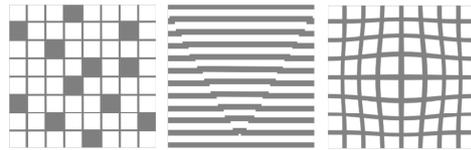
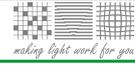


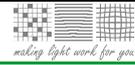
Company



*making light work for you*



Company



**ViALUX GmbH**

**Foundation:** 2000, GmbH  
**Staff:** 15 (11 engineers)  
**Representatives:** 12  
**Location:** Chemnitz, Saxony, Germany  
**Competence:** Optoelectronics & Optical Metrology,  
Development, Production, Sale  
**Certified:** ISO 9001:2000  
**Turnover:** € 2,250,000 (\$3,000,000)  
**Place:** New Building since 2008



## Selected customers

<p>Carl Zeiss Schott LG Electronics NIST THALES Bosch CNRC Nippon Steel ThyssenKrupp BMW Volkswagen Ford DaimlerChrysler AUDI Toyota &gt; 180 Research Labs</p>	<p>Germany Germany Korea USA France Germany Canada Japan Germany Germany Germany EU/USA Germany Germany USA/Japan EU, Asia, USA, Australia</p>	<h3>Representatives</h3> <table border="0" style="width: 100%;"> <tr> <td>USA</td> <td>UK</td> </tr> <tr> <td>Japan</td> <td>France</td> </tr> <tr> <td>Canada</td> <td>Turkey</td> </tr> <tr> <td>Korea</td> <td>China</td> </tr> </table>	USA	UK	Japan	France	Canada	Turkey	Korea	China
USA	UK									
Japan	France									
Canada	Turkey									
Korea	China									

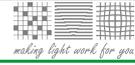
## Products

DLP® Discovery™

z-Snapper

SurfCheck®

AutoGrid®

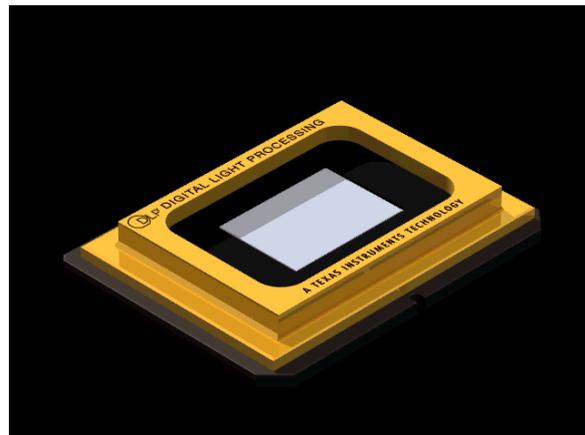
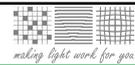


# DLP® Digital Micromirror Device

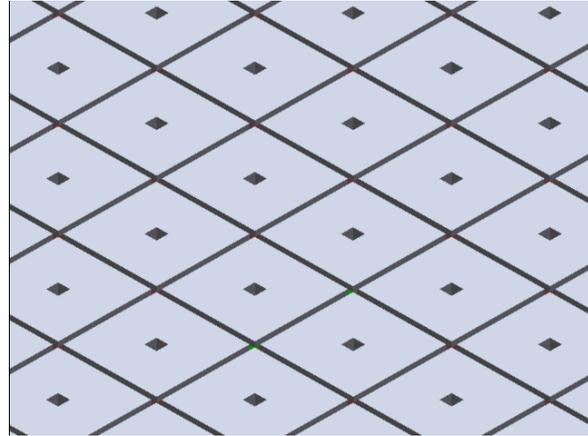
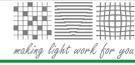
## Next generation 3D scanners



