UKIVA Machine Vision Conference & Exhibition

The 2018 UKIVA Machine Vision Conference and Exhibition is combining an exciting conference program across 7 presentation theatres with an exhibition from some of the world's leading machine vision companies. The two Keynote presentations will examine the use of vision in two very different types of autonomous vehicles. The full Conference program and Exhibitor list is available on: www.machinevisionconference.co.uk.

Keynote presentations

Professor Tony Pipe, Deputy Director at Bristol Robotics Laboratory, UWE will talk about the Venturer project. The Venturer Consortium, led by SNC-Lavalin's Atkins, consists of ten public, private and academic experts, including BAE Systems, Williams and Bristol Robotics Laboratory. This wide-reaching project consider**s** the responses of passengers and other road users to driverless cars as well as looking at the enabling technology and insurance and legal implications of increased vehicle autonomy. The consortium's autonomous vehicle, BAE Systems' Wildcat is equipped with a situational awareness system featuring radar and cameras.

Henry Harris-Burland, VP Marketing from Starship Technologies, will be discussing the development of advanced, self-driving personal delivery robots that can carry food or shopping within a 2-mile (3km) radius, using pavements to make their deliveries. The robot is equipped with 9 or 10 cameras, radar, and ultrasonic sensors that create an "awareness bubble" allowing it to detect and avoid obstacles. A robot will be in action at the event.

Conference Program

The session dedicated to Deep Learning provides background information on this hot topic, its benefits and its applications. Presentations on Embedded Vision will review the differences between embedded vision and traditional vision, as well as looking at potential new machine vision architectures.

3D Vision highlights technological innovations such as a new pattern projection method; the combined use of 3D and 2D data for improved performance, and combining multiple 3D sensors. The practical use of 3D vision systems, especially related to use with robots and cobots will also be covered.

Camera Technology talks will cover interfaces such as 5GigE and 10GigE and how to migrate towards them. Other talks will look at new sensors and ways of getting more out of existing sensors, including TDI and WDR, and the use of multi-sensor systems.

Optics and Illumination explores the common pitfalls and solutions when sourcing optics. Other subjects include hyperspectral imaging, multi-spectrum lighting, ways of standardising

LED lighting schemes, and optimising lighting for production lines. The importance of precision lighting control in a variety of machine vision applications will be highlighted.

The use of vision systems and robots also features strongly in the Vision Systems thread, as well as tools to improve automation efficiency. These include an IoT tool for capturing slow-motion video of machine faults and an integrated control solution to provide real-time imaging feedback for self-optimising production processes. A new low profile 3D camera will be reviewed.

Understanding Vision Technology's program includes the CoaXPress standard, EMVA and ISO procedures for measuring camera sensitivity, choosing optics for the latest CMOS and InGaAs sensors and lighting for machine vision-robot applications. There is also a chance to see how to avoid failures with vision systems, and how different vision techniques can benefit a wide range of industries.

Vision Innovations covers current and future 3D and 2D technologies, developments in LWIR technology and multispectral imaging. There will be a look at 'pixel level polarisation filters' for removing reflection effects directly on the CMOS image sensor, and how choosing the correct cable assembly can solve application based challenges.

The Exhibition

More than 50 exhibitors include vision component manufacturers, vision component and system distributors and systems integrators. The exhibition offers a great opportunity to see some of the latest vision products and talk to experts about any aspect of machine vision.

Paul Wilson
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Approx. 600 words