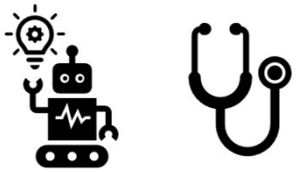
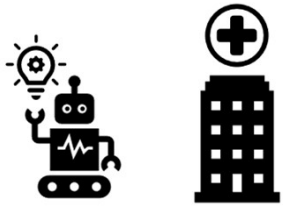
# AI/ML Imaging Tool Deployment in clinical IT infrastructure

# Motivation

i2lab is developing different AI models for imaging radiology –
with national and international partners



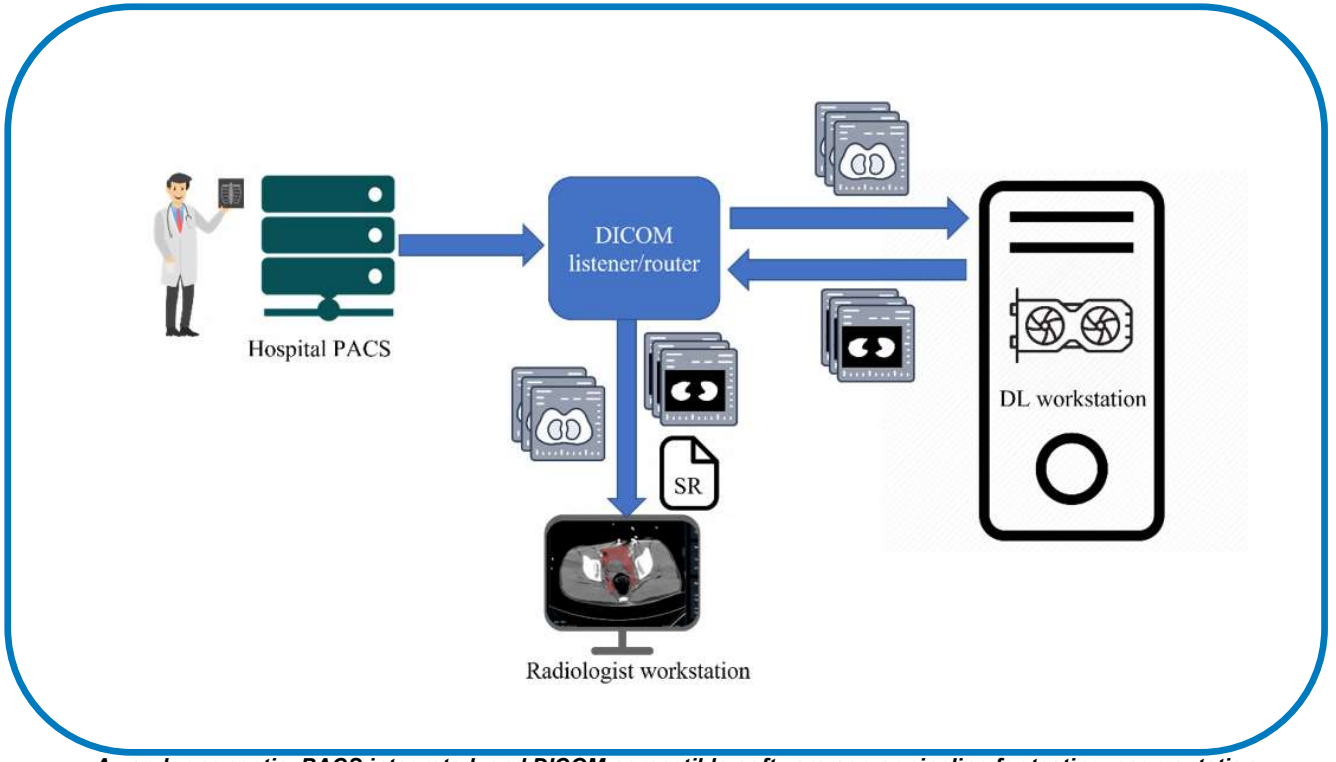
Our AI models can detect caries or severity of vertebral fractures to support clinicians



There are many different AI models for medical applications – getting it into the clinic
is the challenge we want to tackle