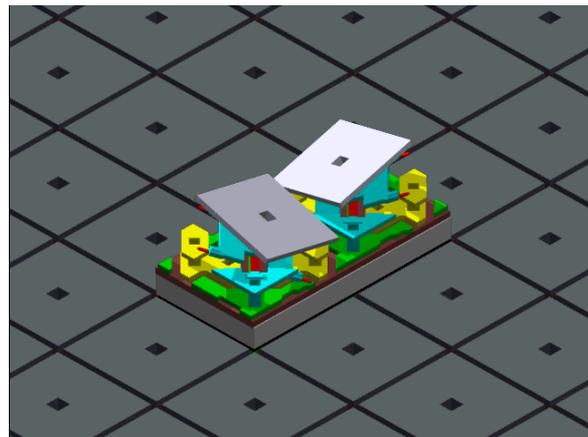
# DLP® Digital Micromirror Device



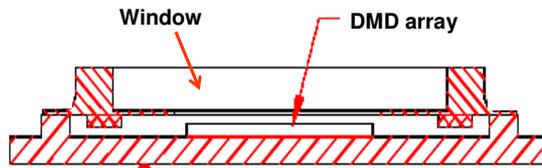
DLP® Digital Micromirror Device



DLP® Digital Micromirror Device



## Wide spectral range



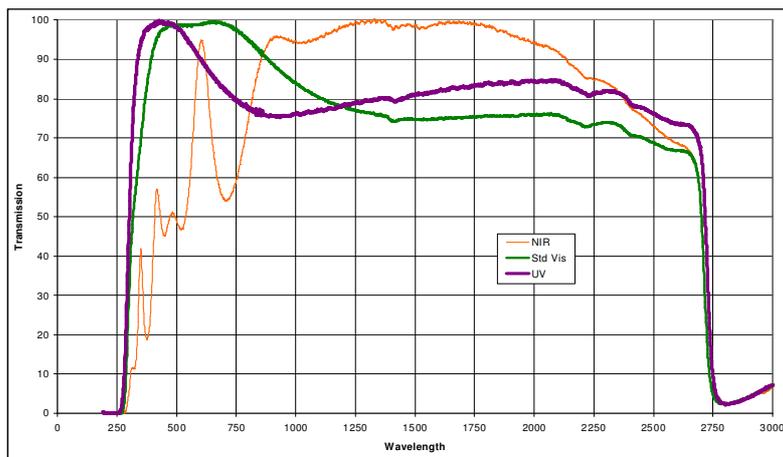
Mirrors: polished Aluminum 89.4% reflectivity  
Window: special NIR and UV versions available



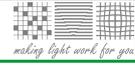
## Wide spectral range



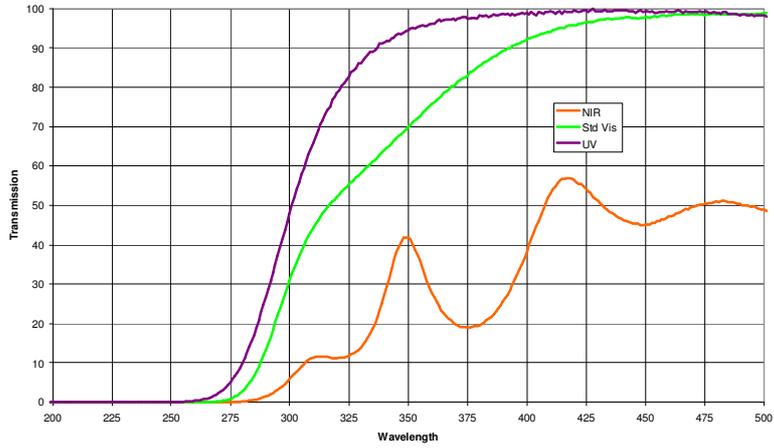
DMD window transmittance



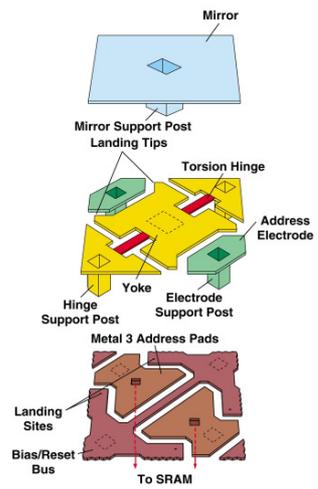
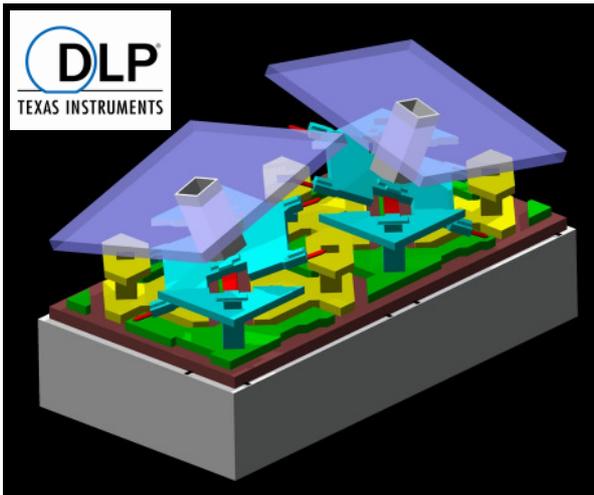
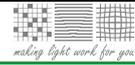
## Wide spectral range

