

## CONSULTING FOR THE USAGE OF MACHINE LEARNING FOR MACHINE VISION APPLICATIONS

### Goal of the project

Machine learning consists of scientific study of algorithms and statistical models that computer systems use to effectively perform a specific task. Machine learning algorithms are used in a wide variety of applications (as computer vision is) where it is infeasible to develop an algorithm of specific instructions. Data mining is a field within machine learning, and focuses on exploratory data analysis through unsupervised learning. In its application across business problems, machine learning is also referred to as predictive analytics.

EVT has developed machine vision products, which not only allow precise and error-free image processing, but also products, which are one step ahead of the market. The machine vision software EyeVision by EVT is a product, which due to easy-handling is able to adopt to various applications. The research trends for it follow to enhance easy programming, easy-handling, versatility, extensibility and to get fast solutions.

### Short description of the project

EyeVision is a complete image processing package for every possible field of application. EyeVision is connecting a powerful, hardware platform independent software for Windows and Linux with a wide range of hardware for image capture and digital I/O.

All industrial inspection tasks are done fast and effectively by the all-in-one image processing software EyeVision.

### Implementation period

01.04.2018 - 01.04.2020

### Main activities

- Image Processing largely involves several processes to gain information from source data, such as for example image recognition and pattern matching. With the usual methods for image processing one can for example count objects, measure, inspect or read coded information. Image processing nowadays is used in nearly every science and engineering disciplines. One domain for image processing is the quality control at production processes such as automotive engineering, electrical and semiconductor industries, food industry and pharmaceutical industry.
- We focused on research and development of the hardware platform independent software for Windows and Linux - technical. We offer consultancy in the field of all-in-one image processing software.
- Consulting services for using applications at Machine Learning for Machine Vision.

### Results

- Machine Vision Software for VisionSensors, SmartCameras and PC Systems - EyeVision the one software for all Hardware Platforms.
- For programmers a PlugIn Interface was made, which supports easy to integrate software modules.
- The software supports all major interfaces for cameras e.g. USB, FireWire, GigE, CL, CoaXPress and analog.

### Applicability and transferability of the results

- A build in WebServer for easy remote control as well as interfaces to SAP Oracle and SQL.
- EyeVision Software is available.

### Financed through/by

EVT Eye Vision Technology GmbH, Karlsruhe Germany

### Research team

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