

**CPC****COOPERATIVE PATENT CLASSIFICATION****G06T****IMAGE DATA PROCESSING OR GENERATION, IN GENERAL**

(specially adapted for particular applications, see the relevant subclasses, e.g. [G06K](#), [G09G](#), [H04N](#))

**NOTES**

1. This subclass covers:
  - arrangements for geometrically modelling objects, whether the final model is used for display of an image of the object or for some other purpose, such as manufacture of a corresponding object;
  - arrangements for analysing the geometric attributes of an image of an object.
2. This subclass does not cover:
  - reading or recognising printed or written characters or recognising patterns, e.g. fingerprints, which is covered by subclass [G06K](#);
  - modification of image data to allow display using multiple viewports, which is covered by subclass [G09G](#);
  - circuits for generating functions for visual indicators, which are covered by subclass [G09G](#);
  - scanning of documents or the like in pictorial communication, which is covered by subclass [H04N](#).

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[G06T 1/40](#) covered by [G06T 1/20](#)

**G06T 1/00****General purpose image data processing**[G06T 1/0007](#)

- {Image acquisition}

[G06T 1/0014](#)

- {Image feed-back for automatic industrial control, e.g. robot with camera ([robots B25J 19/023](#))}

[G06T 1/0021](#)

- {Image watermarking}

[G06T 1/0028](#)

- • {Adaptive watermarking, e.g. Human Visual System [HVS]-based watermarking}

[G06T 1/0035](#)

- • • {Output size adaptive watermarking}

[G06T 1/0042](#)

- • {Fragile watermarking, e.g. so as to detect tampering}

[G06T 1/005](#)

- • {Robust watermarking, e.g. average attack or collusion attack resistant}

[G06T 1/0057](#)

- • • {Compression invariant watermarking}

[G06T 1/0064](#)

- • • {Geometric transform invariant watermarking, e.g. affine transform invariant}

[G06T 1/0071](#)

- • • {using multiple or alternating watermarks}

[G06T 1/0078](#)

- • • {using multiple thresholds}

[G06T 1/0085](#)

- • {Time domain based watermarking, e.g. watermarks spread over several images}

[G06T 1/0092](#)

- • {Payload characteristic determination in a watermarking scheme, e.g. number of bits to be embedded}

- G06T 1/20
  - Processor architectures; Processor configuration, e.g. pipelining ([architectures of general purpose stored programme computers G06F 15/76](#))
- G06T 1/60
  - Memory management
- G06T 3/00**
  - Geometric image transformation in the plane of the image, e.g. from bit-mapped to bit-mapped creating a different image**
- G06T 3/0006
  - {Affine transformations ([G06T 3/4038](#), [G06T 3/0068](#) take precedence)}
- G06T 3/0012
  - {Context preserving transformation, e.g. by using an importance map ([G06T 3/0062](#) takes precedence)}
- G06T 3/0018
  - . {Fisheye, wide-angle transformation}
- G06T 3/0025
  - . {Detail-in-context presentation ([G06T 3/0018](#) takes precedence)}
- G06T 3/0031
  - {for topological mapping of a higher dimensional structure on a lower dimensional surface}
- G06T 3/0037
  - . {Reshaping or unfolding a 3D tree structure onto a 2D plane}
- G06T 3/0043
  - . {Surface of revolution to planar image transformation}
- G06T 3/005
  - {for projecting an image on a non-planar surface, e.g. a geodetic screen}
- G06T 3/0056
  - {the transformation method being selected according to the characteristics of the input image}
- G06T 3/0062
  - {Panospheric to cylindrical image transformation}
- G06T 3/0068
  - {for image registration, e.g. elastic snapping}
- G06T 3/0075
  - . {using affine transformations}
- G06T 3/0081
  - . {by elastic snapping}
- G06T 3/0087
  - {Spatio-temporal transformations, e.g. video cubism}
- G06T 3/0093
  - {for image warping, i.e. transforming by individually repositioning each pixel}
- G06T 3/20
  - Linear translation of a whole image or part thereof, e.g. panning
- G06T 3/40
  - Scaling the whole image or part thereof
- G06T 3/4007
  - . {Interpolation-based scaling, e.g. bilinear interpolation ([G06T 3/4015](#), [G06T 3/403](#) take precedence)}
- G06T 3/4015
  - . {Demosaicing, e.g. colour filter array [CFA], Bayer pattern}
- G06T 3/4023
  - . {Decimation- or insertion-based scaling, e.g. pixel or line decimation}
- G06T 3/403
  - . {Edge-driven scaling}
- G06T 3/4038
  - . {for image mosaicing, i.e. plane images composed of plane sub-images}
- G06T 3/4046
  - . {using neural networks}
- G06T 3/4053
  - . {Super resolution, i.e. output image resolution higher than sensor resolution}
- G06T 3/4061
  - . . {by injecting details from a different spectral band}
- G06T 3/4069
  - . . {by subpixel displacement}
- G06T 3/4076
  - . . {by iteratively correcting the provisional high resolution image using the original low-resolution image}
- G06T 3/4084
  - . {Transform-based scaling, e.g. FFT domain scaling}
- G06T 3/4092
  - . {Image resolution transcoding, e.g. client/server architecture}
- G06T 3/60
  - Rotation of a whole image or part thereof
- G06T 3/602
  - . {Block rotation, e.g. by recursive reversing or rotating}