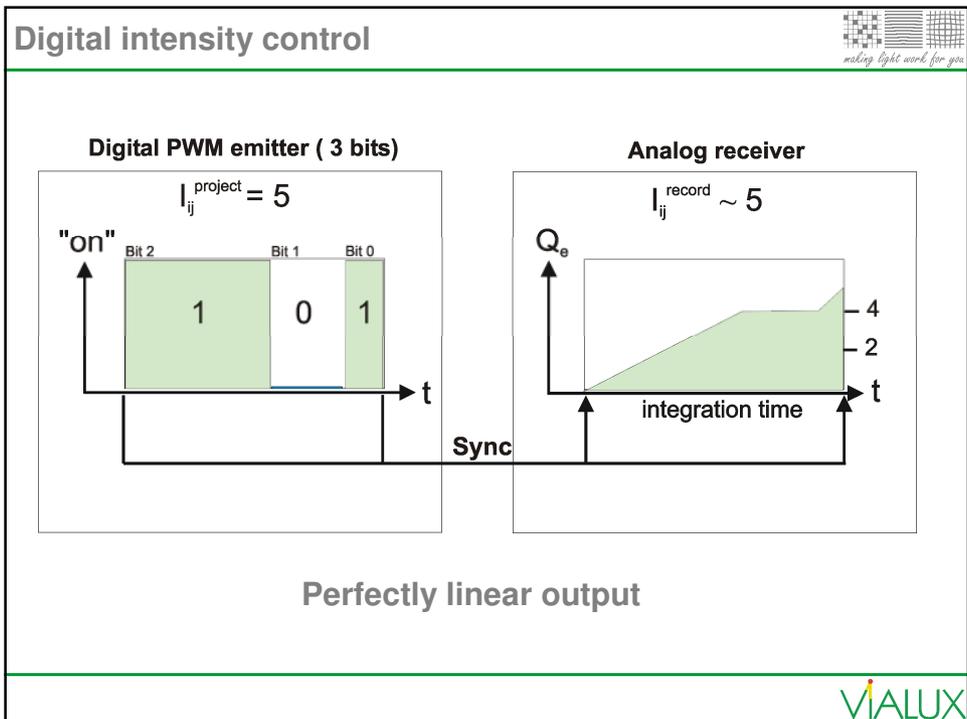
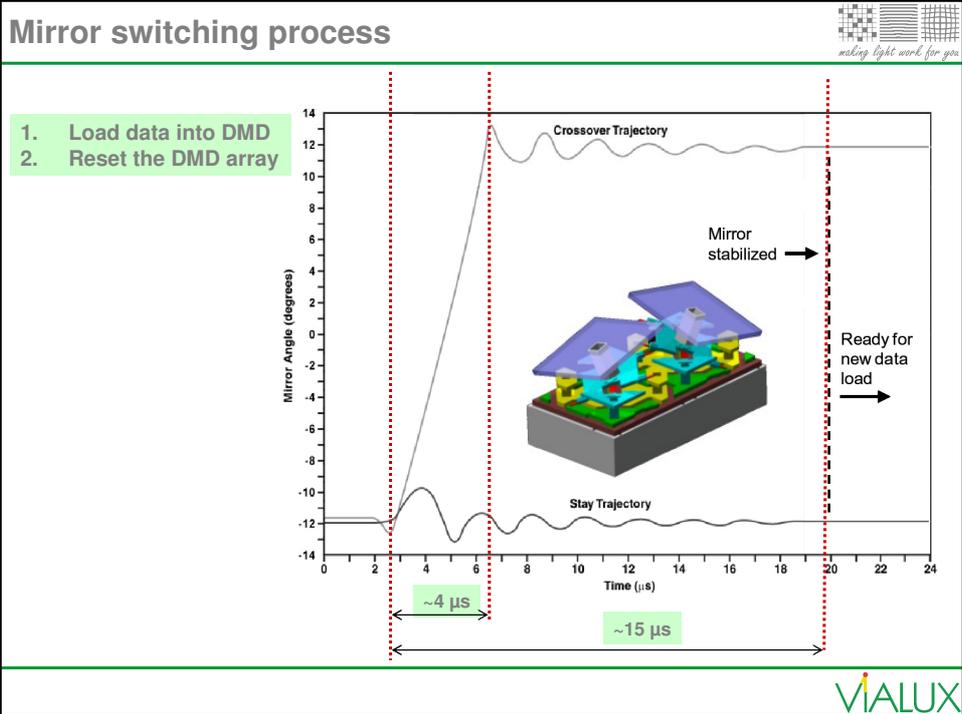


