



DEEP TECH 2M

BOOK OF ABSTRACTS

DEEP TECH OPEN SCIENCE DAY 2024

1ST DEEP TECH OPEN SCIENCE DAY CONFERENCE
APRIL 5, 2024, KRAGUJEVAC, SERBIA

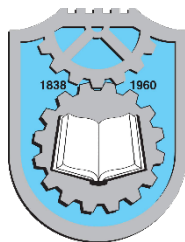


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Application of computer vision and deep learning techniques in improving safety at work

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Abstract

Artificial intelligence, and especially the field of deep machine learning, is increasingly present in almost all areas of industry. With the rapid development of computers and graphics processors, widely used for the training of deep neural networks, many previously manually solved problems can now be partially or fully automated. One of the numerous deep learning application examples is the automatic detection of objects in images (or video frames). By applying deep learning techniques in the field of computer vision, the video stream from the cameras can be monitored in real time. Deep learning algorithms, trained with appropriate data sets, are able to recognize the presence or absence of a desirable or undesirable object in a camera scene.

Safety at work can be significantly improved by applying computer vision algorithms supported by deep neural networks. Manual visual inspection of the use of personal protective equipment is very difficult or even impossible in specific working conditions. However, such inspection can be fully automated by developing inspection software based on the recognition of certain types of personal protective equipment. This study introduces an innovative paradigm: the deployment of artificial intelligence and computer vision algorithms for the automated monitoring of proper use, improper use or misuse of personal protective equipment in large working area covered by conventional video surveillance system.