



COGNEX

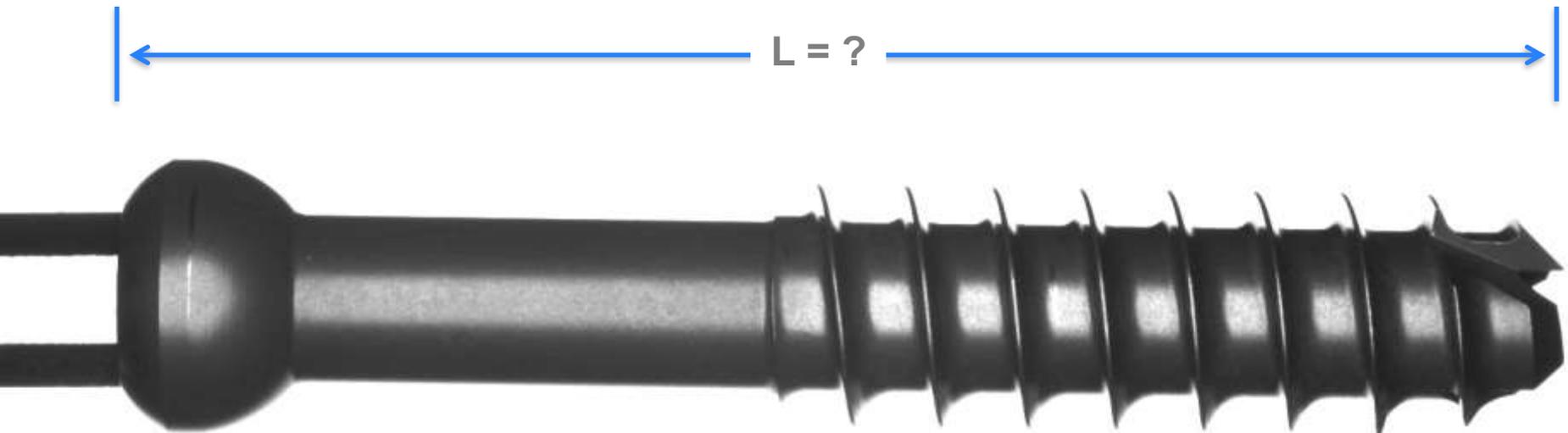
VIDI Suite

