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Computer Vision Applications of Visual AI and Image processing

DE GRUYTER

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Introduction

Artificial Intelligence (AI) has occupied almost all the fields of our lives nowadays by making machines work and think like humans. To build the ability to "see" the objects, identify scenes and act accordingly, machines should have "vision" ability. Computer Vision(CV) is considered as one of the most powerful yet challenging fields of AI. To provide visual interpretation and contextual understanding of the digital images and videos by the machines, computer vision and its applications are well adopted by all the domains. The state-of-the-art of CV models are most useful for image and video analysis and prediction of various applications in real life. Computer vision tackles all images and visual representation/interpretation related problems using the machine's cognitive abilities that are possible with the help of deep learning approaches. This book will focus on the details of such techniques, algorithms along with the interesting case studies in the industry and also in our day today life.

This book focuses on the latest developments in the fields of visual AI, image processing and computer vision. It provides state-of-the-art applications that highlights CV algorithms, processes, novel architectures and fascinating results underlying machine intelligence with detailed execution flow of models. It contains research in basic processes like image pre-processing, feature extraction, enhancement along with interesting applications in biometrics, healthcare, criminal psychology etc.

Tentative Topics (But not limited)

- Image Preprocessing methods
- Image Feature extraction methods
- Algorithms for Image Segmentation
- Algorithms for Text retrieval from video sequences
- Image classification using AI algorithms
- Similarity measurement methods for image analysis and retrieval
- Image Enhancement Techniques
- High-level features for image recognition and retrieval
- OpenCV Libraries for computer vision
- Benchmark Image datasets for computer vision research
- Algorithms for facial expression analysis and recognition
- Computer vision for Criminal Psychology
- Computer vision for Neuroscience
- Computer vision for biometrics
- Computer Vision for healthcare applications
- A Shallow Convolutional Neural Network-based Real-Time Face Mask Detection using Transfer Learning
- Computer Vision Techniques for Enhancing National Security

Keywords: Computer vision,Image Processing,Visual AI, Artificial Intelligence, Applications

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