

CVonline: Applications



General Application Notes

1. Agricultural (plant) / forestry
 1. [Crop Treatment/Weed Classification and Control](#)
 2. Field crops
 1. [Cereal/Grain Inspection](#)
 2. [Harvest Control](#)
 3. Rice grain classification
 4. Row detection from aerial images
 5. Weed detection
 6. Yield estimation
 3. [Forest Survey/Tree Crown counting](#) (See also [Fire detection](#))
 4. Fruit
 1. Flower Detection / Counting
 2. Fruit Detection / Location
 3. [Fruit Grading](#)
 4. [Ripeness Estimation](#)
 5. [Crop Yield Estimation](#)
 5. Hyperspectral plant and soil analysis
 6. [Land Management](#)
 7. [Plant disease and parasite identification](#), Mildew and fungus detection
 8. [Plant Health / Condition Monitoring / Plant stress analysis](#)
 9. [Pollen Identification](#)
 10. [Timber/Log/Wood](#), e.g. Yield Prediction
2. Animal image analysis
 1. [Species Identification](#)
 2. Aquatic animals/fish
 1. [Age Analysis](#)
 2. Detection, tracking, species classification, and abundance estimation
 3. [Shape Modeling, Tracking and Counting](#)
 3. Flying animals/insects
 1. Counting
 2. Greenhouse Monitoring
 3. [Tracking and Behaviour Analysis](#)
 4. Land animals
 1. [Animal Detection, Tracking and Counting](#)
 2. [Flock Tracking](#)
 3. Lameness detection

4. Meat yield prediction
 1. Chicken
5. [Pregnant Animal Monitoring](#)
3. Architectural/Construction
 1. [Archeological Applications](#)
 2. [Building Description](#)
 3. Building Site Survey
 4. [Building Recognition](#)
 5. [Concrete Crack Detection](#)
 6. [Sewer Survey](#)
4. Character Recognition (Printed and Handwritten)
 1. [Arabic \(modern\)](#)
 2. [Arabic \(handwritten\)](#)
 3. [Bengali](#)
 4. [Chinese](#)
 5. [Farsi \(Persian\) Character Recognition](#)
 6. [Ethiopic Character Recognition](#)
 7. [Gujarati Character Recognition](#)
 8. Indic character recognition
 9. [Japanese](#)
 10. [Korean](#)
 11. Roman Letters
 1. [Cursive](#)
 2. [Hand Printed](#)
 3. [Machine Printed](#)
 12. [South Indian \(Tamil, Malayalam, Kannada\) Character Recognition](#)
 13. [Slant Normalization](#)
 14. [Western \(aka Arabic\) Digits](#)
5. Commercial Applications
 1. Advertising
 2. [Bank Checks](#)
 3. [Banknote Inspection](#)
 4. [Bar-Code Reading](#)
 5. Coin Authentication
 6. [Currency Verification and Recognition](#)
 7. [Seal Verification](#)
 8. Shopping checkout monitoring
 9. Vegetable Recognition/Veggie Vision
6. Cultural
 1. [Cultural Heritage Modelling and Analysis](#)
 2. [Dance Description](#)
 3. [Painting Authentication, Style Description and Similiarity Matching](#)
7. Document Processing
 1. Diagram Understanding

1. [Blueprints](#)
2. [Cartoons/Sketches](#)
3. [Electronic Circuits](#)
4. Floor Plan Analysis
5. Map Analysis
6. [Music Scores](#)
2. [Document Mosaicing](#)
3. [Equation Understanding](#)
4. [Form and Layout Understanding](#)
5. [Handwritten Note Cleaning/Letter Analysis](#)
6. [Post Code Recognition](#)
7. [Post Metering Analysis](#)
8. [Signature/Writer Verification](#)
9. [Skew Correction](#)
10. [Trademark Database Indexing](#)
11. [Watermark Extraction](#)
8. Entertainment/Media Industry
 1. [Augmented Reality/Mixed Reality](#)
 1. [Registration](#)
 2. [Virtual Sets](#)
 2. Color Processing
 1. [Color Demosaicing](#)
 2. [Color Matching](#)
 3. Image Dehazing / Fog Removal
 4. [Decoloring/optimal color to grey conversion](#)
 3. [Computer Games](#)
 1. Player Adaptation/Insertion
 4. Mobile Phone
 1. Word Detection and Translation
 5. Video
 1. [Coding](#)
 2. [Compression](#)
(See also [Image Compression](#))
 3. Copyrighted symbol detection
 4. [Cut Detection/Scene Segmentation](#)
 5. Databases
 6. [Post-Production](#)
 7. Text Detection, word detection
 8. [Video Copy/Duplicate Detection](#)
 9. [Video Digitization](#)
 10. [Video Inpainting](#)
 11. [Video Transition Effect Detection](#)
9. Environmental Analysis/Monitoring
 1. Lake, Reservoir, and River Height Assessment