# Our starting point

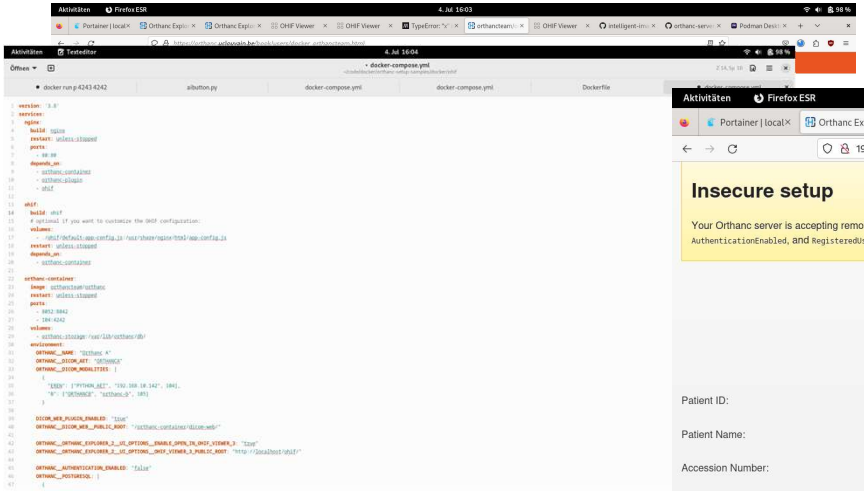
**Inspired from a recent journal article on deploying AI in clinical workflow.**

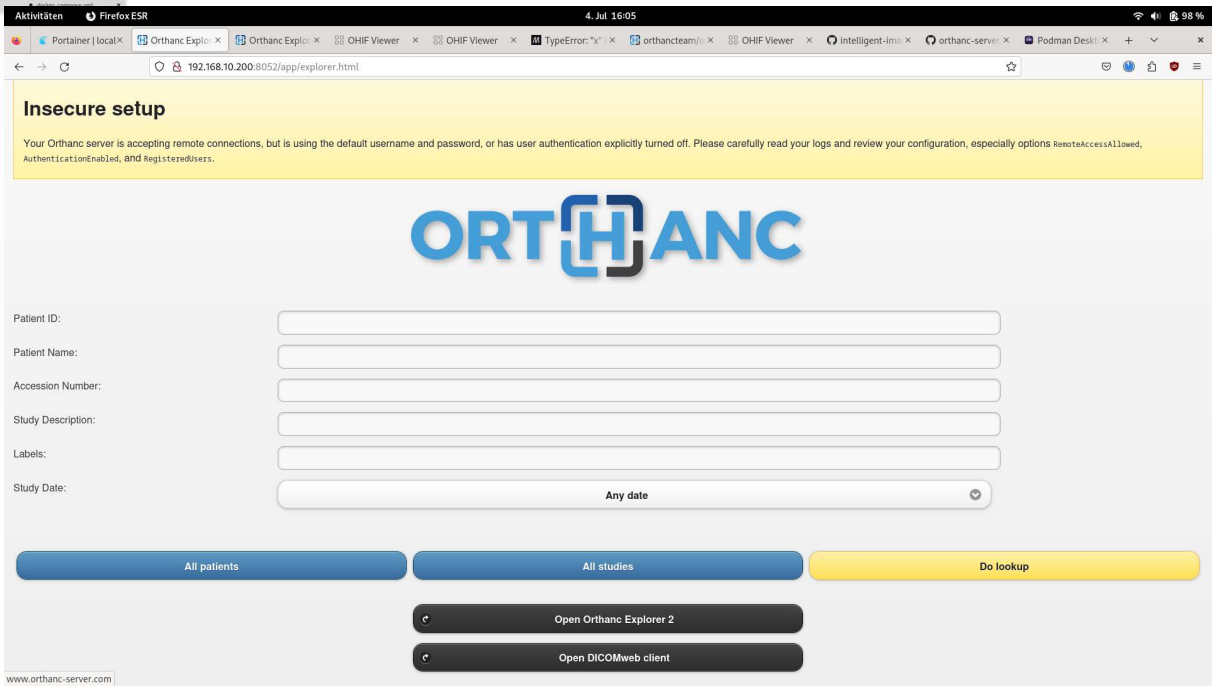



*A vendor-agnostic, PACS integrated, and DICOM-compatible software-server pipeline for testing segmentation algorithms within the clinical radiology workflow.*

