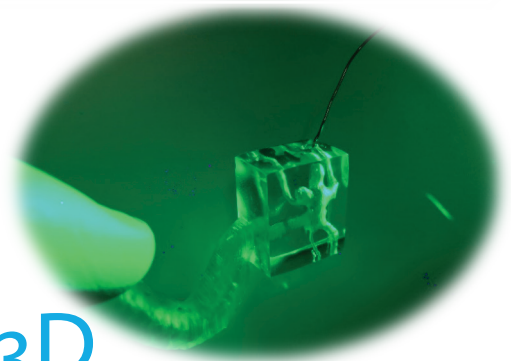


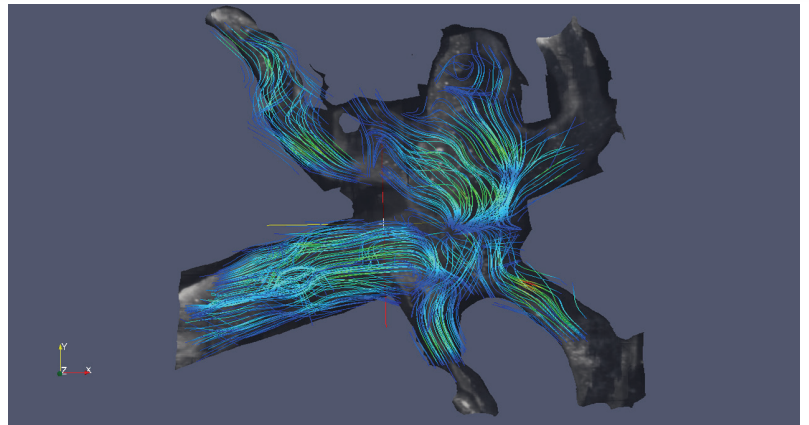
Risk Minimization in Endovascular Device Implantations

New approach for **stent** implantation training within **transparent 3D prints** of vasculature models by real time **3D camera** tracking of **blood flow** inside **aneurysms**



3D
*High-Speed Blood-Flow
Tracking Camera**
*Patent pending

3D Rotational Digital Subtraction Angiography (DSA) data based 3D printed replica of neural blood vessels showing aneurysms simulate the impact of devices (e.g. stents) being positioned and adapted by the surgeon before the final intervention. The cerebrovascular particle flow will be tracked by the monocular Raytrix light field camera, offering volumetric position and velocity over time. This new approach enables the interventionists to plan and exercise them under realistic conditions without any risk for the patient to evaluate the optimal device type (stent, coil, flow diverter) and position in advance – may be extended to tailored devices according to the morphological needs.



3D Video + Velocity
Blood-Flow Analysis inside Aneurysms & Stents



Raytrix's light field software tool box offers an in-depth look inside the stented vessels to analyze the temporal particle flow trajectory and velocity (color coded). Device implantation can be simulated in advance to reinforce cerebrovascular blood vessels weakened by aneurysms.