G06T 3/604	• • {using a CORDIC [COordinate Rotation Digital Compute] device}
G06T 3/606	• • {Rotation by memory addressing or mapping}
G06T 3/608	• • {Skewing or deskewing, e.g. by two-pass or three-pass rotation}
<b>G06T 5/00</b>	<b>Image enhancement or restoration, e.g. from bit-mapped to bit-mapped creating a similar image</b>
G06T 5/001	• {Image restoration}
G06T 5/002	• • {Denoising; Smoothing (noise processing or correction adapted to be used in an image pickup device containing and electronic image sensor <a href="#">H04N 5/217</a> , <a href="#">H04N 5/357</a> to <a href="#">H04N 5/365</a> )}
G06T 5/003	• • {Deblurring; Sharpening (vibration or motion blur correction for cameras comprising an electronic image sensor <a href="#">H04N 5/23264</a> )}
G06T 5/004	• • • {Unsharp masking}
G06T 5/005	• • {Retouching; Inpainting; Scratch removal (detecting, correction, reducing or removing defects, e.g. non-responsive pixels of solid state image sensors <a href="#">H04N 5/367</a> , scratch removal for cinematographic films scanned by electronic image sensor <a href="#">H04N 5/253</a> )}
G06T 5/006	• {Geometric correction (detecting, correcting, reducing or removing artefacts resulting only from the lens unit, e.g. flare, shading, vignetting or "cos4" <a href="#">H04N 5/3572</a> , correction of chromatic aberrations adapted to be used in an image pickup device containing and electronic image sensor <a href="#">H04N 9/045</a> )}
G06T 5/007	• {Dynamic range modification (applied in cameras using an electronic image sensor <a href="#">H04N 5/2355</a> , <a href="#">H04N 5/2356</a> )}
G06T 5/008	• • {Local, e.g. shadow enhancement}
G06T 5/009	• • {Global, i.e. based on properties of the image as a whole (applied in cameras using an electronic image sensor <a href="#">H04N 5/23229</a> , <a href="#">H04N 5/235</a> )}
G06T 5/10	• by non-spatial domain filtering {(applied in cameras using an electronic image sensor <a href="#">H04N 5/23229</a> , <a href="#">H04N 5/235</a> , <a href="#">H04N 5/253</a> , <a href="#">H04N 5/367</a> )}
G06T 5/20	• by the use of local operators {(applied in cameras using an electronic image sensor <a href="#">H04N 5/23229</a> , <a href="#">H04N 5/235</a> , <a href="#">H04N 5/253</a> , <a href="#">H04N 5/367</a> )}
G06T 5/30	• • Erosion or dilatation, e.g. thinning
G06T 5/40	• by the use of histogram techniques {(applied in cameras using an electronic image sensor <a href="#">H04N 5/23229</a> , <a href="#">H04N 5/235</a> )}
G06T 5/50	• by the use of more than one image, e.g. averaging, subtraction {(applied in cameras using an electronic image sensor <a href="#">H04N 5/23229</a> , <a href="#">H04N 5/235</a> )}
<b>G06T 7/00</b>	<b>Image analysis, e.g. from bit-mapped to non bit-mapped</b>
G06T 7/0002	• {Inspection of images, e.g. flaw detection ( <a href="#">G06T 7/004</a> takes precedence)}
G06T 7/0004	• • {Industrial image inspection}
G06T 7/0006	• • • {using a design-rule based approach}
G06T 7/0008	• • • {checking presence/absence}
G06T 7/001	• • • {using an image reference approach (image matching for pattern recognition or image matching in general <a href="#">G06K 9/6203</a> )}
G06T 7/0012	• • {Biomedical image inspection}
G06T 7/0014	• • • {using an image reference approach (image matching for pattern recognition or image matching in general <a href="#">G06K 9/6203</a> )}