DMD window transmittance

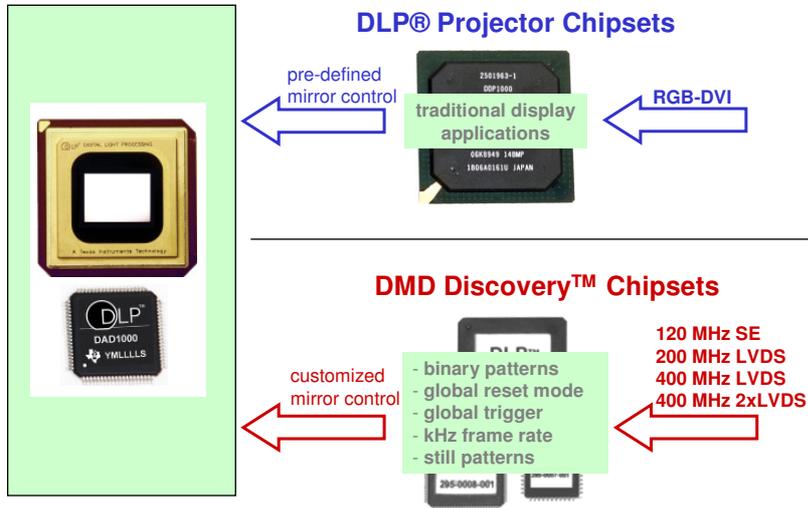


## DLP® Architecture

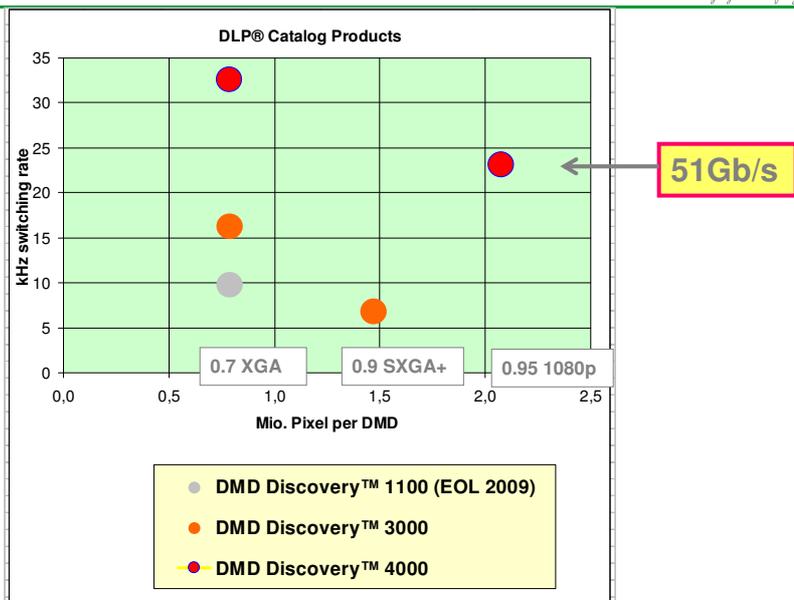




# What is DLP Discovery™ ?



# Fastest switching @ high resolution



## DLP Hardware



### Texas Instruments Starter Kits:

- for new customers
- access to technical data sheets
- exploring the technology
- 



### ViALUX Production Boards:

- optimized footprint
- full speed
- USB connectivity
- programmable (API)



## Real-time wavelength selection



### The OneLight Solution

A light engine that lets users create light in software.