reddot award 2014
winner



product
design award
2014

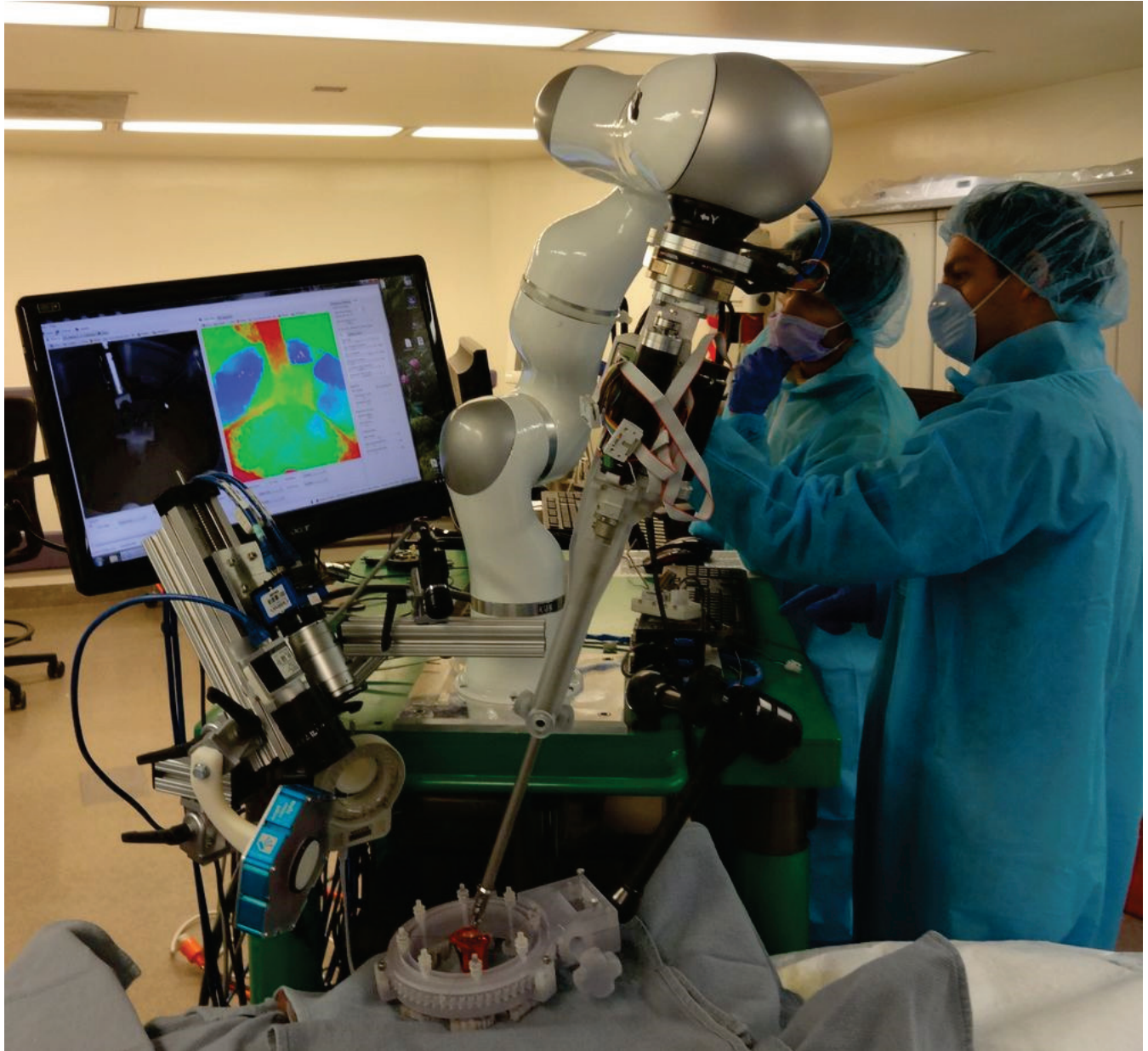
Please contact: Dr. Lennart Wietzke

Fon: 0049 176 23 580 991 , Email: Lennart.Wietzke@raytrix.de

www.raytrix.de

First Autonomous Robot Surgery using Raytrix 3D Cameras

Raytrix 3D Light Field camera and software enables accurate roboter positioning in critical situations and for hard to access pick and place objects



3D

*Roboter Positioning
Camera System*

Press Links
[Tech Times](#)
[The Verge](#)
[LA Times](#)
[NBC](#)
[CBS](#)
[Inverse](#)

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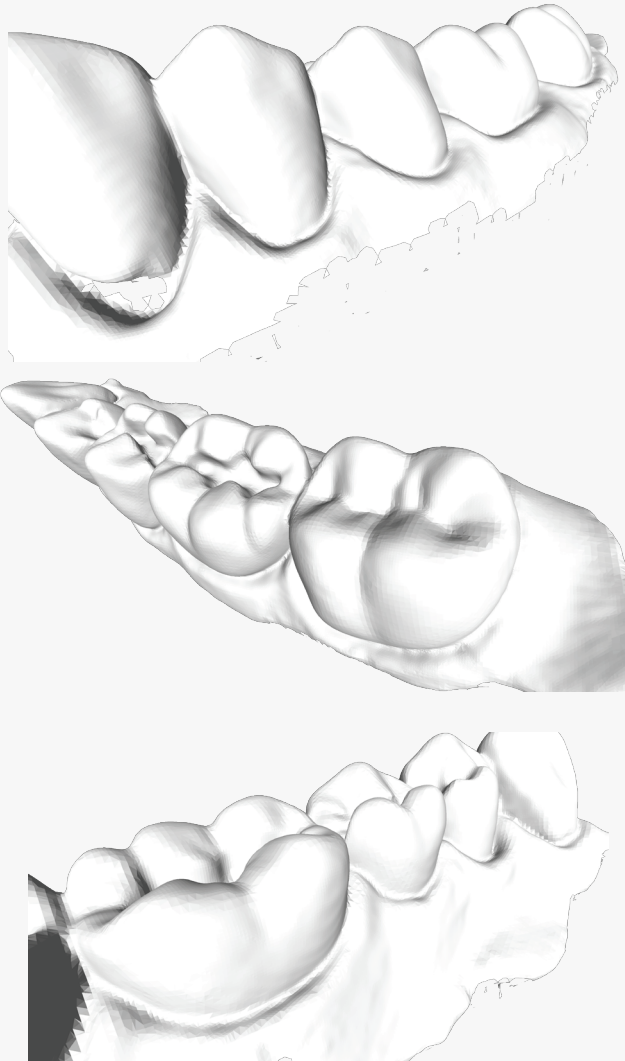
www.raytrix.de

Handheld Dental 3D Oral-Scanner

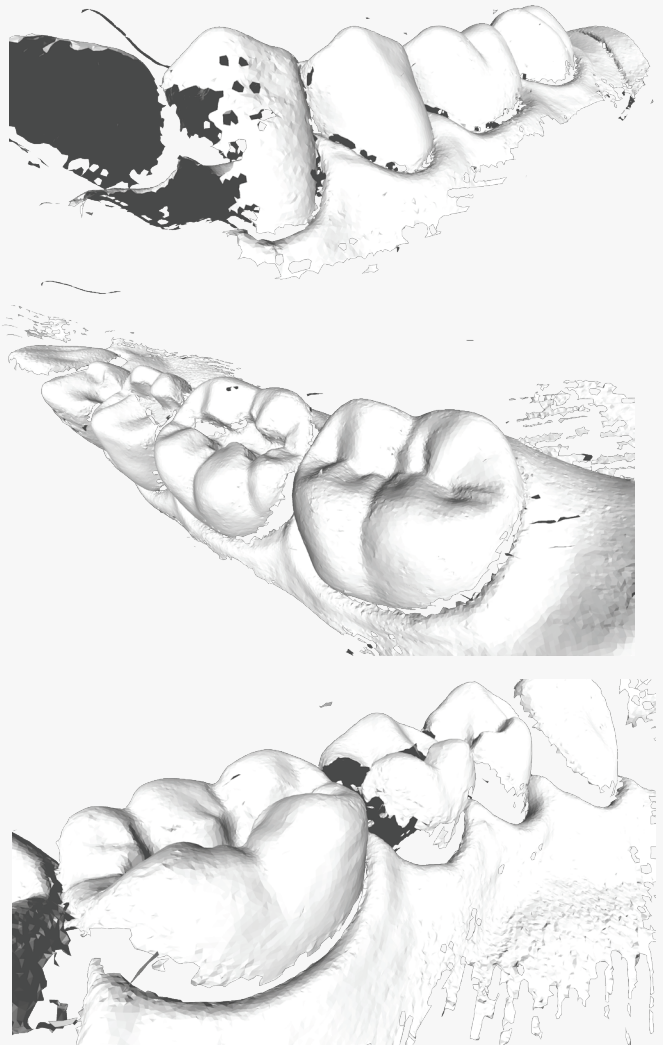
The comparison of the Raytrix 3D Light Field camera versus state-of-the-art oral scanner shows superior and more dense 3D acquisition of Raytrix cameras **especially at regions with occlusions**