- G06T 7/0016 . . . . {involving temporal comparison (change detection in general [G06T 7/20](#))}
- G06T 7/0018 . {Camera calibration, e.g. determining intrinsic or extrinsic parameters}
- G06T 7/002 . . {Stereo camera calibration, e.g. determination of the transformation between left camera coordinate system and right camera coordinate system}
- G06T 7/0022 . {Determining parameters from multiple pictures (depth or shape from stereo images [G06T 7/0075](#); depth or shape from multiple images [G06T 7/0065](#); stereo camera calibration [G06T 7/002](#))}
- G06T 7/0024 . . {Registration of images, e.g. alignment of images (image matching for pattern recognition or image matching in general [G06K 9/6203](#))}
- G06T 7/0026 . . . {using correlation-based methods}
- G06T 7/0028 . . . {using feature-based methods}
- G06T 7/003 . . . . {involving reference images or patches (image matching for pattern recognition or image matching in general [G06K 9/6203](#))}
- G06T 7/0032 . . . . {involving models (model matching for pattern recognition [G06K 9/6204](#), [G06K 9/6878](#))}
- G06T 7/0034 . . . {using statistical methods (image matching by comparing statistics of regions for pattern recognition [G06K 9/6212](#))}
- G06T 7/0036 . . . {using transform-domain based approaches}
- G06T 7/0038 . . . {Registration of image sequences}
- G06T 7/004 . {Determining position or orientation of objects}
- G06T 7/0042 . . {using feature-based methods}
- G06T 7/0044 . . . {involving reference images or patches (image matching for pattern recognition or image matching in general [G06K 9/6203](#))}
- G06T 7/0046 . . . {involving models (model matching for pattern recognition [G06K 9/6204](#), [G06K 9/6878](#))}
- G06T 7/0048 . . {using statistical methods (image matching by comparing statistics of regions for pattern recognition [G06K 9/6212](#))}
- G06T 7/0051 . {Depth or shape recovery}
- G06T 7/0053 . . {from shading}
- G06T 7/0055 . . {from specularities}
- G06T 7/0057 . . {from laser ranging and structured images, e.g. interferometry (image acquisition and arrangements for measuring contours or curvatures of an object by projecting a pattern, thereupon [G01B 11/25](#))}
- G06T 7/0059 . . {from texture}
- G06T 7/0061 . . {from perspective effects, e.g. using vanishing points}
- G06T 7/0063 . . {from line drawings}
- G06T 7/0065 . . {from multiple images}
- G06T 7/0067 . . . {from contours}
- G06T 7/0069 . . . {from focus}
- G06T 7/0071 . . . {from motion}

**WARNING**

Not complete pending reclassification; see also group [G06T 7/20](#)

