COGNITIVE INDUSTRIAL SYSTEMS

WorkIT – Workflow and Activity Recognition for Trumpf

Pro[2]Future

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MOTIVATION & GOALS

- Device independent preparation of information
- Workflow detection for industrial processes
- Activity recognition based on human localization with respect to relative objects in the scene
- Sensor driven recording of the working environment and human factors

Project FactBox

Project Name	WorkIT
Project ID	DP 1.1
Duration	39 Months

Area 1
Perception and Aware Systems

Project Lead
Prof. Dr. Alois Ferscha

APPROACH

Data Collection

Sensor Data Acquisition
Various sensor sources optimized for application scenario:

Depth Sensor

Bending Machine

Processing

Depth Sensor preprocessing *E.g. object detection using segmentation or bounding box*

Scene Analyzing
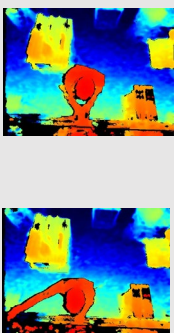*Human, Computer, Machine, Tool Table, Bending Area, Computer Area, …*

Classification

Depth Sensor specific classification *E.g. human in bending area, human in computer area, …*

Bending Machine specific information
PROGRAM_LOADED, UPPER_TOOL_CLAMP, FOOT_SWITCH_PRESSED, …

System Final Classification
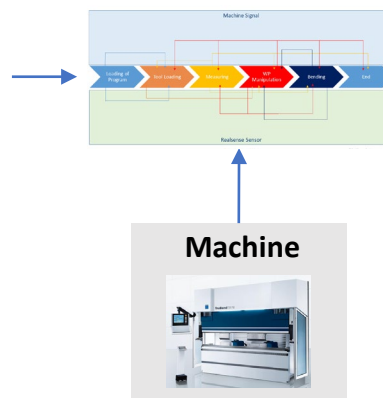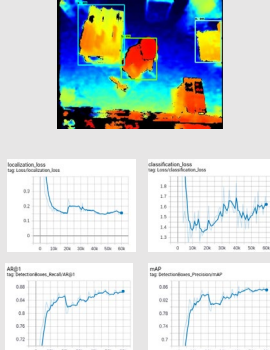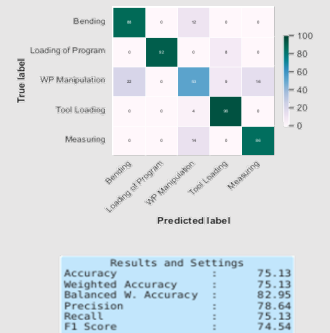*Combination of both classes from previous sensors*

PROTOTYPE

Depth Images → **Processing** → **Depth Analysis** → **Machine** → **Classification Result**

Results and Settings
Accuracy : 75.13
Weighted Accuracy : 75.13
Balanced W. Accuracy : 82.95
Precision : 78.64
Recall : 75.13
F1 Score : 74.54