Comparison

New Light Field Camera



Standard Oral-Scanner



Please contact: Dr. Lennart Wietzke

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Email: Lennart.Wietzke@raytrix.de



reddot award 2014
winner



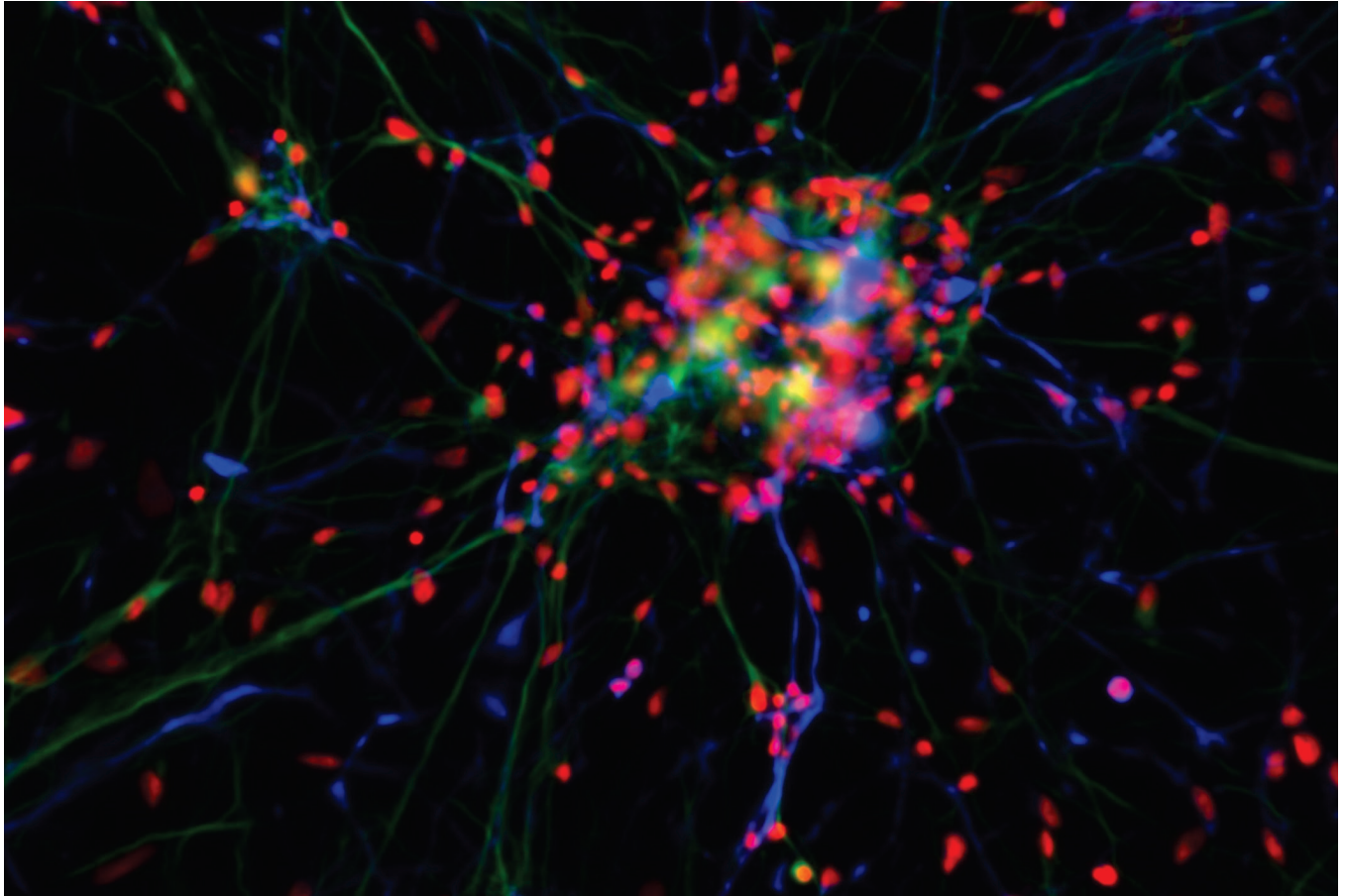
product
design award

2014

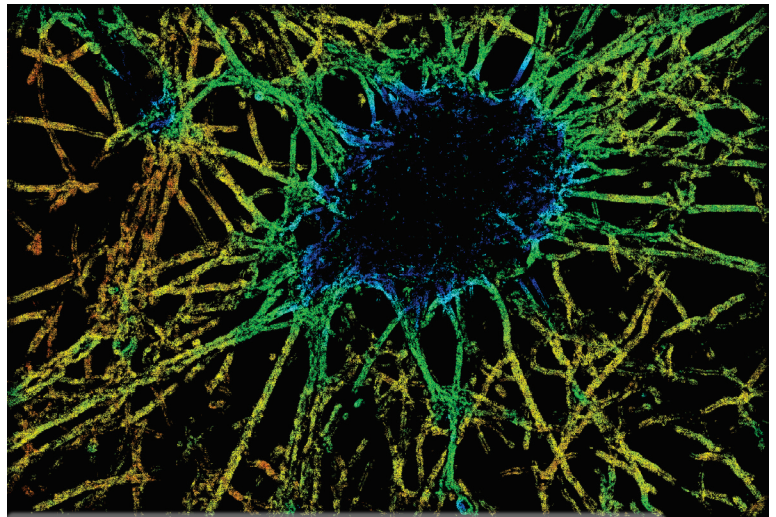
www.raytrix.de

Monocular 3D Microscopy Camera System for Life Science

Simultaneous whole 3D imaging of neuronal activity using high-speed light-field microscopy.



