PI TECH Brief

PI TECH BRIEF

A NEWSLETTER DEVOTED TO MACHINE AND EMBEDDED VISION APPLICATIONS AND COMPONENTS

MONTHLY NEWSLETTER FROM PYRAMID IMAGING, INC

IN THIS ISSUE

Machine Vision 2018 and beyond

If you haven't noticed, Machine Vision is being applied in just about every industry. Future technology will depend greatly on machine vision. You will find imaging being applied to medical devices, pharmaceutical packaging and inspection, entertainment, marketing, aerospace, defense, sports both on the field and in the locker room, AI and IOT integrated systems will all depend on machine vision.

According to a recent report (Vision Online 3/20/18—Machine Vision Trends to Watch in 2018), the global machine vision market was valued at 7.91 billion USD in 2017. By 2023 the global market is expected to reach 12.29 billion USD.

According to the report there are a few trends to keep an eye on that are changing the way machine vision technology is deployed.

- Industrial Internet of Things—Using Machine Vision by connecting production technology with information technology to increase productivity.

- Non-Industrial Applications—Autonomous vehicles on the street, on the farm, in our oceans and our skies.

- Ease of use—PC based machine vision applications will remain popular for their ease of use. And new user friendly, flow chart based software packages are making it easier for even non-vision engineers to automate camera, lighting, triggering and image enhancements right from their PC.

When considering applying machine vision to your application, take these tips into consideration:

- Never under-estimate the importance of proper lighting.

- Pick the right standard for your application— if it's a high speed application— Camera Link, Camera Link HS and CoaXpress are your go to standards.

- Look for new Machine Vision software— be sure to explore new technologies in Machine Vision Software, the newer products are user friendly and will save you time and money, no need to be an FPGA programmer or vision applications engineer for many of the new powerful programs.

- Explore Smart Camera Technologies—these new powerful cameras can help you achieve success in less time than traditional cameras.

- Partner with a experienced value added distributor who can help you select the right components for your task. Chances are an experienced value added distributor has encountered similar applications and can save you a ton of time sourcing components to fit your needs.

As a value added distributor since 2001 Pyramid Imaging is here to help.
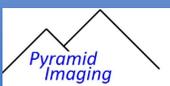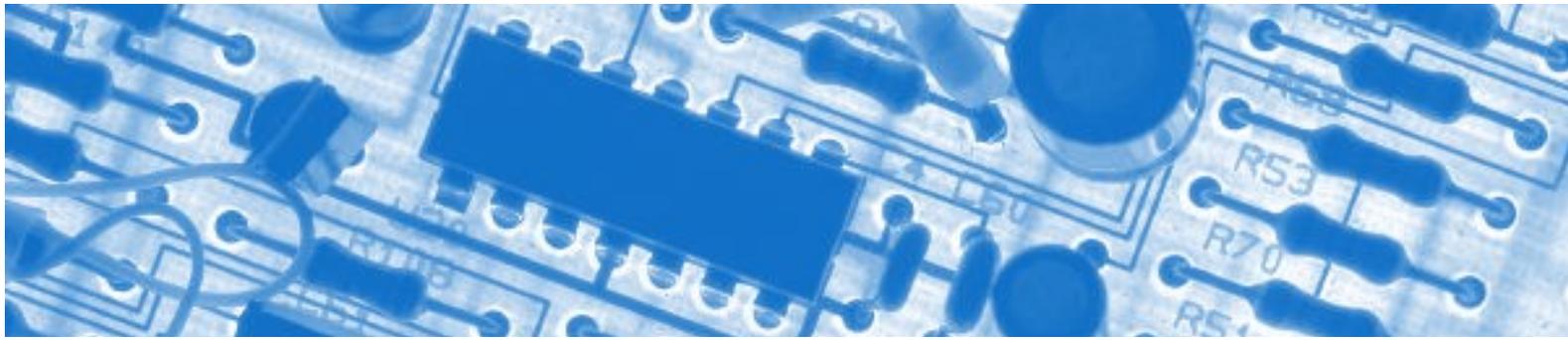
New Product Focus

The new **PCO panda** bi 4.2 back illuminated camera system offers up to 95% QE makes it a perfect choice for demanding lighting conditions, ultra compact, 40 fps, rolling shutter , USB 3.1, power over USB.

Gardasoft CC320 Trigger Timing Controller is the single component for fast affordable integration. With 8 independent input channels, the controller can take a range of input signals from various components and use these to trigger events on any of the 8 independent output channels. Each of the 8 output channels can be individually programmed offering complete control over the pulse delay and pulse width, as well as a trigger delay enabling filtering of noisy trigger signals. In applications where encoders are connected to the input channels, outputs can be configured as functions of encoder pulses rather than absolute time values, creating a very versatile solution.

The new **Pixelink PL-D775** camera contains a 5.0 megapixel (2592 x 1944) Aptina MT9P006 sensor capable of 15 fps at full resolution. The USB 3.0 interface offers a high throughput without the need for a framegrabber. Available in both color and monochrome, provide low noise images in a broad range of industrial applications. These cameras provide the user choice of 8-bit or 12-bit digitization and a dynamic range of 60dB. The series of cameras feature a rolling shutter with a 1/2.5" optical format.

Looking for a ready to go inspection system? Check out our customizable WebSpection System—https://pyramidimaging.com/Pyramid-Imaging-WebSpection%C2%AE__p-70850.aspx

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Pyramid Imaging

ASK DR. LEE

After leaving academia in 1999 to build a business focused on the relatively new industry of Machine Vision, Dr. Lee now offers his expertise to engineers and integrators desiring to incorporate machine and embedded vision into their applications . As a board member for the AIA, Advancing Vision and Imaging Dr. Lee helps guide the industry standards and vision for the industries future growth. Dr. Lee offers this forum to answer questions about applying industrial cameras, lighting, embedded technologies, software and other components into your application.

In this first installment Dr. Lee answers the question "Hey Dr. Lee, what should I take into consideration when choosing an interface for my machine vision application?"

When choosing a camera interface keep these points in mind:

- **GigE Vision:** Used in low & mid-end vision systems with less critical speed and timing demands; cost effective solution when full speed is not required.

- **Camera Link**: Industry default choice for higher speed connectivity where limited cable length and high cable costs are acceptable, frame grabber is required

- **CoaXPress:** Newer technology, for applications that require higher speeds, longer cable lengths, a frame-grabber is required.

- **Camera Link HS:** Originally designed to overcome the speed limitations of Camera Link for line scan cameras, frame grabber will be required

- **GigE Vision over 10 GigE:** Built on GigE Vision, faster physical layer and better timing accuracy with much higher power consumption; requires server grade equipment for implementation.

Imaging is now touching every industry, entertainment, marketing, auto, aerospace, packaging etc. Just think of all those robots being developed! The newest technology is the "Smart" camera. These cameras have embedded FPGA software right on the board and can be addressed using flow chart style programming. No longer will vision engineers need an FPGA programmer to complete the system, with a little training a vision engineer will be able to program camera controls, enhance images and much more, all from their desk top or mobile device. It is truly an exciting time to be involved in machine and embedded vision.

Have a question for Dr. Lee?

Email—Dr.Lee@PyramidImaging.com with a subject line ASK DR.LEE and get advice from an expert in machine and embedded vision.