- G06T 7/0073 . . . {from multiple light sources, e.g. photometric stereo}
  - G06T 7/0075 . . . {from stereo images}
  - G06T 7/0077 . . . . {from three or more stereo images}
  - G06T 7/0079 . {Segmentation or edge detection (image analysis based on texture or colour features [G06T 7/40](#); motion-based segmentation [G06T 7/2006](#); separation of touching or overlapping patterns for pattern recognition [G06K 9/34](#); extraction of features or characteristics of the image for pattern recognition [G06K 9/46](#))}
  - G06T 7/0081 . . {Region-based segmentation (image analysis based on texture or colour features [G06T 7/40](#); separation of touching or overlapping patterns by cutting or merging for pattern recognition [G06K 9/342](#); quantising the analogue image signal for pattern recognition [G06K 9/38](#); extraction of features or characteristics of the image related to colour for pattern recognition [G06K 9/4652](#))}
  - G06T 7/0083 . . {Edge-based segmentation (detecting partial patterns or configurations [G06K 9/4604](#))}
  - G06T 7/0085 . . {Edge detection (detecting partial patterns or configurations [G06K 9/4604](#))}
  - G06T 7/0087 . . {involving probabilistic approaches, e.g. Markov Random Field [MRF] modeling (Markov models or related models or networks embedding Markov models for pattern recognition [G06K 9/6297](#); classification techniques based on a parametric, e.g. probabilistic, model [G06K 9/6277](#); detecting partial patterns or configurations by analysing connectivity relationship of elements of the pattern [G06K 9/4638](#))}
  - G06T 7/0089 . . {involving deformable models, e.g. active contour (pattern recognition techniques involving a deformation of the sample or reference pattern or elastic matching [G06K 9/6206](#))}
  - G06T 7/0091 . . {involving morphological operators (combinations of preprocessing functions using a local operator for pattern recognition [G06K 9/56](#))}
  - G06T 7/0093 . . {involving graph-based approaches (non-hierarchical partitioning techniques based on graph theory for pattern recognition [G06K 9/6224](#))}
  - G06T 7/0095 . . {involving transform domain approaches (detecting partial patterns, e.g. edges or contours, using the Hough transform for pattern recognition [G06K 9/4633](#))}
  - G06T 7/0097 . . {involving the use of two or more images}
  - G06T 7/20 . Analysis of motion {(movement detection in television systems [H04N 5/144](#); motion estimation for digital video signal compression [H04N 19/51](#); recognizing scenes under surveillance and traffic patterns [G06K 9/00771](#), [G06K 9/00785](#))}
- WARNING**
- This group is being reorganised. Documents dealing with shape from motion are reclassified to [G06T 7/0071](#) and a sub-group [G06T 7/2006](#) is created
- G06T 7/2006 . . {Motion-based segmentation}
- WARNING**
- Not complete pending reclassification; see also group [G06T 7/20](#)
- G06T 7/2013 . . {using block-matching}
  - G06T 7/202 . . . {using full search}
  - G06T 7/2026 . . . {using non-full search, e.g. three step search}