Digital technology and software to control:

- Wavelength
- Intensity distribution
- Exposure and timing

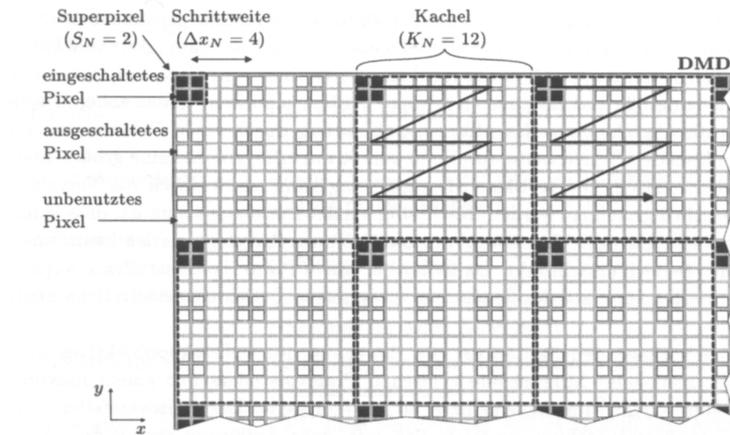


This is "digital light"

**ONELIGHT**  
CONTROL MADE SIMPLE



## Scanning confocal microscopy



Source: Bitte, F. et.al. 2001



## Tunable laser source



### External-cavity diode laser utilizing a micromirror device for spectral tuning

Michael Breede<sup>a</sup>, Christoph Kasseck<sup>a</sup>, Carsten Brenner<sup>a</sup>, Nils C. Gerhardt<sup>a</sup>, Roland Höfling<sup>b</sup>,

<sup>a</sup>Optoelec

<sup>b</sup>VIALUX

0, 44780

Chemnitz,

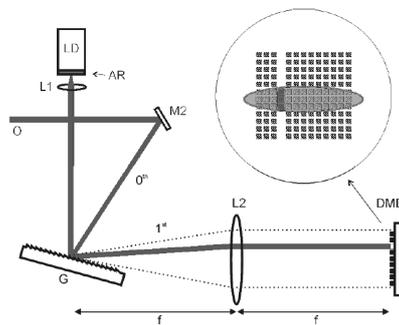


Fig.4. Setup of the DMD-ETECAL, consisting of AR-coated laserdiode LD, collimation-lens L1, grating G, fourier lens L2 with focal length f, the DMD, and the outcoupling beam O coupled out by additional mirror M2.



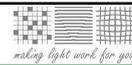
## Selected Applications



- Holographic data storage
- Spectroscopy
- Wavelength selection
- Adaptive masking
- Adaptive diffractive optical elements
- Optical tweezers
- Maskless lithography (PCB, dtcp Printing ...)
- Optical network switches
- Eye & skin medical treatment
- 3D Display
- 3D Shape recording



## Next generation 3D scanners



## 3D scan? – Take a snapshot!

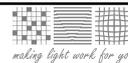
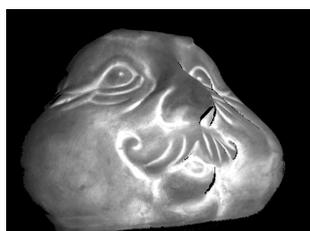


photo: 1/50 s

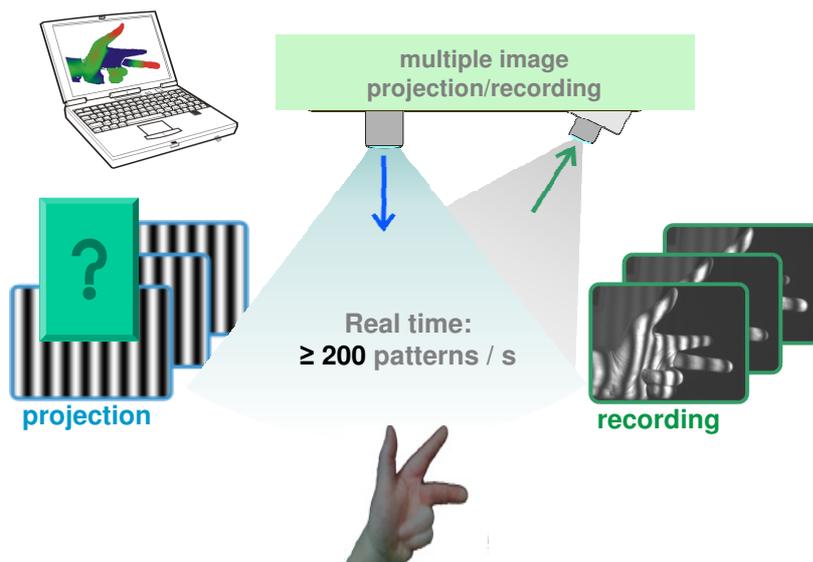
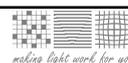