2. [Oil Spill Analysis](#)
10. Forensic
 1. Blind Image Forensics
 1. [Tampering Detection](#)
 2. [Crime Scene Reconstruction](#)
 3. [Face Indexing and Identification](#) (See also [Heads and Faces](#))
 4. Fingerprints
 1. [Fingerprint Indexing and Identification](#)
 2. [Fingerprint Liveness Assessment](#)
 5. [Shoeprint Recognition](#)
 6. Smartphone image acquisition forensics
11. Human
 1. [Biometrics](#) (See also [Face Recognition](#))
 1. Age progression
 2. Eye Sclera (white) vasculature pattern
 3. [Finger Vein/Capillary Pattern](#)
 4. [Gait Analysis and Walker Identification](#)
 5. Hand Geometry
 6. [Handwriting Recognition](#)
 7. Kinship Verification
 8. Knuckleprint Recognition
 9. Liveness Assessment
 10. [Palm Print Verification](#)
 11. Physical Quantification: [age](#), beardedness
 12. Psychological Quantification: smileness, honesty, pain
 13. Retinal Patterns
 14. [Signature Identification and Verification](#)
 15. Tongueprint
 16. Tooth Fillings (xray)
 2. Body
 1. Abdominal Fat Estimation
 2. [Behavior Analysis](#)
 1. Abnormal Behavior Detection
 2. Activity Classification
 3. Daily living activity recognition
 4. Falling and slipping recognition
 5. Sport Activity Classification
 3. Detection
 1. Group Detection
 2. [Part-Based Person Detection](#)
 3. [Whole Body Detection](#)
 4. Silhouette segmentation
 4. [Gender Recognition](#)
 5. [Model Acquisition and Animation](#)

6. [Motion Tracking](#)
7. [Movement Analysis and Shape Recovery](#)
 1. Appearance Based Approaches
 1. [Articulated](#)
 2. [Exemplar Based](#)
 2. Data Acquisition
 1. [Multi-View](#)
 2. [Single View](#)
 3. Geometric Model Based Approaches
 1. [2D Articulated](#)
 2. [3D Articulated](#)
 3. [Exemplar Based](#)
 4. Loose Models
 5. [Marker Based](#)
 6. [Pose Tracking](#)
 7. Poselets
 4. Pose Estimation
 1. [Joint-Angle Estimation](#)
 2. [Posture Estimation](#)
8. [Person Location/Counting/Following](#)
9. [Posture Analysis](#)
10. [Tattoo Retrieval](#)
3. Feet
 1. [Foot Scanning/Shape Analysis](#)
4. Hands
 1. [Gesture Detection and Analysis](#)
 2. [Hand Sign Recognition](#)
 3. [Location and Tracking](#)
5. [Heads and Faces](#)
 1. Age estimation
 2. [Age Progression](#)
 3. Attractiveness estimation
 4. [Authentication and Identification](#)
 1. [3D Data Methods](#)
 2. [Color Texture Methods](#)
 3. Ear detection
 4. [Ear Recognition](#)
 5. [Eigenface/Laplacianface Methods](#)
 6. [Frontal](#)
 7. [Intensity Texture Methods](#)
 8. [Iris Segmentation and Recognition](#)
 9. Model Based Methods
 10. [Motion-Based Recognition](#)
 11. Periocular Face Recognition

