

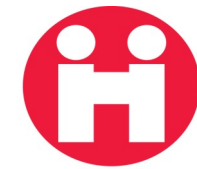
# MACHINE VISION EXHIBITIONS AND SEMINARS 2010

Subject	Date	Location
Hardware Seminar (Cameras & Optics)	Wednesday 14-04-2010	Netherlands Eindhoven
Presentation productspecialists suppliers Allied Vision Technologies, IDS Imaging, Schneider Kreuznach, Data Vision		
HALCON Basics	Tuesday 27-04-2010	Netherlands Apeldoorn
HALCON Basics	Wednesday 28-04-2010	Belgium Antwerpen
HALCON Basics	Tuesday 04-05-2010	Belgium Namur
Exhibition Vision & Robotics	Wednesday 26-05-2010	Netherlands Veldhoven
Exhibition Vision & Robotics	Thursday 27-05-2010	Netherlands Veldhoven
* Practical Introduction HALCON I & II	Monday 14-06-2010	Netherlands Vlaardingen
* Practical Introduction HALCON I & II	Tuesday 15-06-2010	Netherlands Vlaardingen
Infrared Imaging	Wednesday 23-06-2010	Netherlands Apeldoorn
Infrared Imaging	Thursday 24-06-2010	Belgium Brussel
<b>Customer event HALCON 10 advanced</b>	<b>Friday 08-10-2010</b>	<b>Netherlands Vlaardingen</b>
<b>Time of Flight</b>	<b>Wednesday 24-11-2010</b>	<b>Belgium Sint Niklaas</b>
<b>Time of Flight</b>	<b>Thursday 25-11-2010</b>	<b>Netherlands Vlaardingen</b>

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## DATA VISION

Data Vision represents a selection of A-grade Vision hard- and software brands. The product range consists of industrial cameras, illumination, frame grabbers, optics and imaging software. We work strongly together with our partners and we have a direct and exclusive link to the production and R&D facilities of the manufacturers. These relations combined with our professional support enables us to help you with the realization of your Vision solution.

Since more than a decade we have been involved in all phases of the realization of Vision solutions. This enabled us to build up a large knowledge base. Our motto is "nothing beats know how". Therefore we would be pleased to share our knowledge with you. Please don't hesitate to register for our courses. Some reactions from previous sessions:

- Serious knowledge transfer
- Practical approach, very instructive
- Has provided me with an insight into the risks involved in a Vision Project
- Interesting approach, well communicated!"

For info:  
sales@datvision.com



## Time of Flight

### 13.30 Opening and introduction

#### Part 1 – Technology

- The physics of time-of-flight cameras
- Comparison of TOF with other 3D measurement techniques (stereo vision, laser scanners, ...)
- The SwissRanger product line

#### Part 2 – Application examples

- Logistics
- Building Technology
- Agriculture
- Autonomous robots
- Entertainment, Medical

#### Part 3 – Demo

- Demo software
- SwissRanger configuration optimization
- Programming the SwissRanger

### 16.30 End

#### Aimed at:

Persons with strategic responsibilities, QA managers, persons with process responsibilities

## Infrared (IR) Imaging

Position within electromagnetic spectrum

- Other imaging techniques within the electromagnetic spectrum
- Distinction thermal and non-thermal IR imaging
- Near IR - far IR
- IR thermography
- Restrictions by nature; emissivity - reflections - influences of the atmosphere
- IR applications in machine vision
- Spectral Imaging
- Thermal Imaging

## MVtec HALCON Basics

### 09.00 Opening and introduction

- Vision intro
- Establishment of functional specifications for a Vision Project
  - Pre-processing, variations, measurement protocol, segmentation, classification algorithms
  - Picture characteristics, decision tree, HMI
- HALCON Architecture
  - Operating systems - Windows, Linux, Solaris
  - Libraries - C, C++, C#, Visual Basic .NET, Delphi
  - Hardware - Gig E, IEEE 1394, USB 2.0, Analogue

#### Lunch

- Programming in HALCON
  - Segmentation,
  - blob analysis, filtering, Robot Object Finder
- New in HALCON 9.0
  - Speed optimisation operators
  - Calibration assistant
  - New matching technology
  - 3 D calibration

### 16.30 End

#### Aimed at:

(Vision) Software / Hardware engineers, Vision System Integrators, End users and OEM which would like to establish and maintain their own Vision applications.

## Practical Introduction MVtec HALCON I & II

### 09.00 Opening and Introduction

- At the end of the 2-days, participants will be able to
- use all the tools that come with HALCON
  - find all necessary information for working with HALCON
  - understand the different programming styles of HALCON
  - know the basic concepts of the HALCON data structures
  - know all of the most important functionalities of HALCON
  - know how to make use of them
  - know specific details on application development like licensing, updates, and support
  - have gained a lot of practice to do their own applications in HDevelop
  - understand the workflow for developing a HALCON application
  - use HDevelop for prototyping and application development
  - know how to connect an arbitrary camera to HALCON
  - know how to use the image acquisition interface
  - know the basics of segmentation and feature extraction
  - be able to develop simple blob analysis applications including visualization of the results
  - know the basics of shape-based matching
  - know how to generate and inspect shape-based models and how to find them in the image

#### Aimed at:

Vision engineers who have some knowledge about Machine Vision and want to use HALCON for application development and prototyping  
**\*free of charge if you buy a HALCON development licence. Ask for conditions!**

## Hardware Cameras & Optics

### 09.00 Opening and Introduction

- Camera building blocks
- 09.30 - 10.15 Sensors and Housing (IDS)
- 10.15- 11.00 Pre processing/special features (AVT)- Interfaces

11.00- 11.30 Camera Link / Fire Wire (AVT)

11.30- 12.00 USB /GigE (IDS)

**Lunch 12.15 – 13.00**

  - gigE Vision

13.15-13.45 Architecture (AVT)

13.45-14.15 Genicam / gigE (IDS)

#### • Optics

- 14.15- 15.00 Calculations (Schneider)
- 15.00-15.45 Selection Criteria/why Megapixel lenses? (Schneider)

#### • Application examples

- 15.45- 16.30 Vision examples (Data Vision, AVT, IDS, Schneider)

### 16.30 End

#### Aimed at:

(Vision) Software / Hardware engineers, Vision System Integrators, End users and OEM.