# Creating a copy of a PACS user interface

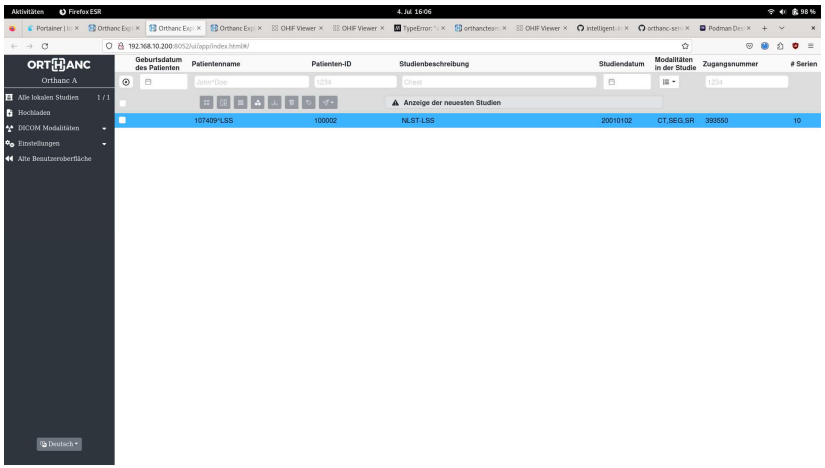
**Picture archiving and communication system (PACS) are primarily used in healthcare organizations to securely store images and clinically-relevant reports.**