3D Monocular Single-Shot Microscopy Camera



Color coded 3D depth map data of a neuron

Please contact: Dr. Lennart Wietzke

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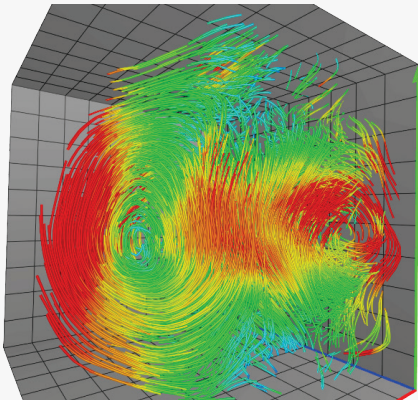
for Flow Mechanics (particle tracking)

3D Flow Data with only one camera in one Shot

Robust & Reliable
Field-Approved

Double-Shot (PIV) and
High-Speed Modes

3D + Velocity Flow Measurement Software



Application examples

R₅ High-speed

- 1MP @ 180 - 560 frames per second
- Volume: 20x20x35mm (scaleable)
- Depth resolution: <0.4mm

R₅ Microscopy

- 1MP @ 180 - 560 frames per second
- Volume: 1200x1200x255um (scaleable)
- Depth resolution: <4um

R₂₉ PIV

- 7MP @ 3 double shots (min. gate time: 200ns) per second
- Volume: 72x48x40mm (scaleable)
- Depth resolution: <0.4mm

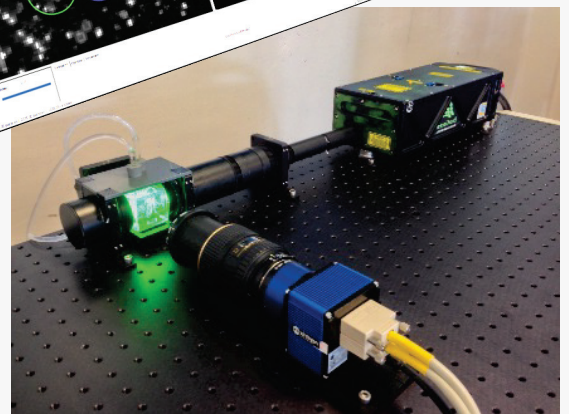
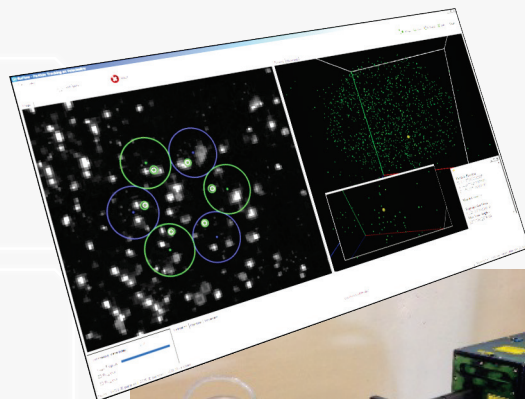


X₃D 1,2,3,x Multi Light Field

Perfect for „Difficult-to-Access“ Flows in 3D

Sensitive for High-Density Particle-Flows

Space- & Time-Saving
Mobile & Easy Setup



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for Flow Mechanics (particle tracking)

3D Flow Data with only one camera in one Shot

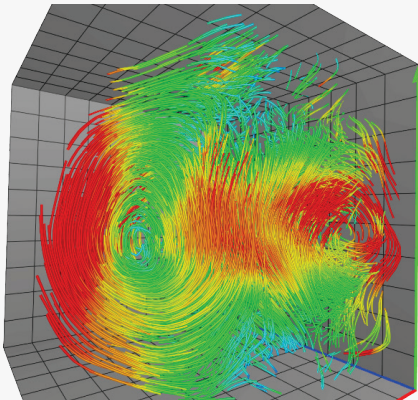
Robust & Reliable
Field-Approved

Double-Shot (PIV) and
High-Speed Modes

3D
*Single-Lens
One-Shot
Compact-Cameras*



3D + Velocity Flow Measurement Software



Perfect for „Difficult-to-Access“ Flows in 3D

Sensitive for High-Density Particle-Flows

Space- & Time-Saving
Mobile & Easy Setup

Application examples

R5 High-speed

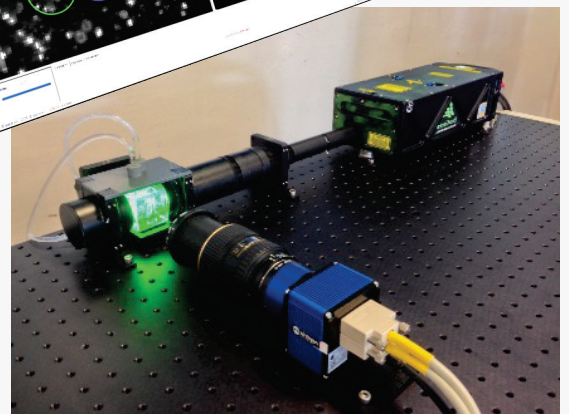
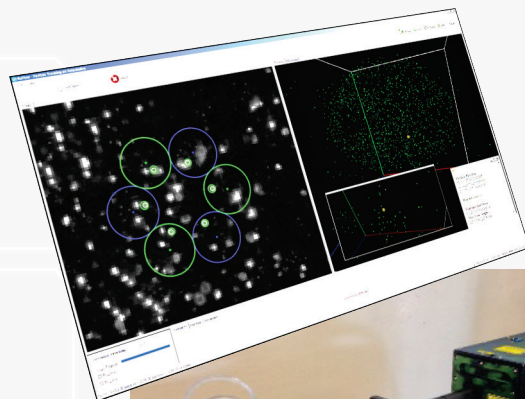
- 1MP @ 180 - 560 frames per second
- Volume: 20x20x35mm (scaleable)
- Depth resolution: <0.4mm

R5 Microscopy

- 1MP @ 180 - 560 frames per second
- Volume: 1200x1200x255um (scaleable)
- Depth resolution: <4um

R29 PIV

- 7MP @ 3 double shots (min. gate time: 200ns) per second
- Volume: 72x48x40mm (scaleable)
- Depth resolution: <0.4mm



More info at:

