

Company Profile

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Harvest Imaging is delivering the services, such as :

- teaching,
- training,
- coaching,
- consulting,

to people, institutes and companies active in the field of digital imaging.

Teaching : public and in-house courses, specifically developed to make the youngsters familiar with today's technology and applications of solid-state image sensors and digital camera systems, these courses include hands-on exercises as well as demonstrations,

Public courses : 2-, 4- and 5-day courses organized by CEI (www.cei.se) and FSRM (www.fsrn.ch),

In-house courses : fully tailored to the needs of the customer and organized by Harvest Imaging.

Training of more experienced imaging engineers by means of the most advanced imaging course available to the industry, this training includes hands-on exercises as well as measurements,

Public training : 2-day training organized by CEI (www.cei.se),

In-house courses : fully tailored to the needs of the customer and organized by Harvest Imaging.

Coaching imaging engineers in their daily work :

- specification,
- design,
- evaluation,
- qualification,
- technical review,
- selection of design house,
- selection of fab,
- ...

Consulting to companies and institutes active in solid-state imaging :

- companies and institutes developing solid-state image sensors,
- companies and institutes applying solid-state image sensors in vision systems,
- companies and institutes applying image processing in vision systems.

- **Design review** of a new image-sensor design, dedicated for near-IR detection,
- **Brainstorm** involving technology and applications of a new imaging technology, including follow-up of action points,
- **Project leader** of MEDEA⁺ project : “High performance CCD imaging system intended for HDTV super-slow motion”, introduced at EURO2008 and Olympics 2008,

- **Study** of the relation between specification and cost price of image sensors,
- **Patent** related work in search of patent infringement,
- **Design review** of a CMOS image-sensor developed for non-visible imaging,
- **Strategy brainstorm meeting** in search of new digital imaging markets,

- **Advisory role** in a forensic project involving image processing research,
- **Assistance** in the selection of an appropriate camera for industrial measurement applications,
- **R&D** of a new pixel architecture,
- **R&D** of a new imaging technology.

EDUCATION :

- 1977 : MSc degree in Electrical Engineering (Univ. Leuven) : “Hardware for Linear CCD Imagers”,
- 1983 : PhD degree in Electrical Engineering (Univ. Leuven) : “Indium-Tin Oxide and Polyimide Technology for CCD Imagers”.

INDUSTRIAL CAREER :

- Philips Research Labs, Eindhoven (the Netherlands) :
 - 1983 : member of scientific staff,
 - 1985 : projectleader CCDs for SDTV broadcast,
 - 1988 : projectleader CCDs for HDTV broadcast,
 - 1991 : head of Image Sensor R&D group,
- DALSA Corp., Eindhoven (the Netherlands) :
 - 2002 : CTO of DALSA Corp.,
 - 2004 : Chief Scientist of DALSA Semiconductors,
- Harvest Imaging, Bree (Belgium) since Oct. 1st, 2007.

MAJOR ACHIEVEMENTS :

- CCD and CMOS on a single chip ('85),
- Two dimensional stitching for large-area imagers ('88),
- Local W-interconnect to strap CCD gates ('89),
- Wafer-size CCD imager with 66 Mpixels ('93),
- Aspect ratio switching by Dynamic Pixel Management ('96),
- Imager with 2.4 μm pixel pitch ('98),
- Imager with 1 M frames/s ('01),
- World record dark current for imagers ('04),
- Multi-slope, multi-ramp column-parallel ADC ('06).

ACADEMIC CAREER :

Since 2001 part-time professor at the Delft University of Technology, Delft (the Netherlands) :

- M. Snoeij : “Analog Signal Processing for CMOS Image Sensors”, 2007
- X. Wang : “Noise in sub-micron CMOS Image Sensor Pixels”, 2008
- P. Rao : “Charge Transfer CMOS Image Sensors : Device Physics and Radiation Effects”, 2009
- PhD students : X. Ning, G. Rao, Y. Chen, M. Sarkar, J. Tan, Y. Xu.

SCIENTIFIC CAREER (1) :

- Over 130 technical publications and 12 patents,
- Author of textbook : “Solid-State Imaging with Charge-Coupled Devices”,
- IEDM Technical Committee member : '88-'89, '95-'96,
- Co-editor of IEEE Transactions on Electron Devices, special issues on Image Sensors : '91, '97, '03, '09,
- General Chair International Image Sensor Workshop '97 (Bruges), '03 (Elmau), '09 (Bergen),
- Founder *Walter Kosonocky Award*,
- IEEE Distinguished Lecture since '98,

SCIENTIFIC CAREER (2) :

- Award for Best ISSCC Evening Session '98 and '08,
- Member Technical Program Committee ISSCC since '99,
- Member Executive Committee ISSCC since '01,
- Secretary, vice-chair and chair of the European ISSCC committee from '01 till '06,
- Vice-Chair and Chair of ISSCC International Technical Program Committee for '09 and '10 ISSCC,
- **IEEE Fellow**, member of SPIE, member editorial board "Photonics Spectra"
- 2008 **Fuji Gold Medal** for research, development and education in the field of solid-state image capturing.



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**“There’s More To The Picture
Than Meets The Eye”**

(Neil Young, 1978)



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