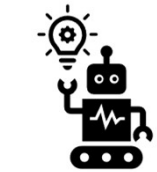


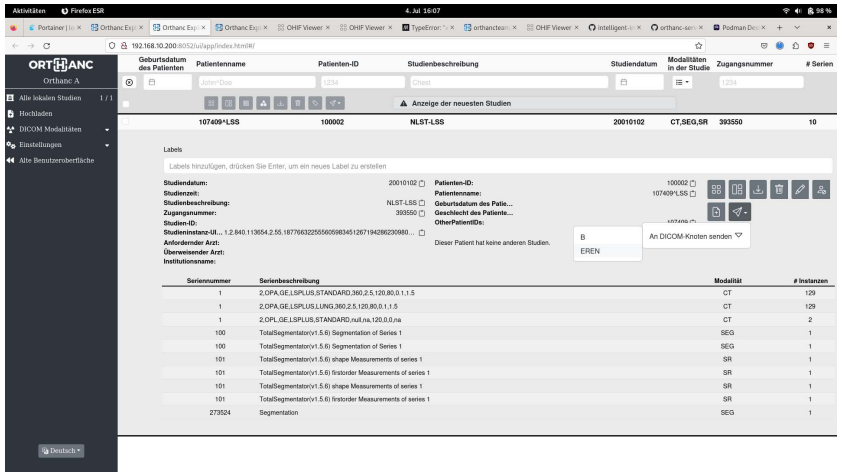


# Selecting patient study and data

**PACS web-interface in Explorer 2**



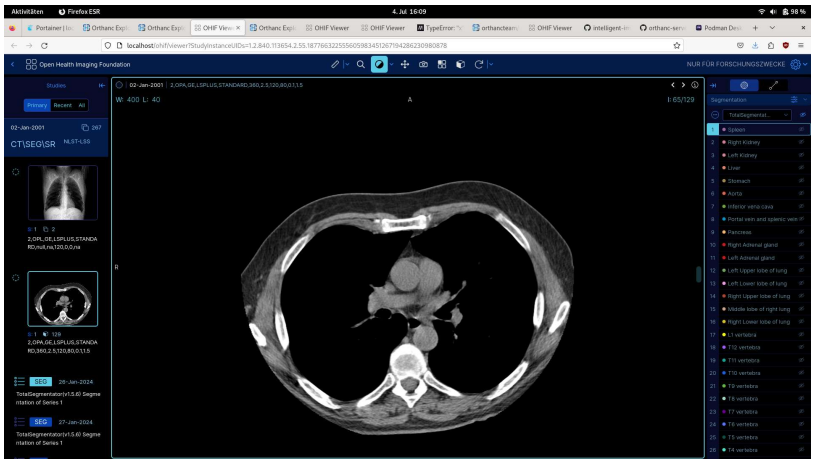


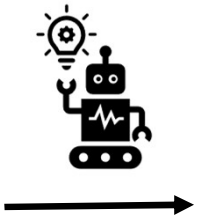

Patient data without segmentation

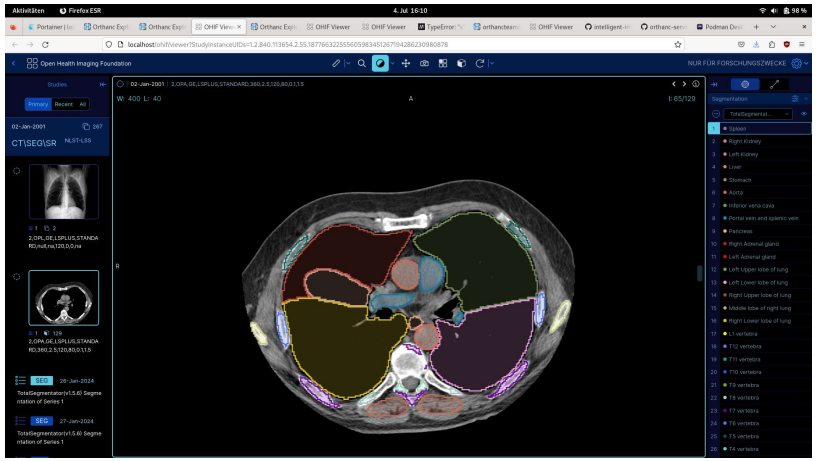
Patient data without segmentation

# Image data

**Visualization of the patient's image data in the *OHIF Viewer*, startet via the PACS web-interface**

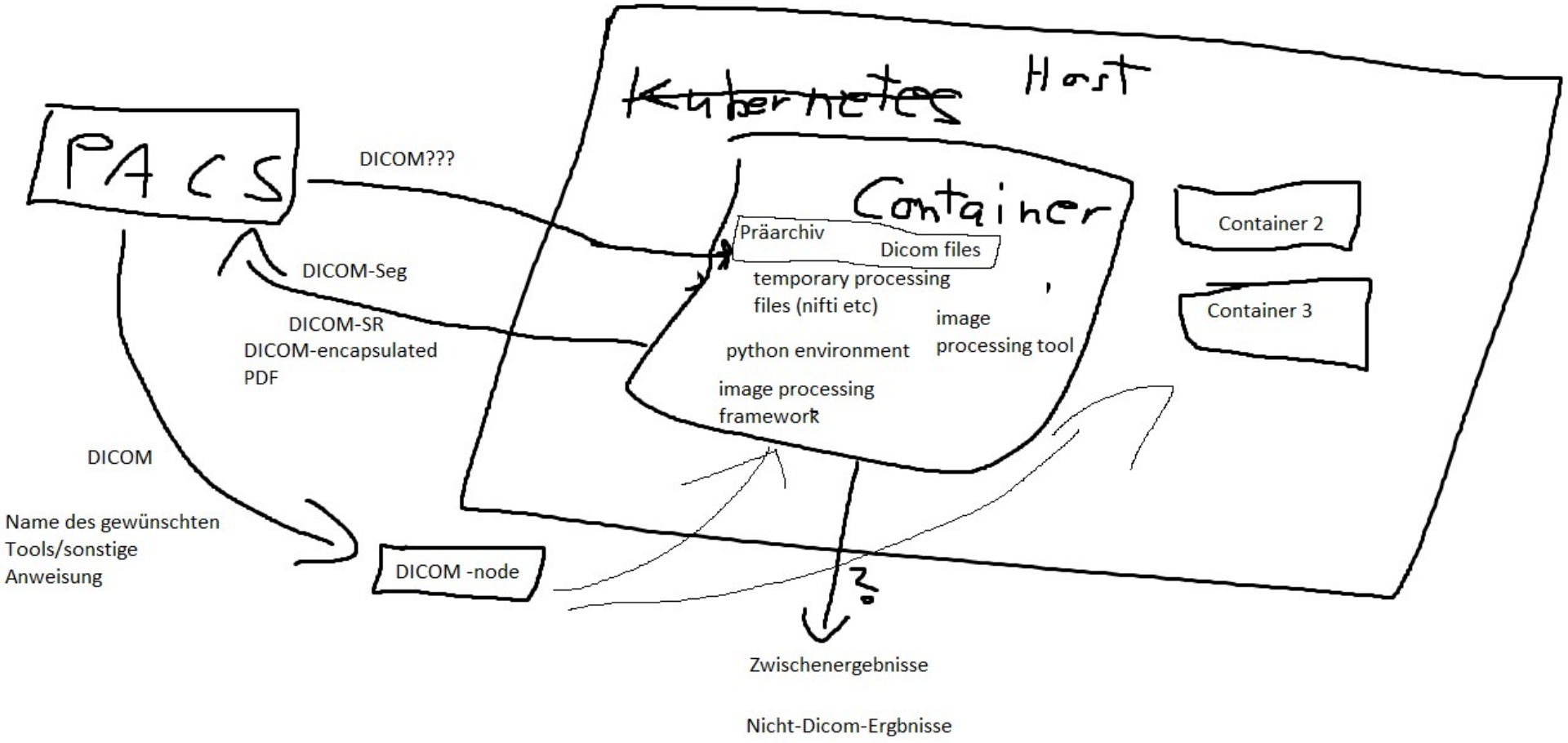




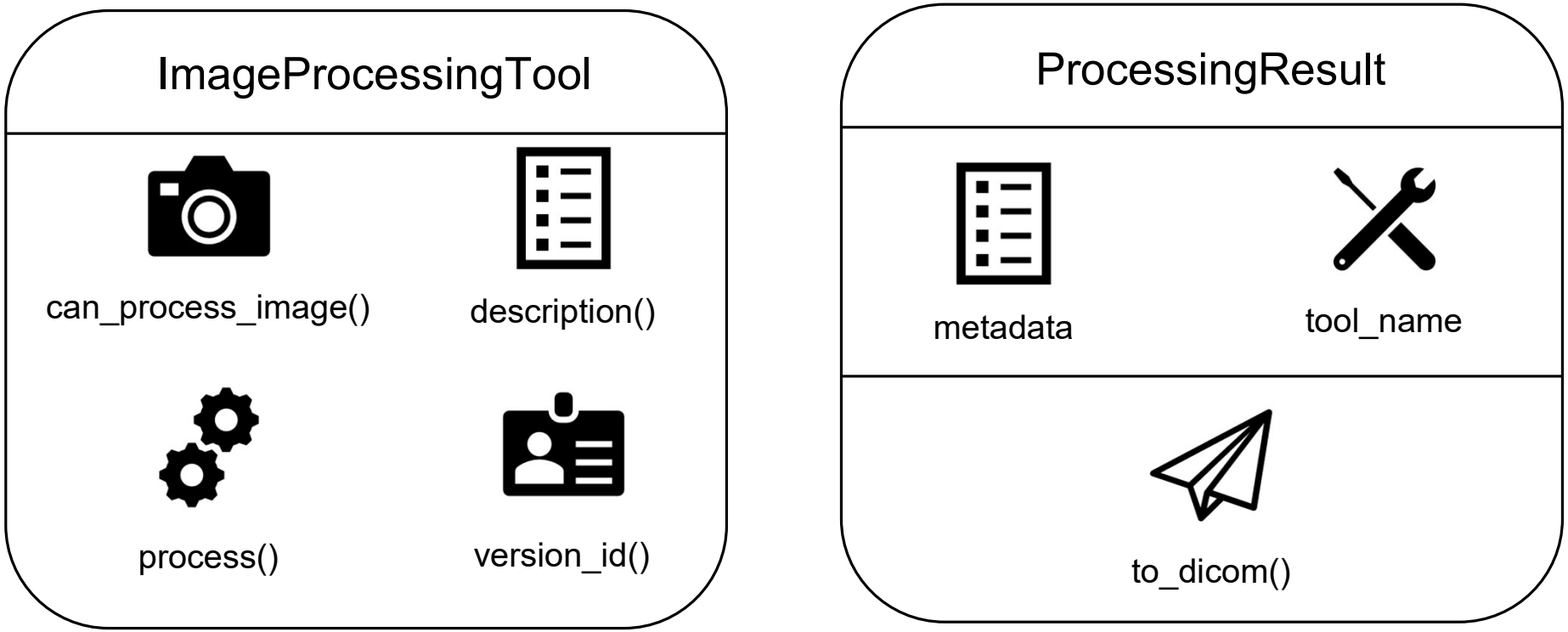


3D volume without segmentation

3D volume with segmentation


Kubernetes
Host
PACS
DICOM???
Container
Präarchiv
Dicom files
temporary processing
files (nifti etc)
image
processing tool
python environment
image processing
framework
Container 2
Container 3
DICOM-Seg
DICOM-SR
DICOM-encapsulated
PDF
DICOM
Name des gewünschten
Tools/sonstige
Anweisung
DICOM -node
Zwischenergebnisse
Nicht-Dicom-Ergbnisse

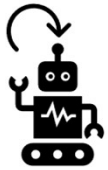
# AI tool integration



# Outlook and Challenges

Successful deployment of AI into our test environment

Converting AI outputs into DICOM data format



Test in clinic / PDF to DICOM / Integrate more AI models