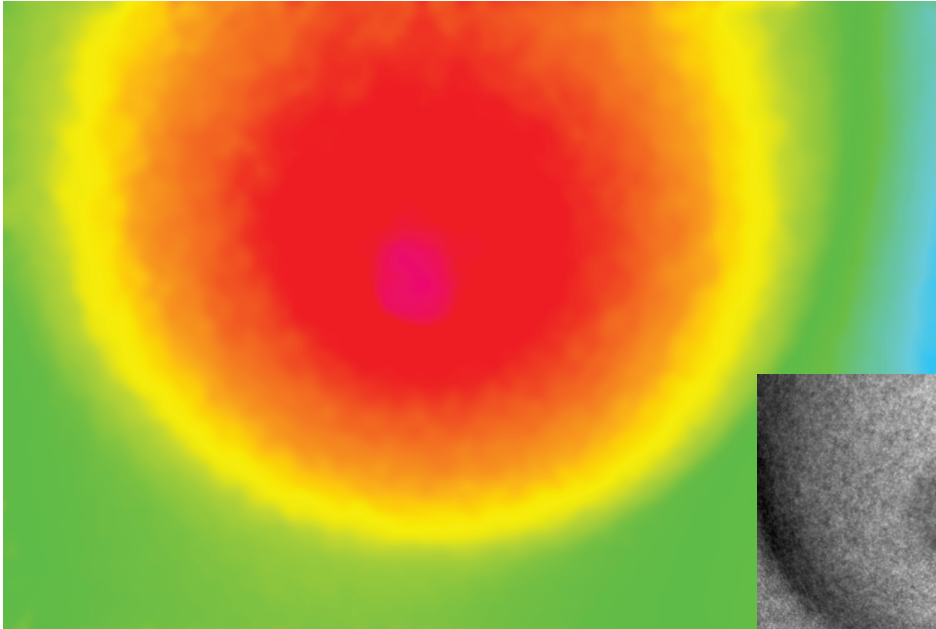
Fon: 0049 431 5606 240

Email: info@raytrix.de

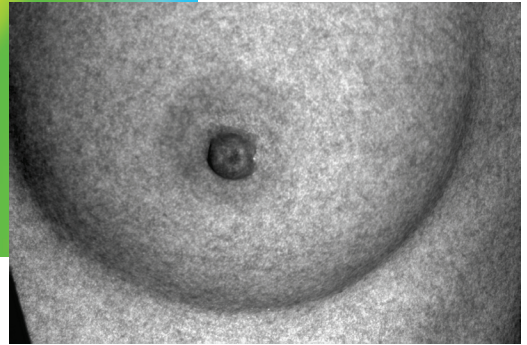
www.raytrix.de

Human Body and Skin Scanning

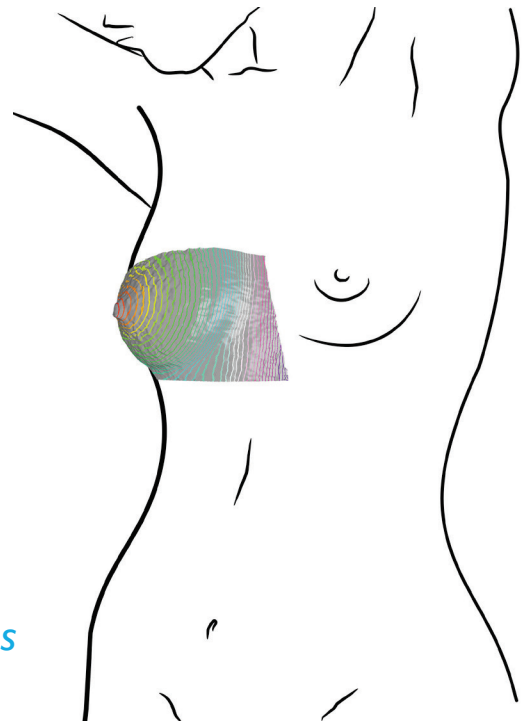
Easy to use human body and skin 3D camera with high resolution color texture delivering robust metric volume measurements with long time repeatability



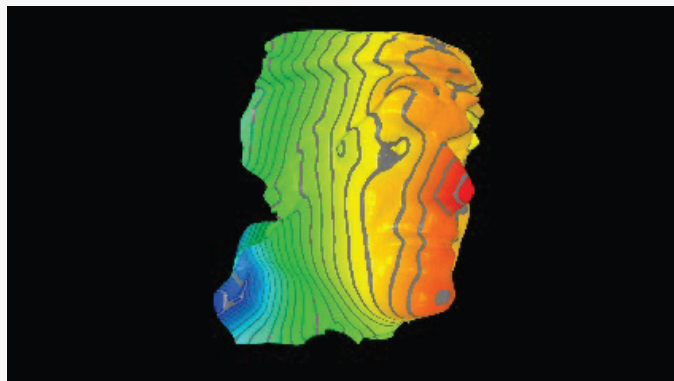
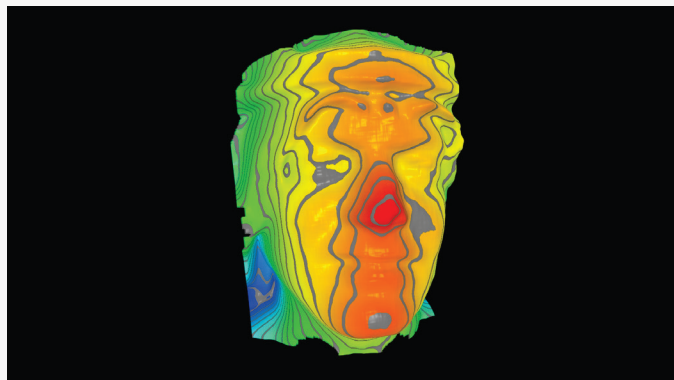
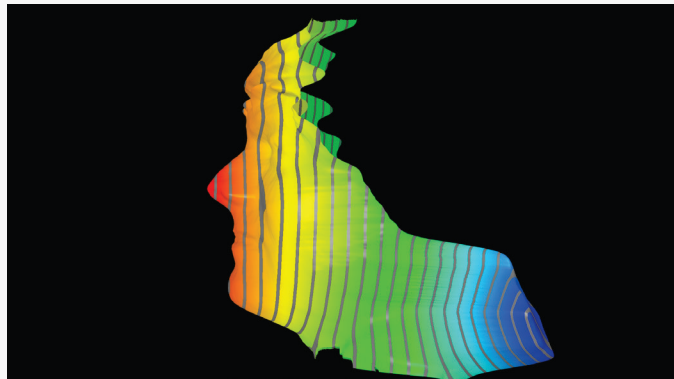
Color coded 3D depth map data of a human body breast taken in a single snap shot using a pattern projector without any calibration