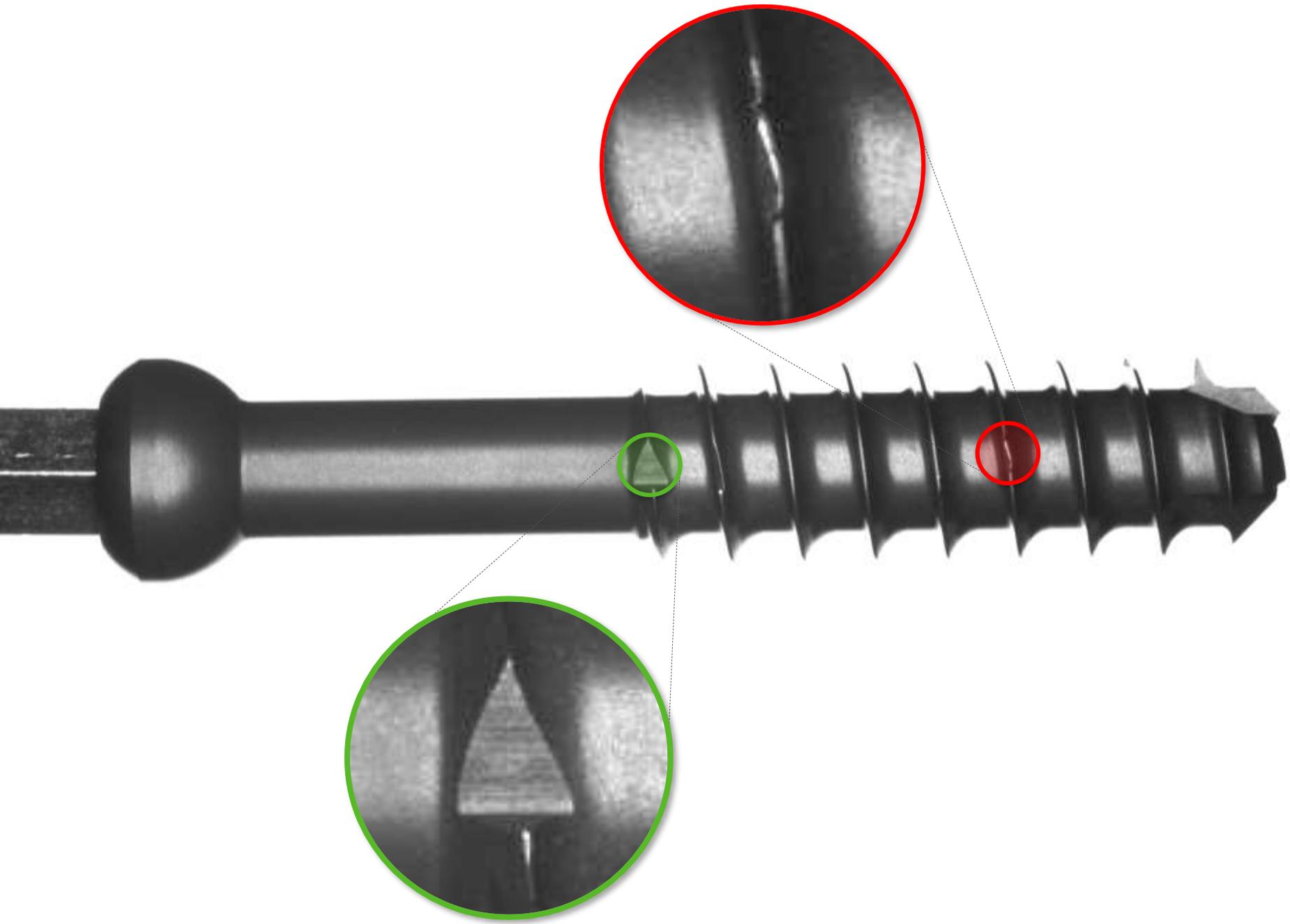
Deep Learning based image
analysis for the real world

