Introduction

The term Machine Vision is normally used to describe systems where computer vision, image processing and machine learning methods are applied in real-life and industrially relevant applications. A large variety of these applications (e.g. quality control, pick and place) have in the past decades been successfully implemented throughout a wide range of industries. These implementations are characterized by very controlled surroundings and objects (e.g. CAD models of objects available, controlled lighting). Advanced Machine Vision refers to automated systems using computer vision and machine learning, where such assumptions do not hold, for example, when handling biological objects as seen in the food-production industry or when operating outdoors.

With recent advancements in sensing and processing power, the potential for further automation in industry based on computer vision and machine learning is clearly present. Furthermore, the exploding domain of machine learning algorithms, with a special focus on deep learning, provides dozens of new opportunities. However, there is in general a major gap between the topics in focus at major international computer vision and machine learning conferences and the actual industrial needs. At these high-end conferences, there is clearly no focus on the transferability of algorithms into practical and robust solutions for industrial challenges. The aim of this workshop is to close this gap, by bringing together both academics and practitioners from the field.

Scope

The ambition of this workshop is to bring together practitioners and researchers from different disciplines related to Advanced Machine Vision to share ideas and methods on current and future use of computer vision and machine learning algorithms in real-life and industrially relevant systems. This field raises the need of applied research that focusses on the technology transfer from academics towards practitioners, yielding several challenges like top-notch accuracies, real-time processing, minimal training data, minimal manual input, user-friendly interfaces, …
To this end we welcome contributions with a strong focus on (but not limited to) the following topics within Advanced Machine Vision:

- Data input sources (data fusion, multi-modal data)
- Improving robustness of algorithms (real-time performance, non-controlled illumination, non-trivial intra object variability, top-notch accuracies)
- Processing power and memory requirements
- Obtaining training data and ground truth
- Removing or reducing the need of training data (data augmentation, artificial data)
- Lab testing versus inline testing
- Transfer learning towards new applicational domains
- Deep learning for advanced machine vision
- Quality assessment of non-trivial objects
- Real-life and industrially relevant applications

The best paper award of 700 euro is sponsored by ROBOVISION (https://robovision.be/), a Belgian company working on applied AI, focussing on both the hardware and software challenges.

Submission Guidelines and Instructions
Papers submitted for reviewing should conform to IEEE specifications. Manuscript templates can be downloaded from IEEE website. The maximum length of papers is 8 pages. All the papers will go through double-blind peer review process. Authors’ names and affiliations should not appear in the submitted paper. Authors’ prior work should be cited in the third person. Authors should also avoid revealing their identities and/or institutions in the text, figures, links, etc.

Papers must be submitted via the CTM System by selecting the track “Special Session on Machine Learning in Advanced Machine Vision”. All accepted papers must be presented by one of the authors, who must register. Detailed instructions for submitting papers can be found at How to Submit.

Paper Publication:
Accepted papers will be published in the ICMLA 2019 conference proceedings (published by IEEE). A selected number of accepted papers will be invited for possible inclusion, in an expanded and revised form, in some journal special issues.

Important Dates:
Submission Deadline: September 7, 2019
Notification of Acceptance: October 7, 2019
Camera-ready papers & Pre-Registration: October 17, 2019
Special Session Organizers
(with email contact)

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