3D
Light Field
Single-Lens
Camera



Face Detection / Recognition



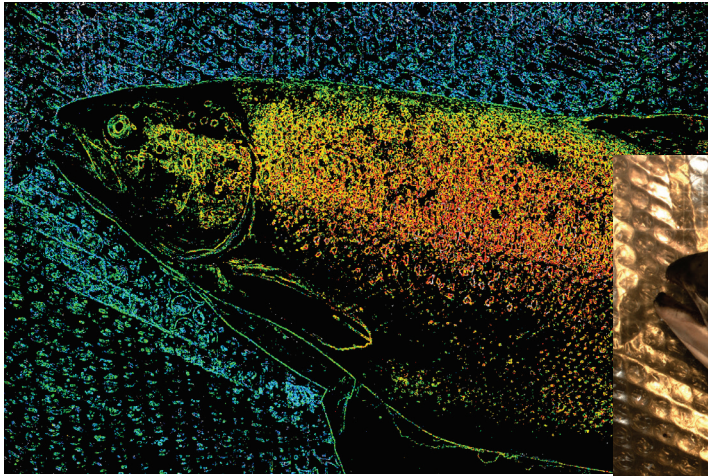
3D
Single-Lens
One-Shot
Camera

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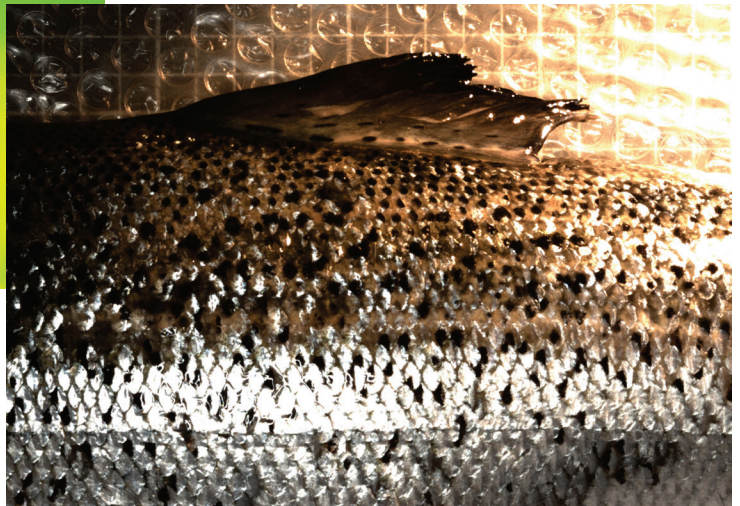
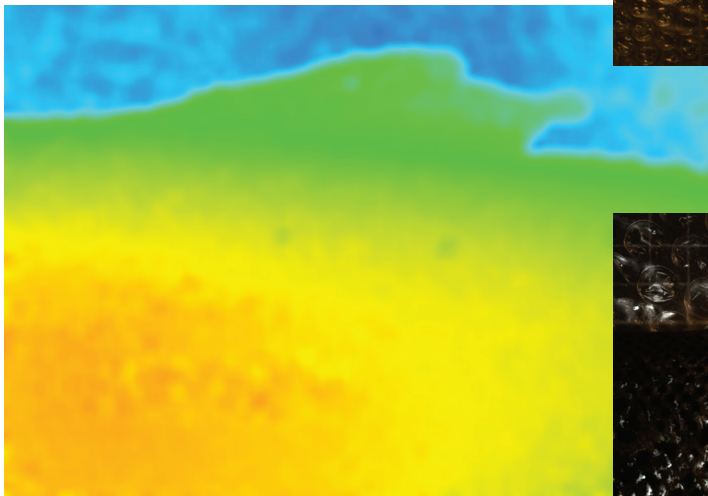
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Fish Swarm Volume Measurement

Underwater 3D data measurement of fish volume with high reflective fish surface



Color coded 3D depth map data of a fish



3D
Light Field
Underwater
Camera

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3D/2D Data in One-Shot
Long time Field-Approved

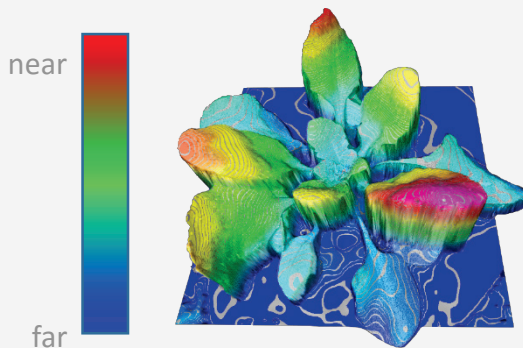
Robust against Wind,
Temperature Drifts, Vibrations

Mono/Color
VIS/IR Spectrum



3D
*Single-Lens
One-Shot
Compact-Camera*

3D
Easy Plant Acquisition



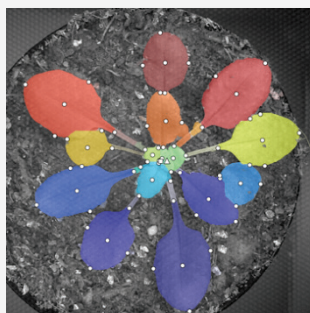
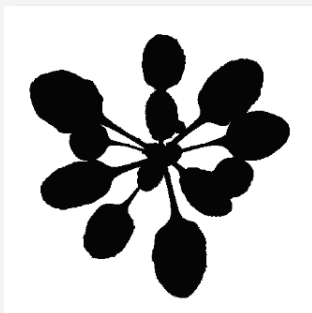
Non-Invasive
(no laser required)