Swissphotonics Workshop
HTW Chur June 21, 2018

Reto Wyss, PhD



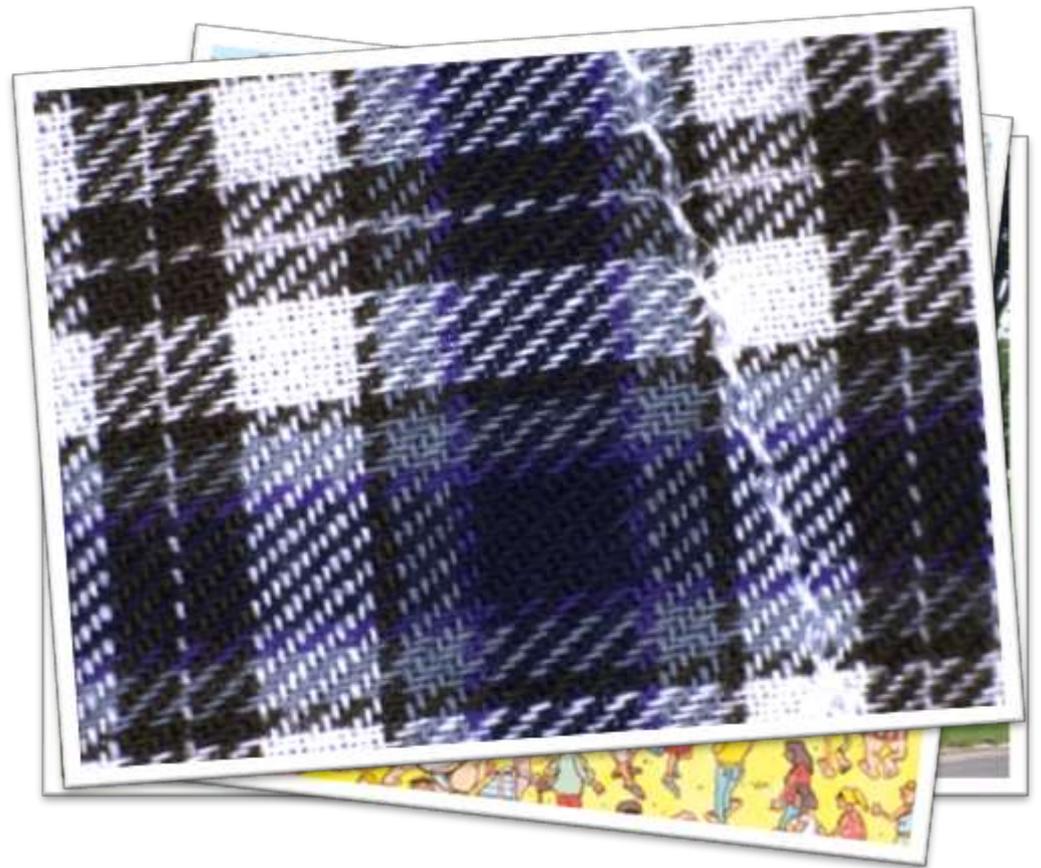




What is this?

Where is Waldo?