12. [Profile](#)
 13. Spoofing detection
 5. [Detection, Location and Tracking](#)
 6. [Encoding and Compression](#)
 7. [Expression Understanding](#)
 8. [Eye Blink State Detection](#)
 9. [Eye Location / Tracking](#)
 10. [Feature Location and Tracking](#)
 11. [Gaze Location, Direction Estimation and Tracking](#)
 12. [Gender/Ethnicity Recognition](#)
 13. [Lip Shape Analysis, Tracking and Reading](#)
 14. [Model Acquisition and Animation](#)
 15. Skin Detection and Color Analysis (See also [TSL color space](#))
 16. Smile detection
 17. [Speech Emotion Recognition](#)
12. Human-Computer Interfaces
 1. Assistive Interfaces
 1. [Blind/Visually Impaired Person Support](#)
 2. [Elderly Falling Detection](#)
 3. [Elderly Forgetfulness Assistance](#)
 4. [Visual Mouse](#)
 2. [Game Interfaces](#)
13. [Image and Video Enhancement and Restoration](#) (See also [Noise Reduction and Image Restoration](#))
 1. [Camera Motion Compensation/De-jittering](#)
 2. [Color Correction](#)
 3. [Focus Blurring Correction](#)
 4. Illumination Artifact Removal
 5. [Image Gap Completion](#)
 6. [Motion Deblurring](#)
 7. [Nighttime Image Enhancement](#)
 8. [Object Removal](#)
 9. Prettification
 10. [Red Eye Detection and Correction](#)
 11. [Scratch and Artifact Removal](#)
 12. Stabilization
 1. [Image and Sequence Stabilization](#)
 2. [Binocular Image Stabilization](#)
 13. Temporal Resampling
 14. [Video Restoration](#)
14. [Industrial](#)
 1. [Employee Alertness Monitoring](#) (See also [Driver Alertness/Fatigue Monitoring](#))
 2. Factory Automation

1. [Assembly Feedback](#)
3. [Food Manufacture](#)
4. [Inspection](#)
 1. [Carpet](#)
 2. [Ceramics](#)
 3. Disk Head
 4. [Damage Quantification](#)
 5. Glass and Transparent Materials
 1. Absorption Defects
 2. Scattering Defects
 6. [Industrial Parts/Castings](#)
 7. Integrated Circuits
 1. [Appearance Based](#)
 2. [Range Data Based](#)
 3. Missing Component Detection
 8. [LCD/Plasma/TFT Display Inspection](#)
 9. Leather
 10. Paper/Recycled Paper
 11. [Particle Counting](#)
 12. Pharmaceutical Tablet Inspection
 13. [Printed Circuit Boards](#)
 14. Slate Tiles
 15. [Solder Joints](#)
 16. [Steel](#)
 17. [Structural Strain](#)
 18. [Structural Crack Detection](#)
 19. [Tea Inspection](#)
 20. [Textiles/Fabrics/Cloth](#)
 21. Timber/Wood (See [Forestry->Timber](#))
5. [Part Pose Estimation](#)
6. [Part Recognition](#)
7. Process Control
 1. [Paint Spraying](#)
 2. [Robot control and feedback](#)
 3. [Weld Seam Tracking](#)
 4. Wood Use/Timber Cutting (See [Forestry->Timber](#))
8. [Reverse Engineering](#)
 1. Reverse Engineering from Diagrams
 2. [From Motion](#)
 3. [Reverse Engineering from Object Contours](#)
 4. [From Range Data](#)
 5. [From Single Views](#)
 6. [From Sparse 3D](#)
15. Leisure and Entertainment

