 2) How important is optical clarity? 3) How important is the iPhone-like experience? Generally if input versatility is very important, then our customers will go with MARS. If they have high optical requirements or envision an iPhone-like experience, then they should go with projected capacitive.

Touch International has promoted a passive stylus to work with your projected capacitive solutions. Most projected capacitive touch solutions struggle with stylus input – what's your secret? Is the performance similar to that with your analog resistive stylus input solutions? The touch-ASIC manufacturers are making rapid advances in the touch electronics. The exact method of doing this is under NDA, but the technique involves improved signal-to-noise ratios along with an analysis to the multiple touch inputs.

Give us your spin on multi-touch. How many touches need to be supported in order to be “true multi-touch”? Microsoft classifies multi-touch as two or more non-ambiguous, simultaneous touch points. TI feels that two points of touch is kind of a let-down for users expecting multi-touch, so we classify multi-touch as three or more distinct points; two points are referred to as “two points with gesture”. We want to provide users with the multi-touch experience that they expect, not the one that is in the dictionary.

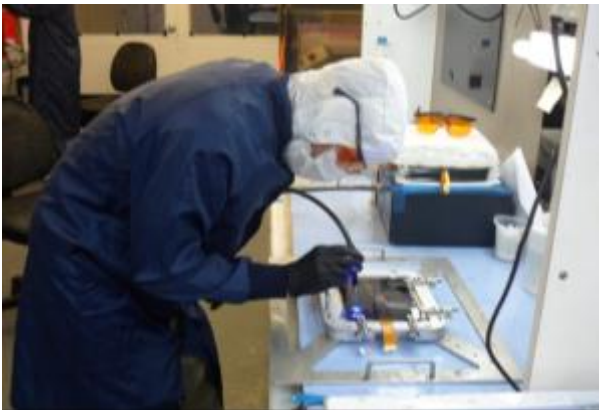
Tell us about your partnership with NUIEQ. What does this enable you to do that you didn't do previously? Delivering your audience with that “iPhone” or “iPad” experience is absolutely critical in today's touch market. Our partnership with NUIEQ gives our customers the chance to get a “feel” for our products and get a sense for the touch screen response time, gesturing, accuracy and multi-touch. NUIEQ's Snowflake platform gives users the experience that they have come to expect. Sometimes people don't realize how important application software is to the interactive experience – it has the ability to make or break a product. NUIEQ's application software gives us the opportunity to communicate how our products respond to touch better than some of the other programs out there.

Touch International demonstrates gesturing on its Multi-Touch Projected Capacitive developer kit with NUIEQ's Snowflake application.



Do you create your own gesture solutions, or do you find that there is now something of a standard suite of gestures used commonly throughout the industry? The answer to this is complicated. When we make the electronics, we usually only provide the touch coordinates, and leave it to the customer to create the gestures in the software. However, some of the ASIC's we use do have built in gestures which can be enabled. Some of the multitude of law suits (full employment for patent lawyers) make the use of gestures confusing for many of our customers and has stifled the creative use of these powerful interfaces.

Will capacitive technologies completely dislodge resistive touch technologies, or are their still applications where resistive will continue to play successfully? No, there will always be some value for resistive, but its presence in the market will continue to decline, largely because capacitive technologies provide a better user experience. For some vertical markets, especially military, but also some aerospace and medical applications, there are too many issues with projected capacitive to be the end-all solution. Soldiers in the field are going to be wearing thick gloves; they may want to touch the screen with their pencil; they don't want rain to activate the screen – there are a number of things that could be potential issues with capacitive. And don't forget noise issues or false touches... Sometimes it comes down to the fact that certain applications require pressure input.



Are you solely focused on touch-screen solutions, or do you also provide touch solutions on surfaces other than a display? For example, do you see any opportunities related to touch surfaces on the back side of the device? Typically, the touch screen solutions we provided are transparent on LCD. However, there are instances where, for example, buttons are needed. In this case we can do a touch screen with a graphic in front of an LED light, similar to what you would see on white good product such as a microwave.

A worker at Touch International's Austin, Texas facility demonstrates touch screen to LCD bonding.

Are you worried that in-cell or on-cell solutions will start to shift touch screen production away from companies like Touch International toward the LCD manufacturers? Not anytime soon. Embedded technologies still have some ways to go before they are really going to be competitive with touch screens. Obviously we have to consider these future technologies and think about how we can maintain a competitive advantage against them, but right now embedded touch is not that practical and there have only been a few products fielded using this implementation of touch.

Many in the industry worry about the long-term availability and price-points of ITO. Tell us about your impressions of ITO alternative technologies. Are you currently using any transparent conductive materials other than ITO? Yes. We have been working with nano-particles for many years. Eventually they will take a large share of the ITO component.

Does your touch technology allow for any sort of tactile feedback or sensitivity to pressure? Tactile feedback is one of the options for our touch screens and has been for 10 years. However, it simply has not caught on as a must-have feature, even though the benefits are obvious for some applications, especially automotive where keeping your eyes on the road instead of the touch screen is important.

With products like the iPad, on-screen keyboards are gaining popularity. Do you foresee a day when on-screen solutions will essentially eliminate the need for mechanical, switch-based keyboard inputs? Yes, and no. I think a lot of products will switch to on-screen keyboards once it becomes easier to use a stylus with projected capacitive. Also, once apps like Swype become more widespread, we will probably see the adoption rate for on-screen keyboards go way up. But until we reach the “touchless gestures” phase of interactivity, I’m not sure that we will completely discard our keyboards.

To date, Touch International has avoided the “mainstream consumer” markets. Do you anticipate that you will continue to focus on “niche markets” or will you divert attention to a more mainstream solution if the opportunity arises? I don’t foresee us abandoning the vertical markets in favor of a more mainstream approach. We are able to meet some incredibly difficult requirements in our industries. If those requirements were easy, a lot more companies would be doing what we do. While some of the consumer products in the market are glamorous and have that “wow” factor, we are building products that save lives and make a difference. We are making touch screens that give people who are disabled the chance to communicate with their families. We are able to help soldiers in the battlefield respond almost instantaneously with just one touch. There is definitely a good feeling that you get from making products that help people live their lives.



Tell us about a couple of your favorite customer experiences. I must say that our first animal end user is at the top of the list. Touch International partnered with the Center of Behavioral Neuroscience and IBM to create the Orangutan Learning Tree at the Atlanta Zoo. With this, visitors are able to witness daily demonstrations of orangutan’s cognitive abilities through their interactions with a touch screen game kiosk. This exhibit only further proves that touch is the universal language.

I always get that “ahah” moment when I’m walking around in public and pass by one of our touch screens being used in an end product. It is a good feeling to see satisfied people using them and to see them working the way they were designed to work.