G06T 7/2033	<ul style="list-style-type: none"> <li>• • {using feature-based methods, e.g. corners, segments}</li> </ul>
G06T 7/204	<ul style="list-style-type: none"> <li>• • • {involving reference images or patches (image matching for pattern recognition or image matching in general <a href="#">G06K 9/6203</a>)}</li> </ul> <p><b><u>WARNING</u></b></p> <p>Not complete pending reclassification; see also group <a href="#">G06T 7/20</a></p>
G06T 7/2046	<ul style="list-style-type: none"> <li>• • • {involving models (model matching for pattern recognition <a href="#">G06K 9/6204</a>, <a href="#">G06K 9/6878</a>)}</li> </ul> <p><b><u>WARNING</u></b></p> <p>Not complete pending reclassification; see also group <a href="#">G06T 7/20</a></p>
G06T 7/2053	<ul style="list-style-type: none"> <li>• • {involving subtraction of pictures}</li> </ul>
G06T 7/206	<ul style="list-style-type: none"> <li>• • {using transform domain based approaches, e.g. Fourier}</li> </ul>
G06T 7/2066	<ul style="list-style-type: none"> <li>• • {using gradient-based methods}</li> </ul>
G06T 7/2073	<ul style="list-style-type: none"> <li>• • {Motion estimation over a hierarchy of resolutions}</li> </ul>
G06T 7/208	<ul style="list-style-type: none"> <li>• • {involving a stochastic approach, e.g. Kalman filter}</li> </ul>
G06T 7/2086	<ul style="list-style-type: none"> <li>• • {Computing motion from a sequence of stereo images}</li> </ul>
G06T 7/2093	<ul style="list-style-type: none"> <li>• • {Multi-camera tracking}</li> </ul> <p><b><u>WARNING</u></b></p> <p>Not complete pending reclassification; see also group <a href="#">G06T 7/20</a></p>
G06T 7/40	<ul style="list-style-type: none"> <li>• Analysis of texture {(depth or shape from texture <a href="#">G06T 7/0059</a>)}</li> </ul>
G06T 7/401	<ul style="list-style-type: none"> <li>• • {based on statistical texture description}</li> </ul>
G06T 7/402	<ul style="list-style-type: none"> <li>• • • {using transform-domain based approaches}</li> </ul>
G06T 7/403	<ul style="list-style-type: none"> <li>• • • {using image operators, e.g. filter, edge density, local histograms}</li> </ul>
G06T 7/404	<ul style="list-style-type: none"> <li>• • • {using co-occurrence matrix computation}</li> </ul>
G06T 7/405	<ul style="list-style-type: none"> <li>• • • {using random Fields}</li> </ul>
G06T 7/406	<ul style="list-style-type: none"> <li>• • • {using fractals}</li> </ul>
G06T 7/407	<ul style="list-style-type: none"> <li>• • {based on structural texture description, i.e. primitives and placement rules}</li> </ul>
G06T 7/408	<ul style="list-style-type: none"> <li>• • {Color analysis}</li> </ul>
G06T 7/60	<ul style="list-style-type: none"> <li>• Analysis of geometric attributes, e.g. area, center of gravity or perimeter, from an image</li> </ul>
G06T 7/602	<ul style="list-style-type: none"> <li>• • {Area, perimeter, diameter or volume}</li> </ul>
G06T 7/604	<ul style="list-style-type: none"> <li>• • {Convexity or concavity}</li> </ul>
G06T 7/606	<ul style="list-style-type: none"> <li>• • {Center of gravity or moments (moments specific for pattern recognition, e.g. Zernike moments <a href="#">G06K 9/525</a>)}</li> </ul>
G06T 7/608	<ul style="list-style-type: none"> <li>• • {Symmetry}</li> </ul>
<b>G06T 9/00</b>	<b>Image coding, e.g. from bit-mapped to non bit-mapped ({<a href="#">H04N 1/00</a>, <a href="#">H04N 19/00</a> take precedence; } compression in general <a href="#">H03M</a>; compression for image communication <a href="#">H04N</a>)</b>
G06T 9/001	<ul style="list-style-type: none"> <li>• {Model-based coding, e.g. wire frame (see provisionally also <a href="#">G06T 9/00</a>)}</li> </ul>
G06T 9/002	<ul style="list-style-type: none"> <li>• {using neural networks}</li> </ul>

- G06T 9/004 . {Predictors, e.g. intraframe, interframe coding (see provisionally also [G06T 9/00](#))}
- G06T 9/005 . {Statistical coding, e.g. Huffman, run length coding (see provisionally also [G06T 9/00](#))}
- G06T 9/007 . {Transform coding, e.g. discrete cosine transform (see provisionally also [G06T 9/00](#))}
- G06T 9/008 . {Vector quantisation (see provisionally also [G06T 9/00](#))}
- G06T 9/20 . Contour coding, e.g. using detection of edges
- G06T 9/40 . Tree coding, e.g. quadtree, octree (see provisionally also [G06T 9/00](#))

**G06T 11/00****2D [Two Dimensional] image generation**

- G06T 11/001 . {Texturing; Colouring; Generation of texture or colour}
- G06T 11/003 . {Reconstruction from projections, e.g. tomography}

**WARNING**

As from 06.2011 documents of this group are being continuously reclassified to its subgroups

- G06T 11/005 . . {Specific pre-processing for tomographic reconstruction, e.g. calibration, source positioning, rebinning, scatter correction, retrospective gating}

**WARNING**

Not complete pending the completion of a reclassification; see also **G11/00T**

- G06T 11/006 . . {Inverse problem, transformation from projection-space into object-space, e.g. transform methods, back-projection, algebraic methods}

**WARNING**

Not complete pending the completion of a reclassification; see also [G06T 11/003](#)