16. [Measurement](#)
 1. [Geometric Morphometrics](#)
17. [Medical \(Veterinary and Human\)](#)
 1. [Animal Disease and Parasite Identification](#)
 2. Intensity Image Based
 1. [Capsule Endoscopy Image Analysis](#)
 2. [Colposcopy/Cervical Abnormality](#)
 3. Facial Paralysis Analysis
 4. [Laryngeal Image Analysis](#)
 5. Pain Quantification
 6. [Retinal Images](#)
 1. Blood vessel detection
 1. Diabetes assessment
 2. Tortuosity estimation (hypertension)
 2. Lesion detection
 3. Macular degeneration assessment
 4. Optic disk segmentation
 7. [Skin Analysis, including Cancer](#)
 8. Surgical Instrument Detection
 3. [Microscope-Based](#)
 1. [Cell Nucleus Segmentation](#)
 2. [Chromosome Analysis](#)
 3. [HEp-2 cell classification](#)
 4. [Immunofluorescence Image Analysis](#)
 5. [Lymphoma Analysis](#)
 6. Parasite Detection and Classification
 7. [White Blood Cell Classification](#)
 4. [Multi-Mode/Multi-Image Registration and Fusion](#)
 5. Scanner-Based
 1. [Abdominal Organ Extraction](#)
 2. [Aneurysm Detection](#)
 3. [Arterial Tree Segmentation](#)
 4. [Bone Detection and Segmentation](#)
 5. [Brain Section Segmentation](#)
 6. [Bronchial Tree Extraction](#)
 7. [Cardiac Shape Extraction and Tracking](#)
 8. [Cartilage Analysis](#)
 9. Cervical, Spinal and Lumbar Vertabral Analysis
 10. [Colorectal Polyp Detection](#)
 11. [Cortical Shape Extraction](#)
 12. [Femur and Pelvis Segmentation](#)
 13. [fMRI Brain Analysis](#)
 14. [Hippocampal and Amygdala Segmentation](#)
 15. Limb Extraction

16. [Mid-sagittal Plane Detection](#)
17. Movement Compensation
 1. [Beating Heart](#)
 2. [Respiration](#)
18. [Multiple Sclerosis Lesion Segmentation](#)
19. [Prostate Segmentation](#) and cancer detection
20. Pulmonary nodule detection
21. [Radiotherapy Planning](#)
22. [Real-time Surgical Support](#)
23. [Spleen and Liver Segmentation](#)
24. [Structure Extraction](#)
25. [Tumor Detection](#)
26. [Virtual Endoscopy](#)
6. Ultrasound-based
 1. [3D Reconstruction](#)
 2. Blood Flow Monitoring
 3. [Cardiac Monitoring](#)
 4. [Fetal Monitoring](#)
 5. Molar pregnancy detection
 6. [Ovarian](#)
7. Xray-based
 1. [Angiography](#)
 2. [Bone Densitometry](#)
 3. [Breast Scan/Mammogram](#)
 4. [General Tumor Detection](#)
 5. [Lung Segmentation and Analysis](#)
 6. [Skeletal Age Estimation](#)
8. Other
 1. [Atlas-based Registration and Segmentation](#)
 2. Bone loss assessment
 3. [Deformable Biological Shape Models](#)
 4. [Dental Impression Analysis](#)
 5. [DNA/Genome Analysis](#)
 6. Fetal Surgery
 7. [Hand-washing monitoring](#)
 8. [Optical Coherence Tomography](#)
 9. Placental maturity staging
 10. [Skeletal Scintigraphy](#)
18. Meteorological
 1. Cyclone/Hurricane Detection
19. Military
 1. [Aircraft Identification/Tracking](#)
 2. [Landmine detection](#)
 3. [Missile Detection and Tracking](#)

4. [Target Recognition/Tracking](#)
5. [Vehicle Detection](#)
20. [Navigation, Mobility and Vehicle Control](#)
 1. [Docking Control](#)
 2. [Ground Tracking and Following](#)
 3. [Local Traffic Analysis](#)
 4. Map Registration and Self-Localization
 1. [Appearance Based](#)
 2. [Intensity Feature-Based](#)
 3. [Landmark Detection](#)
 4. [Radar/Range Sensing/acoustic](#)
 5. [Obstacle Detection and Avoidance](#)
 6. [Road Following](#)
 7. [Trajectory Correction](#)
 8. [Vehicle Control](#)
21. [Remote Sensing](#)
 1. [Airport Analysis, Landing Strip Identification](#)
 2. [Building Detection](#)
 3. [Change Detection \(See also Change and Moving Object Detection\)](#)
 4. [Cloud Identification/Tracking](#)
 5. [Crop/Land-Use Identification and Survey](#)
 6. [Drainage Network Analysis](#)
 7. Hyperspectral image analysis
 8. [Image-to-Map Registration](#)
 9. Material Classification
 10. [Multiple Scan Registration](#)
 11. [Photogrammetry](#)
 12. Power line detection
 13. [Road Detection, Extraction and Matching](#)
 14. [Sea/Ocean Wave Analysis](#)
 15. [Sea Ice Detection](#)
 16. [Ship/Seaport Analysis](#)
 17. [Terrain Analysis and Understanding](#)
 18. Urban Structure Classification
22. Robotics
 1. Robot Localization
 1. Floor Plan Extraction
 2. [Marker Based](#)
 3. [Omni-directional Cameras](#)
 4. [SLAM Based](#)
 5. [Visual Servoing](#)
 2. [Robot Motion Control](#)
 1. [Docking](#)
 2. [Obstacle Avoidance](#)

