### **3DTK – The 3D Toolkit**

The image depicts how our robot Irma3D sees itself in a mirror. The laser looking into itself creates distortions as well as changes in intensity that give the robot a single eye, complete with iris and pupil.

Thus, the image is called "Self Portrait with Duckling".

Prof. Dr. Andreas Nüchter

# 3DTK – The 3DToolkit

- Toolkit means
  - ...it is no library!
  - ...set of programs that perform a certain job



- GNU GPLv3 license with a few additional restrictions
- Same code may be licensed in some other ways as we are the sole authors and copyright holders of the work.

Julius-Maximilians-UNIVERSITÄT WÜRZBURG

3DTK – The 3D Toolkit Dr. Andreas Nüchter July 23, 2014



### 3DTK – The 3DToolkit



#### Non-OpenSource

· our crown jewels

- · slam6d
- · show
- scan\_red
- · featurebasedree
- · scanner/camera
- · and much much

User specific applications

#### **BSD or similar license models**

...that allow the lib to be used in commercial software

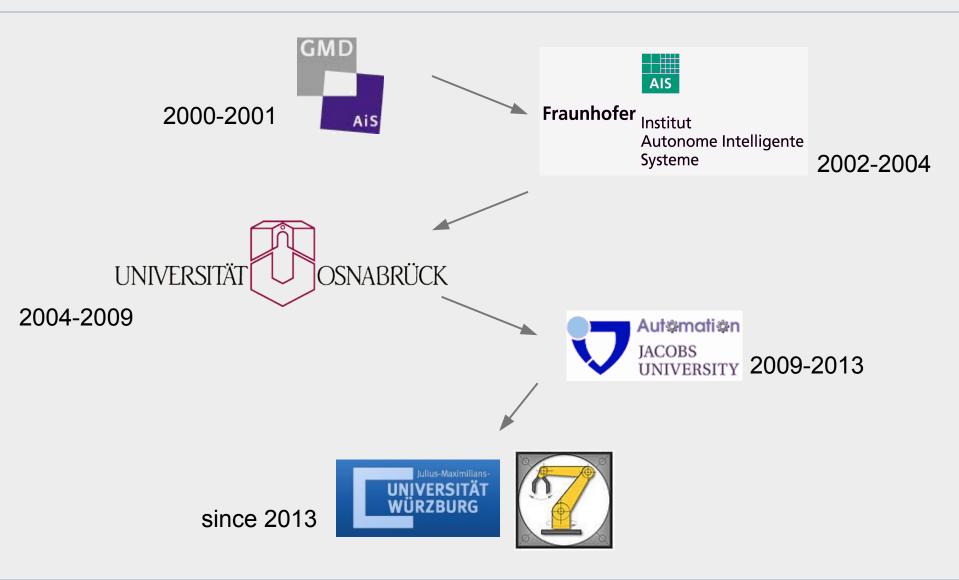
- · Boost, ROS, newmat, OpenGL, freeglut, glui, csparse, ...
- · OpenCV

Julius-Maximilians-UNIVERSITÄT WÜRZBURG

3DTK – The 3D Toolkit Dr. Andreas Nüchter July 23, 2014



## History



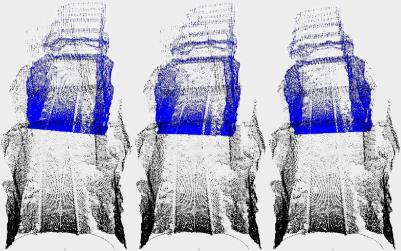


3DTK – The 3D Toolkit Dr. Andreas Nüchter July 23, 2014



## Background – SLAM/Robotics

### CMU 3D mapping of abandoned mines





(video)

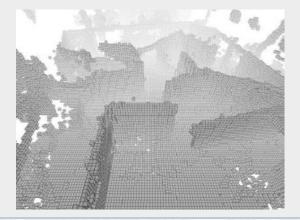
RoboCup Rescue







(video) (video)





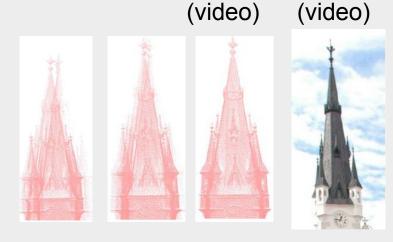
3DTK – The 3D Toolkit Dr. Andreas Nüchter July 23, 2014



## Processing of Professional 3D Laser Scans

- Terrestrial 3D Scanning
- Terrestrial & Mobile Mapping









3DTK – The 3D Toolkit Dr. Andreas Nüchter July 23, 2014