Accurate at
High Throughput

Mobile (Robot) Integrable
& Space-Saving

Avoiding 3D occlusions

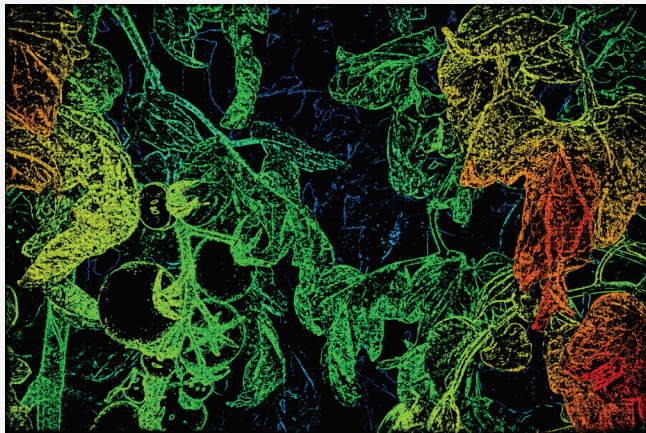
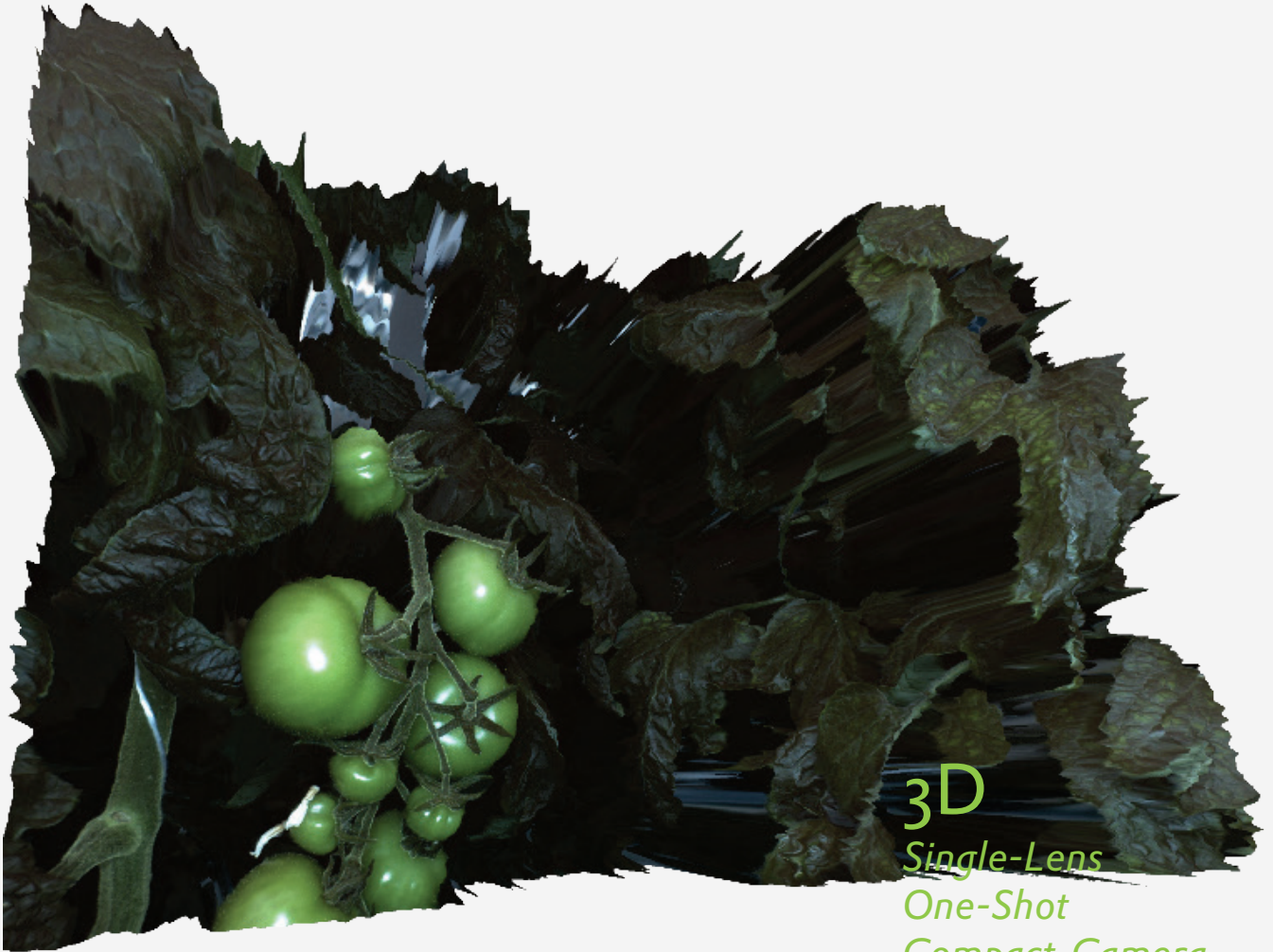
3D
Accurate Leaf-Area Measurement



[Scientific research results here](#) / [and here](#)

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[Scientific research results here](#) / [and here](#)

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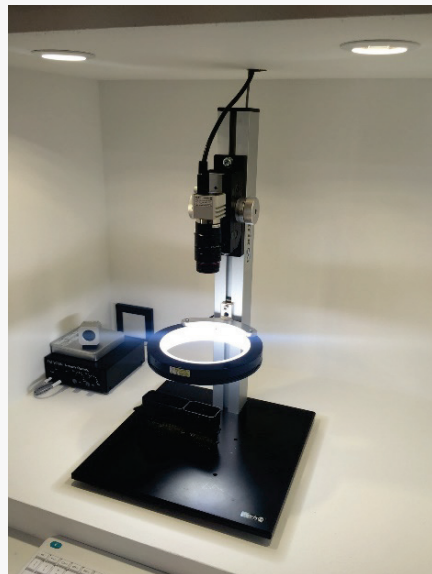
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www.raytrix.de

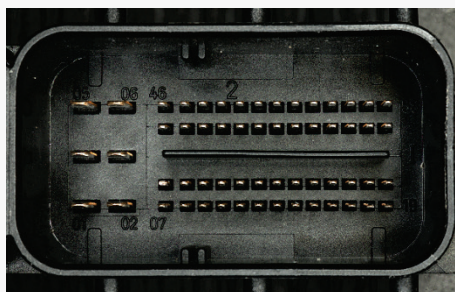
For Machine Vision

- Robust, reliable and long time Field-Approved
- Mobile robot integrable and space-saving setup
- Accurate for inspecting small parts at high throughput
- Ideal for difficult-to-access objects avoiding occlusions
- Metric 3D depth data
- No calibration to any structured light required