3. [Path Following](#)
3. [Robo-Cup Soccer Analysis](#)
23. Safety
 1. [Crowd Behavior Analysis](#)
 2. [Curb/Kerb and Step Detection](#)
 3. [Flame and Fire Detection](#)
 4. [Land Mine Detection](#)
 5. [Microwave Cold Spot Detection](#)
 6. [Particle Counting](#)
 7. [Steam and Smoke Detection](#)
24. Scientific
 1. Astronomical
 1. [Aurora Image Analysis](#)
 2. [Coronal Event Analysis](#)
 3. Galaxy detection and shape analysis
 4. Solar Flare Detection
 5. [Star Catalog](#)
 6. Star detection and analysis
 2. Biological (See also [Microscope-based medical image analysis](#))
 1. Gel electrophoresis image segmentation
 2. Leaf and leaf vein identification
 3. Microarray data classification
 4. Plankton classification
 5. Plant phenotyping
 6. Plant species identification
 7. Root system analysis
 3. Metallurgical Crystal Analysis
 4. Physics
 1. [Particle Tracking](#)
 5. Protein Folding Recognition
25. [Security and Surveillance](#)
 1. [Anomalous Behavior Detection](#)
 2. Background Labelling
 3. [Car Park Surveillance](#)
 4. Change Detection (See [Change and Moving Object Detection](#))
 5. [Intruder Detection and Tracking](#)
 6. Metal Detection
 7. [Multi-Camera Networks](#)
 8. [Pedestrian Surveillance](#)
 9. [People Counting](#)
 10. [Person Re-identification](#)
 11. [Queue Analysis](#)
 12. [Surveillance Prioritization](#)
 13. [Workflow Verification and Monitoring](#)

26. Sports

1. [Event Detection/analysis](#)
2. [Play Annotation](#)
3. Performance Analysis

27. [Traffic and Transport](#)

1. Aerial

1. [Airport Monitoring](#)
2. UAV detection and tracking
3. UAV landing zone detection

2. Automotive

1. ADAS - Autonomous Driving Assistance System
 2. Bicycle Detection
 3. [Blind Spot Monitoring](#)
 4. [Driver Alertness/Fatigue Monitoring](#) (See also [Employee Alertness Monitoring](#))
 5. Fog Detection
 6. [Driver Support](#)
 7. Driving Event Detection and Classification
 8. Other Vehicle Detection and Behavior Analysis
 9. Passing/Overtaking Detection
 10. [Pedestrian Detection](#)
 11. Road Lane Detection
 12. [Road Sign Identification](#)
 13. Traffic light detection and analysis
3. Passenger counting and waiting analysis
 4. Passenger monitoring
 5. [Railroad Analysis](#)
 6. [Road Structure Analysis](#)
 7. [Seaport Monitoring](#)
 8. Tunnel Inspection
 9. [Traffic Analysis](#)
 10. [Vehicle Detection, Monitoring and Tracking](#)
 11. [Vehicle License/Number Plate Analysis](#)
 12. [Vehicle Model Identification](#)

28. [Virtual Reality](#)

1. Architectural Model Construction (see [Architectural/Construction Model Reconstruction](#))
2. [Object Model Construction](#)
3. VR from Intensity Data
4. VR from Range Data

29. Other

1. Calibration target detection and mark extraction
2. Food nutrition content prediction
3. Garment motion analysis

4. Haze removal
5. [Image Mosaicing](#)
6. [Image Stitching](#)
7. [Nighttime Video Enhancement](#)
8. QR code detection and recognition
9. [Steganography/Information Hiding](#)
10. [Text Detection in Video](#)
11. [Texture Synthesis](#)
12. [Video Sequence Synchronization](#)
13. Video Temporal Resampling

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