What's wrong?



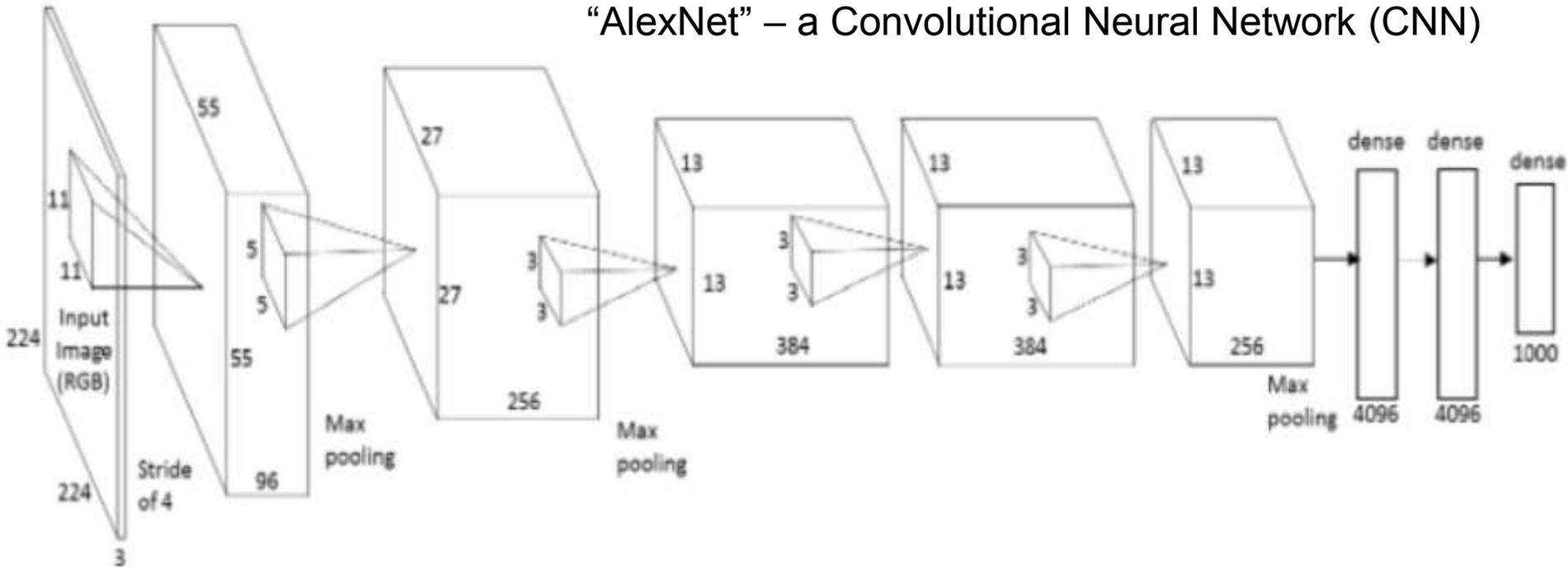


COGNEX VIDI Suite



Deep Learning

“AlexNet” – a Convolutional Neural Network (CNN)