3D scan: 1/50s



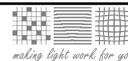
VIALUX

## z-Snapper implementation



VIALUX

## Key hardware: DLP® Digital Micromirror Device

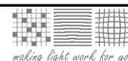


0.7" 2xLVDS XGA DMD = 1024 x 768 bi-stable micromirrors

- 13.68µm x 13.68µm or 10.8 µm x 10.8 µm mirror pitch
- +/- 12° mirror tilt
- **22,000 full array global switches per second**
- 91% optical fill factor
- 3000:1 on/off contrast ratio



## z-Snapper



Scan Time = 1/50 s



powered by

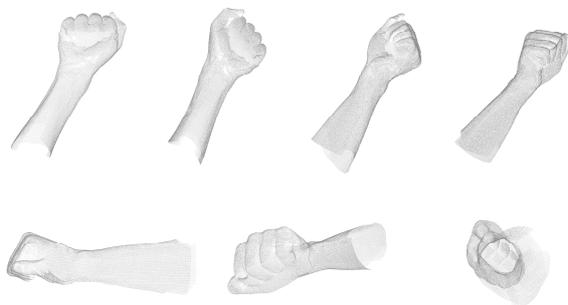
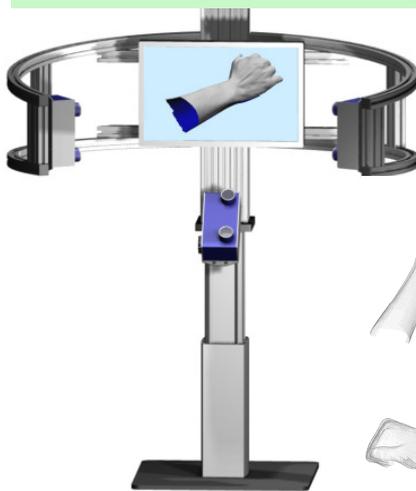
- Speed advantage for
- Hand-held scanning
  - Body part scanning
  - Biomechanics
  - Biometry



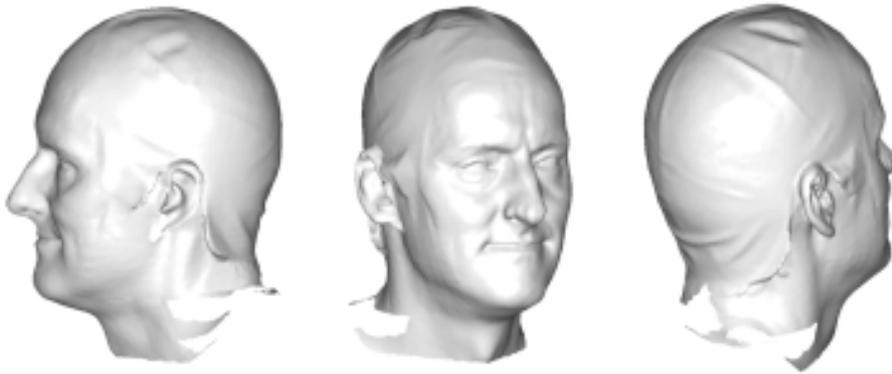
## Hand-held scanning



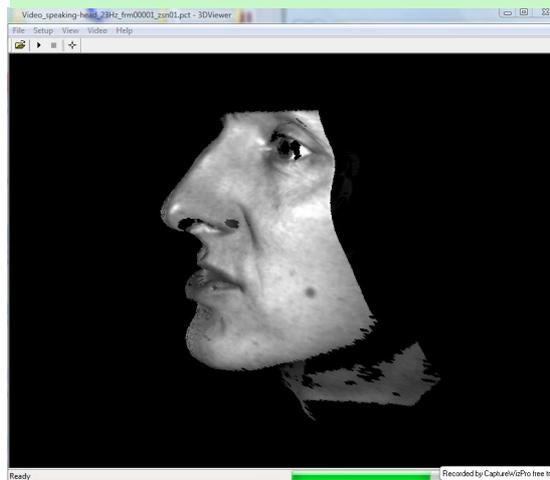
## Body part scanning – Multi sensor 360°