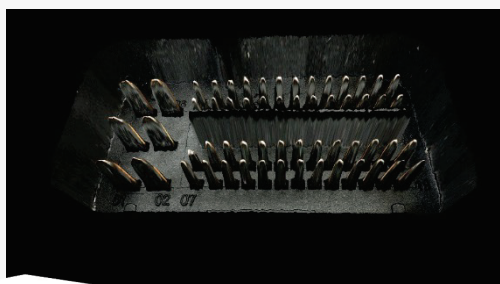
3D Single-Lens One-Shot Camera



Application Example: Plug Inspection



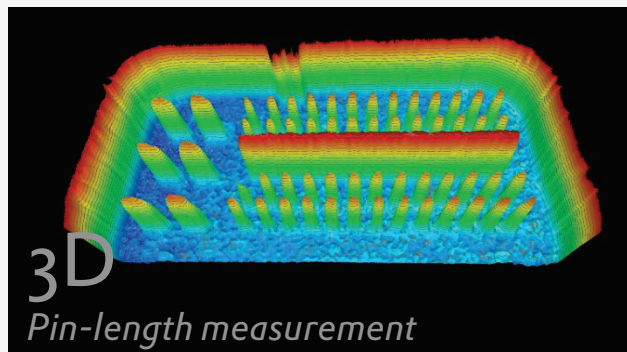
Top-view image taken in one-shot (above) results in fully reconstructed metric 3D data:



R5 / R8 High-Speed

- Up to 2 MP @ up to 180 FPS
- Color/Mono/NIR
- GigE, USB 3.0, Camera-Link

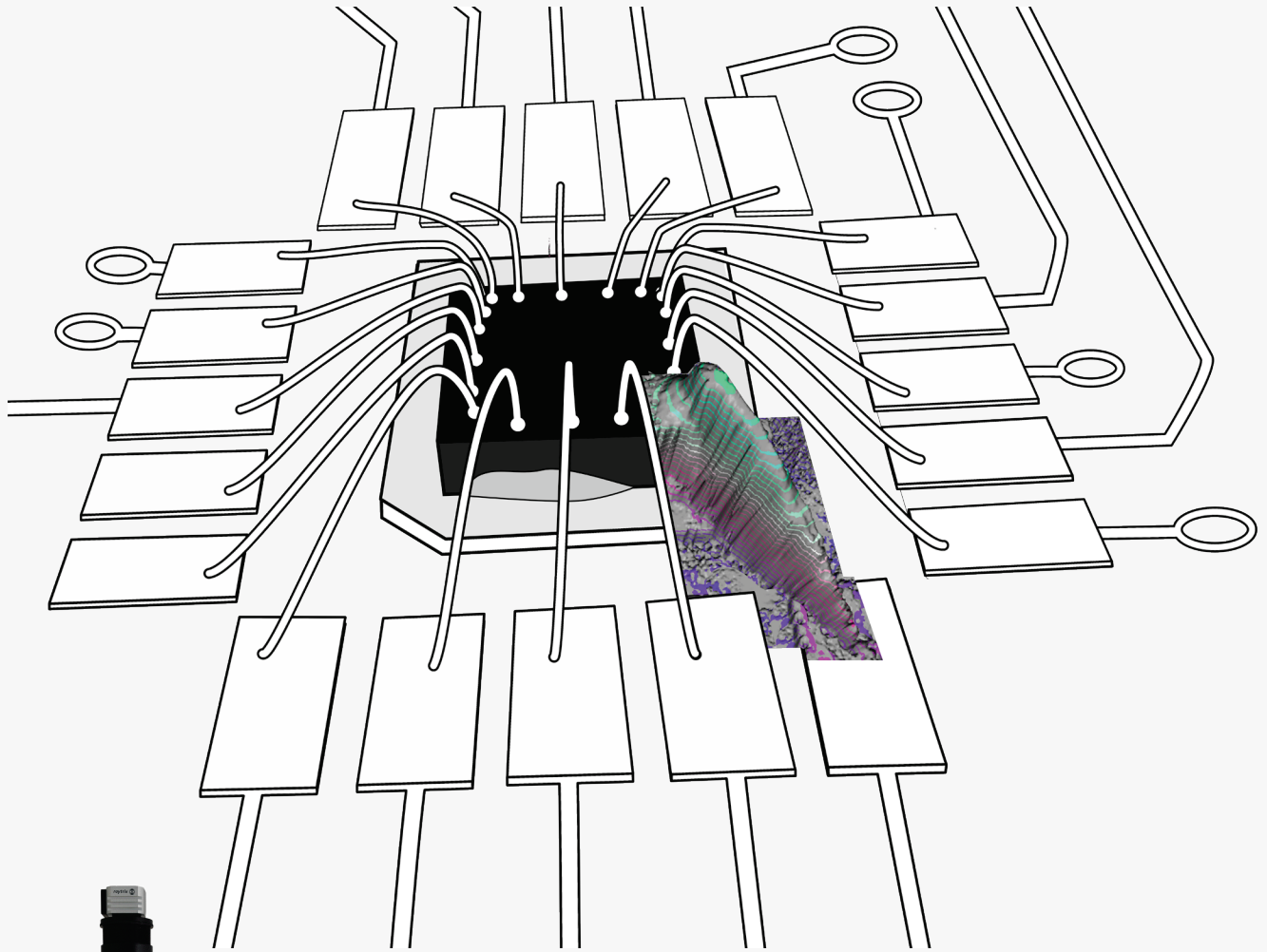
Volume (mm)	Depth Accuracy (mm)
11 x 11 x 1.8	0,015
30 x 30 x 11	0,110
42 x 42 x 22	0,220
54 x 54 x 36	0,360



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Bonding Wire & Solder Bump Inspection



3D
Single-Lens
One-Shot
Camera

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