→ state-of-the-art performance on image classification
for **thousands** of classes
trained with **millions** of images

Challenges in Industrial Applications

1



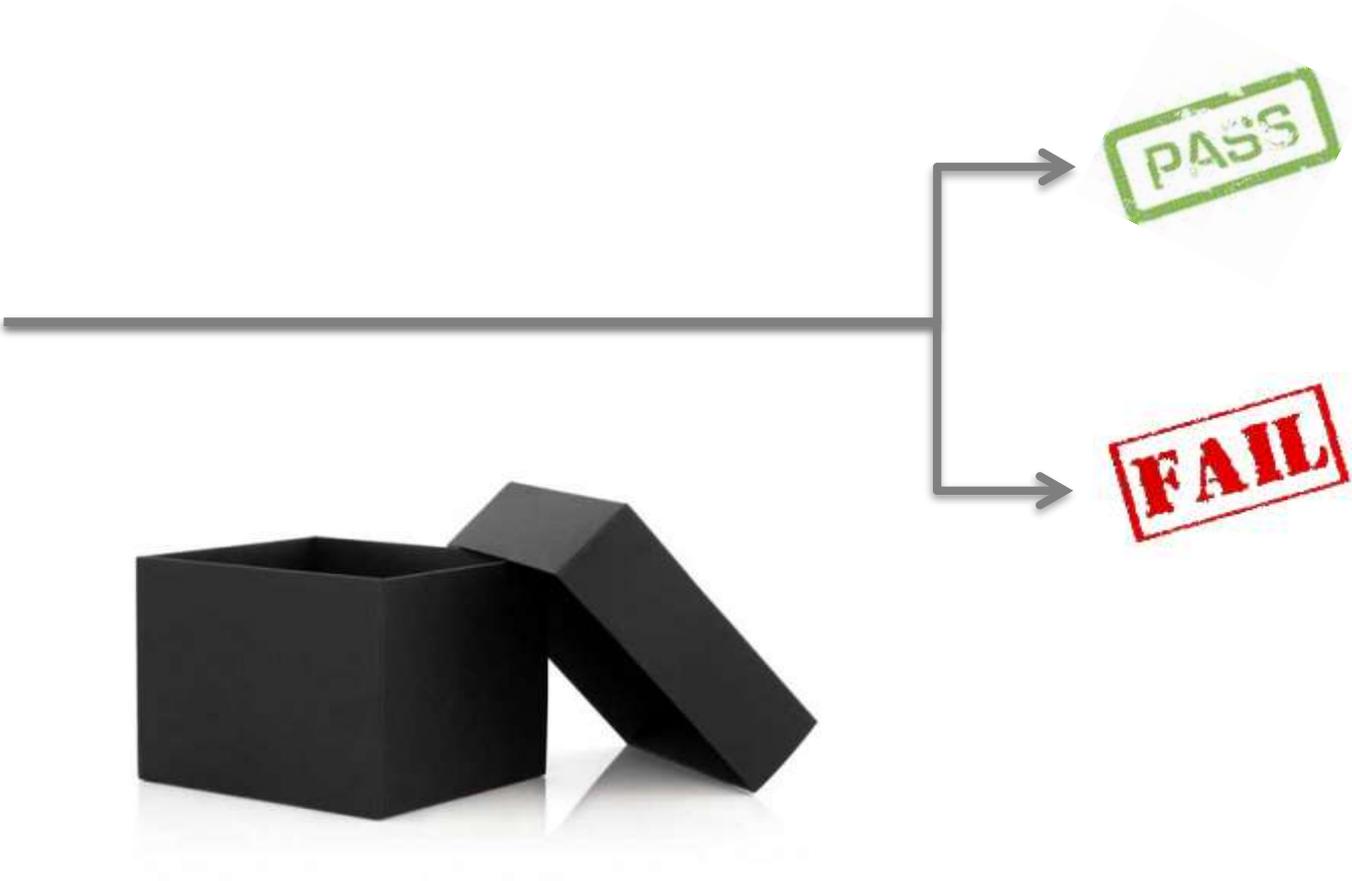
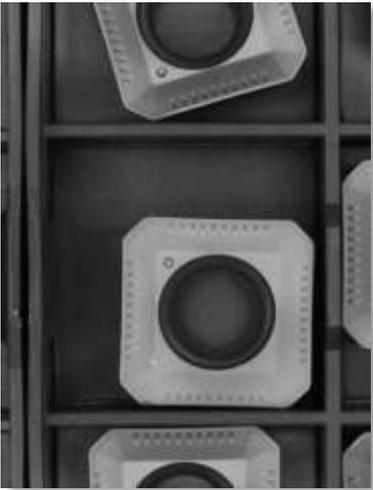
2



