Improving imaging building blocks

2x 5Gpix/s cameras
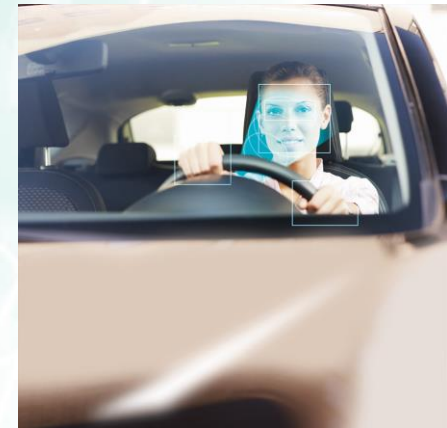
Digital Pathology

Live Television Production

01:34
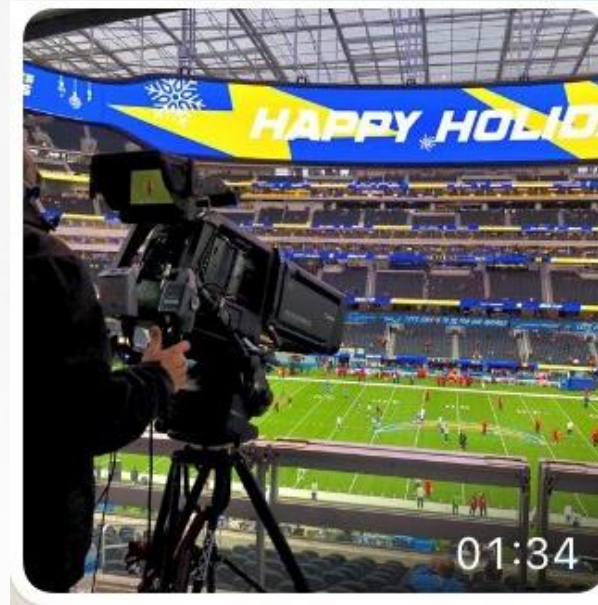
Precision Agriculture

In-car safety

Klaas Jan Damstra, Grass Valley
EFECS 2022
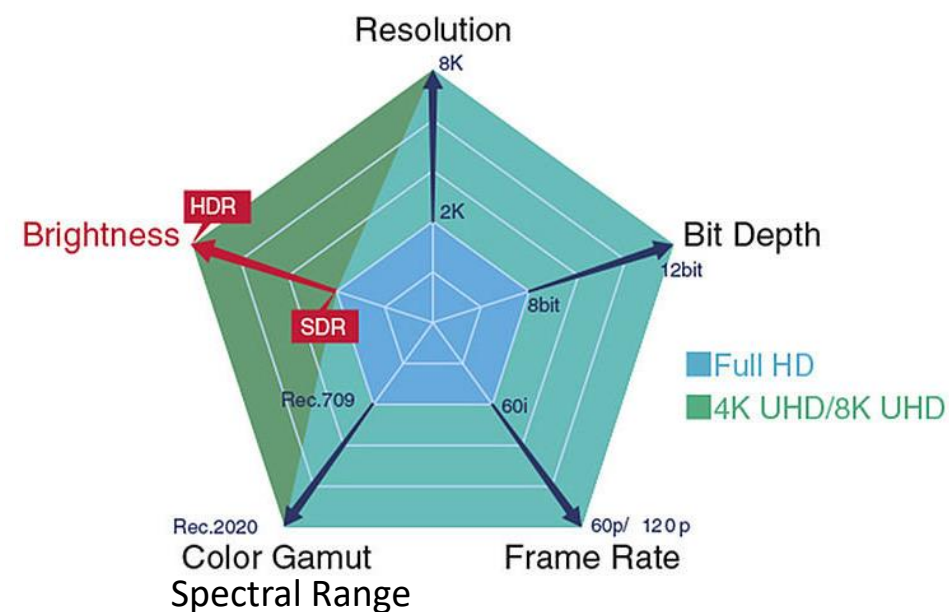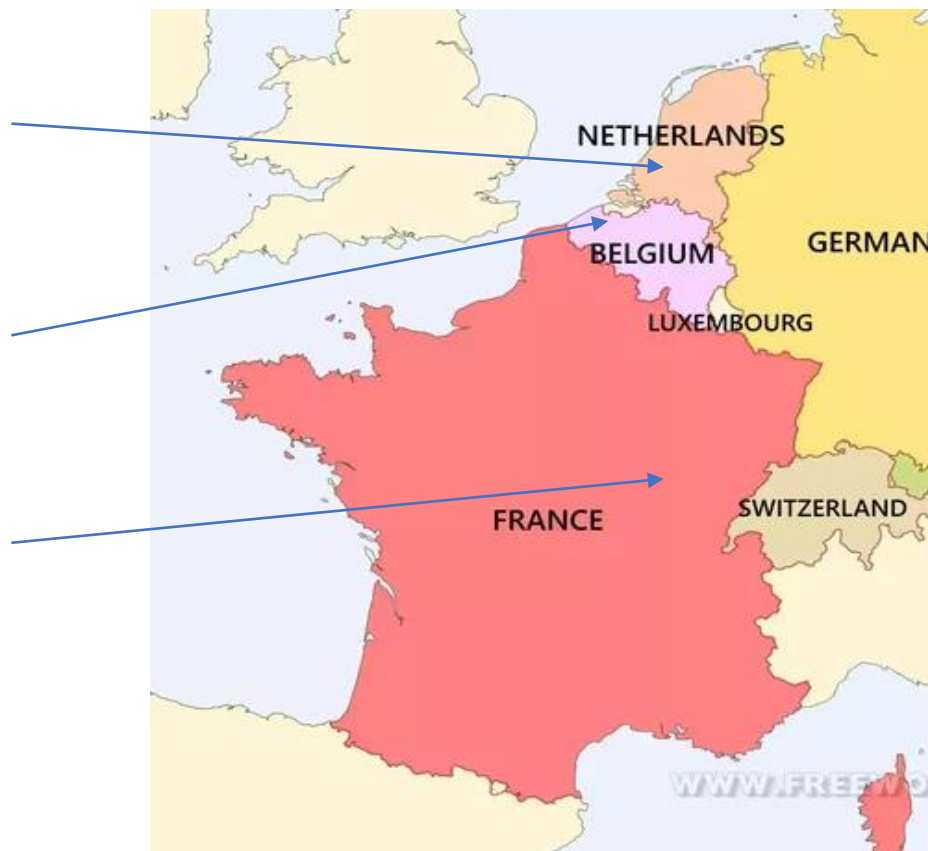Amsterdam, November 25, 2022

Improvements in imaging building blocks

Adimec,
Grass Valley,
TNO

AMS,
EVS

ImVia,
MsEyeTech

Options to improve image capture

Source: https://www.eizo.lv/knowledge/monitor-expertise/ age-of-hdr/

Faster and more accurate scans in digital pathology
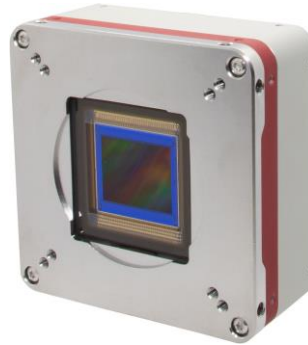
Achievements:
- ❖ **Camera data rate doubled**
  - Up to five times higher resolution for finer details
  - Up to eight times higher frame rate for faster processes
- ❖ **Resolution doubled** in scanner for **20% frame rate increase**
- ❖ **Dynamic range doubled**
- ❖ 20% larger area coverage

- ❖ Automated ROI segmentation of Electron Microscopy images reducing **annotation effort from 8 hours to 5 minutes**

