

Smart yet simple 3D



Earlier this year, **Terry Arden** stepped down as chief executive of LMI Technologies. We caught up with him to see what has changed during his 18 years with the company

What were some of the early vision projects you worked on?

I joined LMI as chief technology officer back in 2003 and built the first generation of the sensor platform that is in use today across our product portfolio. In those days, companies were gradually moving from analogue CCD to digital CMOS designs, and embedded software was not 'a thing'. Our sensors relied on device drivers and host-based application development to deploy a machine vision solution. I wanted to change that. I spent many years before joining LMI walking around vision shows and realised that if you weren't a software developer, you would struggle putting the various vision pieces together - frame grabbers, cameras, optics, drivers, software libraries, user interfaces and, more importantly, an algorithm framework to carry out quality control. Building a vision app wasn't for the faint hearted. I knew it had to change.

So we explored web technologies in 2010 that led to the combination of 3D acquisition hardware with an on-board web server and built-in algorithms to carry out simple metrology. This was the beginning of Gocator - our flagship smart sensor solution.

How has the vision industry - and LMI's place in it - changed over the last 18 years?

Aside from technological advances in hardware, where CMOS replaced CCD, GPUs replaced DSPs and Arm processors gave rise to embedded computing, what really changed for me was the introduction of Apple's smartphone in 2007 - a product showcasing a whole new level of customer experience - with touch display, apps for everything and connectivity in your pocket. That singular event inspired me to want to achieve something at a similar level but in 3D vision.

Vision has always been a challenging area demanding cross-disciplinary understanding to put the pieces together and deliver solutions. You had to attack vertical markets and customise your products to meet user expectations. LMI built many such vertical products for the automotive, road, wood, metals, rubber and tyre, and glass industries during the 2000-2010 period. Later on, we took all that experience and embedded the algorithms from those verticals into a general purpose

'Personally, I wanted to take a breather and [work in a] space yet to see major digitisation: agriculture'

product that could sell across many markets. That was the start of Gocator, which had to be 'easy enough for an accountant, and smart enough for an engineer' - our early tag line for our first Gocator launch.

What were some of LMI's milestones?

When I took on the chief executive role in 2009, LMI had no real presence in Asia. We were well established in the US and Europe, but were blind to opportunities in the major manufacturing centres of China, Korea and Japan. As we ventured into China and learned about the size of the consumer electronics market, the metrology challenges for smartphone inspection and the dominance of Keyence, it became our mission to evolve Gocator to a whole new level and develop market share in this space. I am proud to say that, today, we are the number one supplier in China for consumer

electronics and, together with our partners - distributors and integrators - Gocator is a dominant solution in battery, solar and many other markets. During those years, LMI changed from a technology-driven company to a market-driven mindset and has successfully identified, addressed and grown based on a process of market and application research before stage-gate product teams are kicked off and business investments are made.

What are LMI's future plans?

In late 2020, LMI completed the acquisition of FringeAI and formed our AI solutions group. The team connected with our Gocator software algorithm group to build out our FactorySmart software solution, which offers customers a successful path to leveraging AI technologies in their pursuit of quality control in the factory. So, you will see LMI build that capability out and deliver it worldwide over the coming years. It will deploy on our sensor and accelerator products, and our sister company camera products, such as Allied Vision's Alvim.

What are the biggest challenges facing industrial vision suppliers?

Right now, the electronics supply chain is having a major impact on many industries. Fab plants cannot keep up with the tremendous demand in everything, from camera chips to FPGAs and memories. Lead times have gone out to over a year on critical parts supplying the vision industry. Those companies that had large inventories are seeing their safety stock levels diminish faster than they can resupply, and I believe this will put tremendous pressure on everyone to keep pace with their customers, to a point where we may see the industry contract during early 2022 before it can grow once again in 2023.

Where do the opportunities lie?

I take my inspiration from looking at mega trends driving the world today. The idea is to ride these waves of change with your products and services, identify your winning moves to develop market share and engage your staff with a collective vision that offers a clear purpose and focus for everyone. I have stepped down from my role at LMI and provide advisory support to a new generation of leadership. Personally, I wanted to take a breather and get back to the good old days of development, working with a small team to make a difference in a new space that has yet to see major digitisation. For me, that is agriculture and helping growers reduce over-spraying of chemicals and overwatering, which washes away fertilisers and opens crops to diseases. A brave new frontier full of exciting prospects! 🌱