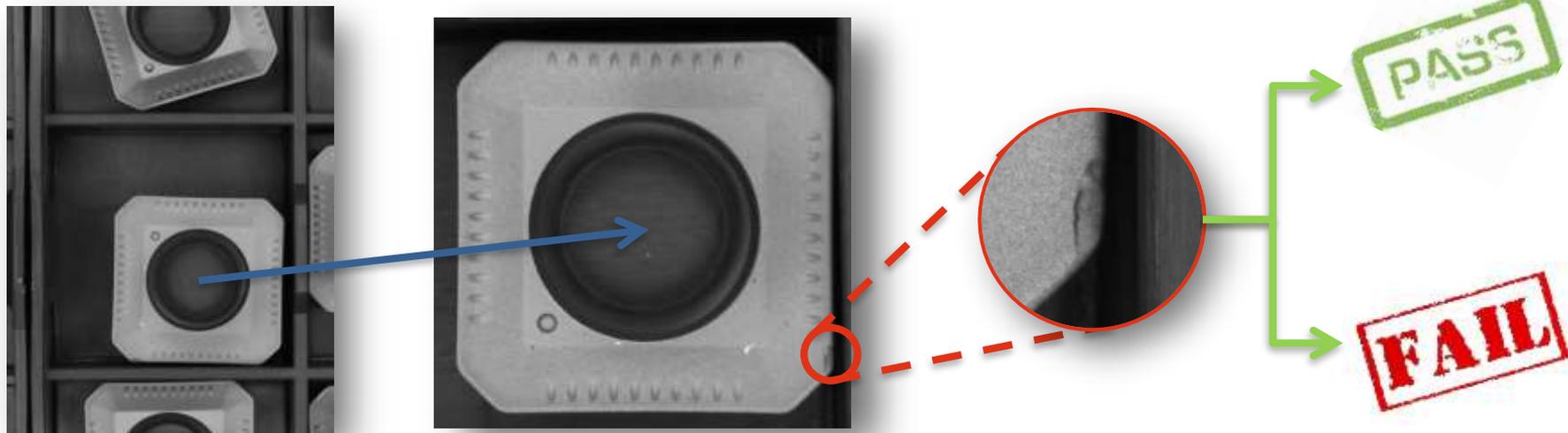
3



End-To-End Learning



Tool Chaining



localization



detection

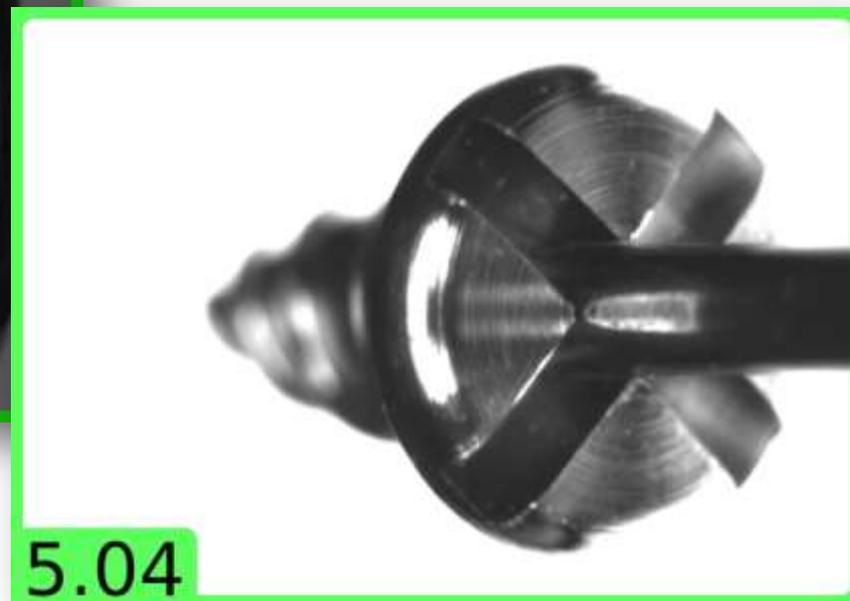
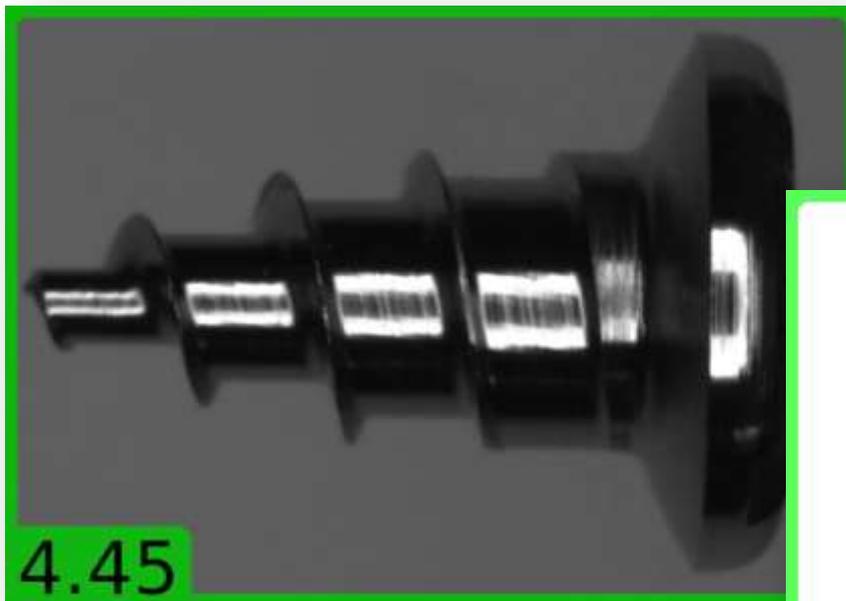