## Body part scanning – Multi sensor 360°



## 3D video @23 Hz



## Biomechanics

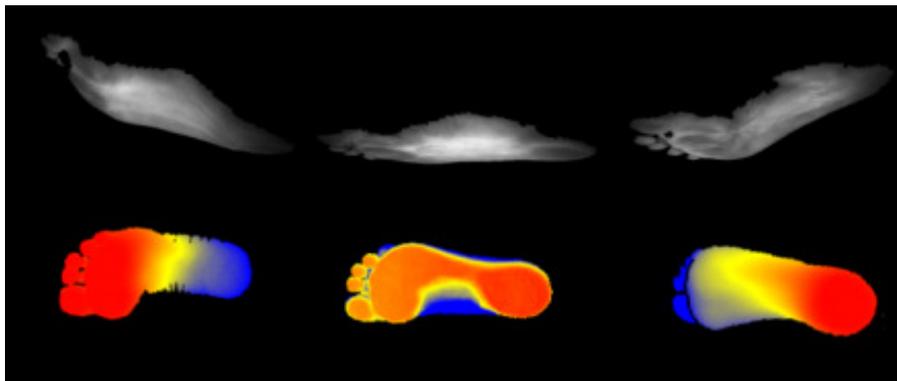


- automatic 3D sequence recording
- 3 combined scanners
- 40 combined 3D shape models per s



device:  
catwalk with glass plate  
3 scanners below  
desktop PC connected

## 3D video @41 Hz



**DynaScan4D**

making light work for you

3D video @41 Hz



Video-Fuss-li-001\_frm00001\_zsn01.pct - 3DViewer

File Setup View Video Help

Ready

VIALUX

Detailed description: This slide shows a software interface for 3D video capture. At the top left, the text 'DynaScan4D' is displayed. In the top right corner, there is a logo consisting of a grid of squares with the tagline 'making light work for you'. The main content area features a green header with the text '3D video @41 Hz'. Below this header is a screenshot of a 3D viewer application window. The window title is 'Video-Fuss-li-001\_frm00001\_zsn01.pct - 3DViewer'. The menu bar includes 'File', 'Setup', 'View', 'Video', and 'Help'. The main view area shows a 3D model of a shoe, rendered in a dark, high-contrast style. The status bar at the bottom of the window shows 'Ready'. In the bottom right corner of the slide, the 'VIALUX' logo is present.

**3D video @41 Hz**

making light work for you

3D video @41 Hz



Recorded by CaptureWizPro free trial

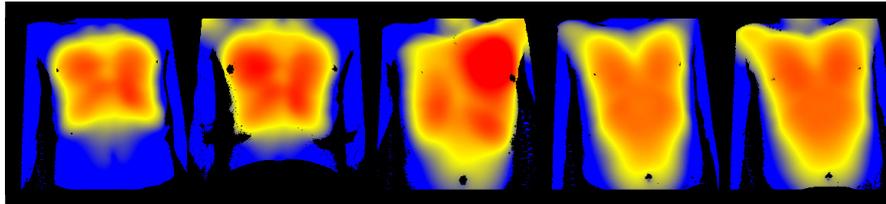
VIALUX

Detailed description: This slide displays a 3D scan of a person's head and shoulders. At the top left, the text '3D video @41 Hz' is shown. In the top right corner, there is a logo consisting of a grid of squares with the tagline 'making light work for you'. The main content area features a green header with the text '3D video @41 Hz'. Below this header is a 3D scan of a person's head and shoulders, rendered in a dark, high-contrast style. The person is wearing a white t-shirt and has their arms crossed. In the bottom right corner of the scan area, there is a small text box that says 'Recorded by CaptureWizPro free trial'. In the bottom right corner of the slide, the 'VIALUX' logo is present.

## On-line 3D patient position monitoring (study)



### Breathing state dependent control for cancer treatment



z-Snapper multiprocessing software enables 40Hz feedback loop



## z-Snapper capabilities



### Device features

- non-contacting
- no arc-lamp, no fan
- no mechanical scanning
- full field-measurement
- 20 ms measuring time (real-time)
- hand-held use
- 3D video recoding (4D) @ 45Hz
- synchronized multi-sensor ensemble