Remote television content creation
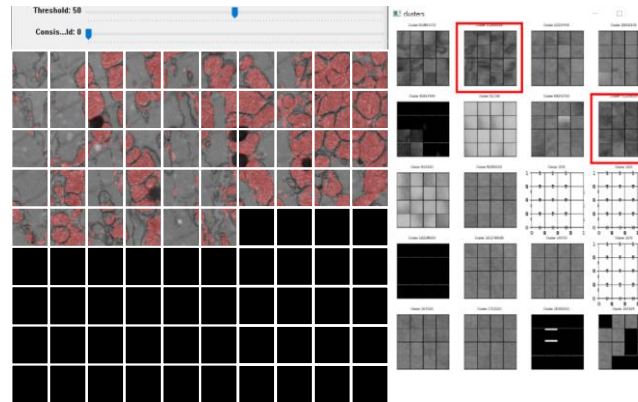
Improved focus assist

Ethernet (IP) transmission

UHDTV slow motion camera for remote productions

UHDTV slow motion replay server

Achievements:
- ❖ New functionality: **4K 3-speed** slomo recording & playback
- ❖ **Doubled dynamic range**
- ❖ **1 F-stop more sensitive**
- ❖ Multiple video standards at the same time
- ❖ Remote productions:
  - • Can halve carbon footprint [1].
  - • Can save 35% in TCOO [2].
  - • Improved social live

EFECS
25 November 2022, Amsterdam

Precision Agriculture to optimize food production

## HS-based field level-management to optimize food production
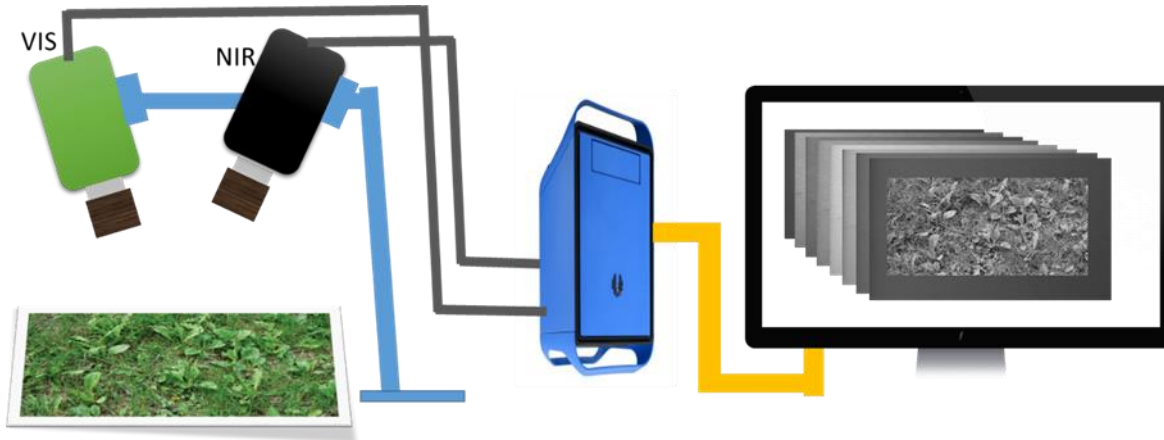
Demonstration setup

Separation of crop and weed using deep learning algorithm

Achievements:
- ❖ **Increased the spectral bandwidth** for better separation of plants and weeds: upper limit from 700nm **to 940nm**
- ❖ **Doubled the frame rate** for faster analysis with moving tractor
- ❖ Deep learning algorithm with 100% accuracy in separating 5 plants and 5 weeds
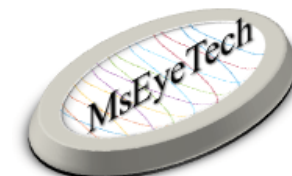
- See also: YouTube-link

Results for in-cabin safety in automotive

AMS demo kit with NIR-enhanced
sensor combined with a NIR light source

Achievements:

❖ **Sensitivity in near infrared more than doubled**

❖ **Smaller (2.8um) global shutter pixel for better resolution**

❖ Drowsiness detection demonstrator for potential customers

Thank you for your attention!