classification



Medical Screw

thread and head inspection

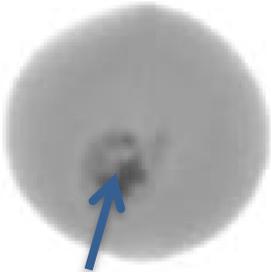


Medical Diagnosis

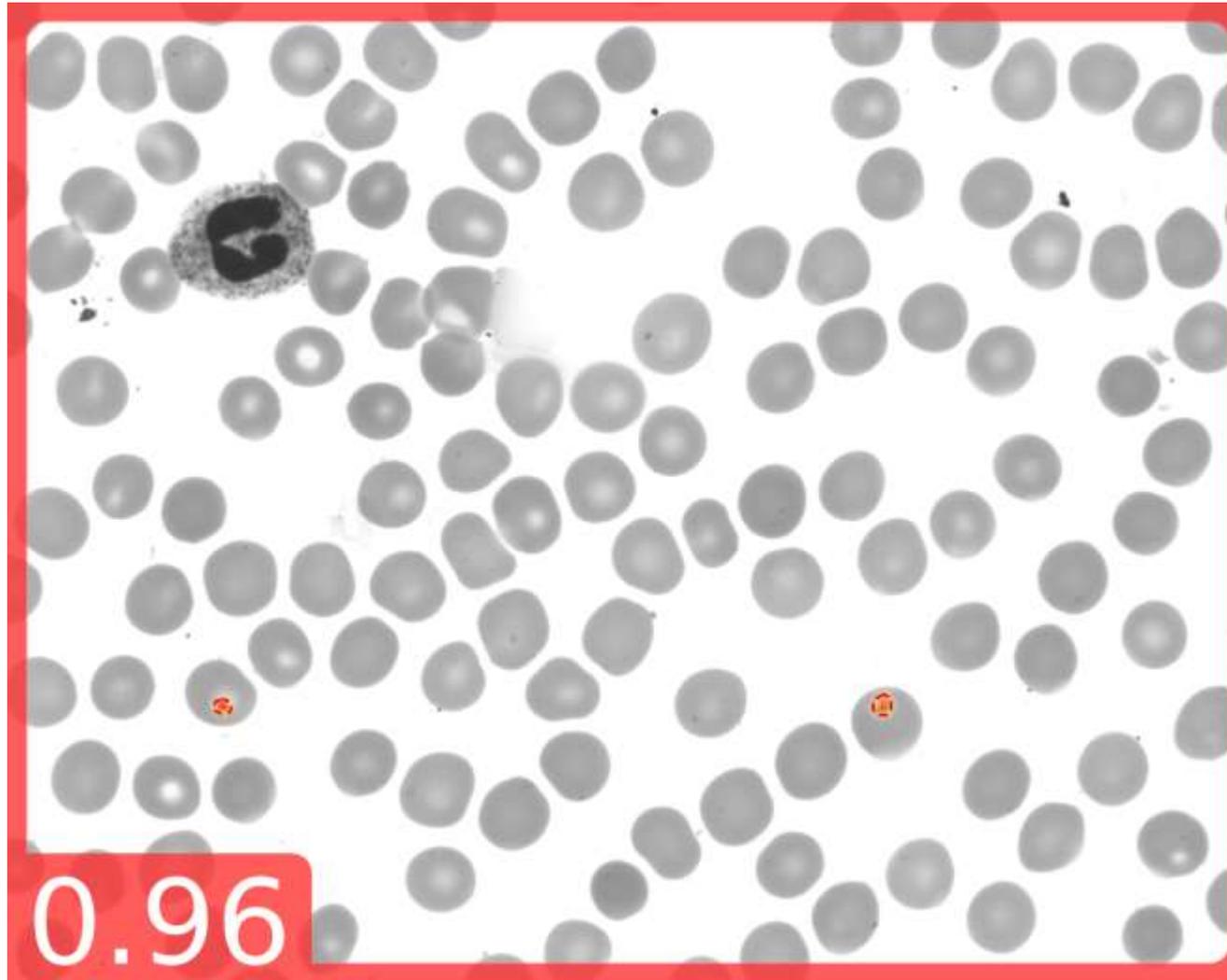
Malaria parasite detection in blood smears



Red blood cell



Malaria parasite



images courtesy by

Dr. J. Lundin, FIMM, Finland

0.96

OCR License plate reading



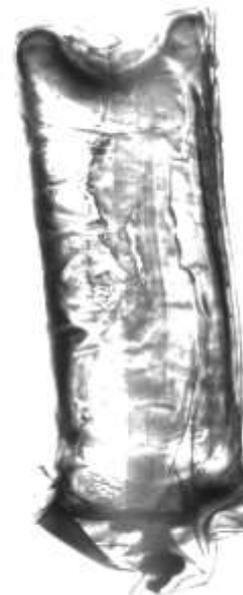
Pharma Packaging orientation of IV bags



Up or Down?



99.98% correct





COGNEX

VIDI Suite

Human-like
Self-learning
Powerful