- G06T 11/008 . . {Specific post-processing after tomographic reconstruction, e.g. voxelisation, metal artifact correction}

**WARNING**

Not complete pending the completion of a reclassification; see also [G06T 11/003](#)

- G06T 11/20 . Drawing from basic elements, e.g. lines or circles
- G06T 11/203 . . {Drawing of straight lines or curves}
- G06T 11/206 . . {Drawing of charts or graphs}
- G06T 11/40 . Filling a planar surface by adding surface attributes, e.g. colour or texture
- G06T 11/60 . Editing figures and text; Combining figures or text
- G06T 11/80 . Creating or modifying a manually drawn or painted image using a manual input device, e.g. mouse, light pen, direction keys on keyboard

**G06T 13/00****Animation**

- G06T 13/20 . 3D [Three Dimensional] animation
- G06T 13/205 . . {driven by audio data}



G06T 13/40

G06T 13/60

G06T 13/80

- . . of characters, e.g. humans, animals or virtual beings
- . . of natural phenomena, e.g. rain, snow, water or plants
- . 2D [Two Dimensional] animation, e.g. using sprites

**G06T 15/00**

G06T 15/005

G06T 15/02

G06T 15/04

G06T 15/06

G06T 15/08

G06T 15/10

G06T 15/20

G06T 15/205

**3D [Three Dimensional] image rendering**

- . {General purpose rendering architectures}
- . Non-photorealistic rendering
- . Texture mapping
- . Ray-tracing
- . Volume rendering
- . Geometric effects
- . . Perspective computation
- . . . {Image-based rendering}

**WARNING**

This group is not complete pending a reorganisation. See also  
[G06T 15/00](#)

G06T 15/30

G06T 15/40

G06T 15/405

G06T 15/50

G06T 15/503

G06T 15/506

G06T 15/55

G06T 15/60

G06T 15/80

G06T 15/83

G06T 15/87

- . . Clipping
- . . Hidden part removal
- . . . {using Z-buffer}
- . Lighting effects
- . . {Blending, e.g. for anti-aliasing}
- . . {Illumination models}
- . . Radiosity
- . . Shadow generation
- . . Shading
- . . . Phong shading
- . . . Gouraud shading

**G06T 17/00**

G06T 17/005

G06T 17/05

G06T 17/10

G06T 17/20

G06T 17/205

G06T 17/30

**Three dimensional [3D] modelling, e.g. data description of 3D objects**

- . {Tree description, e.g. octree, quadtree}
- . Geographic models
- . Constructive solid geometry [CSG] using solid primitives, e.g. cylinders, cubes
- . Finite element generation, e.g. wire-frame surface description, {tessellation}
- . . {Re-meshing}
- . Polynomial surface description

**G06T 19/00****Manipulating 3D models or images for computer graphics****WARNING**

As from August 1, 2011, documents relating to subject matter covered by  
subgroups [G06T 19/003](#), [G06T 19/006](#) are continuously reclassified to said  
subgroups



- G06T 19/003
- {Navigation within 3D models or images}
- WARNING**
- This group is not complete pending reclassification; see also group [G06T 19/00](#)
- G06T 19/006
- {Mixed reality (object pose determination, tracking or camera calibration for mixed reality [G06T 7/00](#))}
- WARNING**
- This group is not complete pending reclassification; see also group [G06T 19/00](#)

- G06T 19/20
- Editing of 3D images, e.g. changing shapes or colours, aligning objects or positioning parts

**G06T 2200/00 Indexing scheme for image data processing or generation, in general**

- G06T 2200/04
- involving 3D image data
- G06T 2200/08
- involving all processing steps from image acquisition to 3D model generation
- G06T 2200/12
- involving antialiasing
- G06T 2200/16
- involving adaptation to the client's capabilities
- G06T 2200/21
- involving computational photography
- G06T 2200/24
- involving graphical user interfaces [GUIs]
- G06T 2200/28
- involving image processing hardware
- G06T 2200/32
- involving image mosaicing
- G06T 2200/36
- Review paper; Tutorial; Survey

**G06T 2201/00 General purpose image data processing**

- G06T 2201/005
- Image watermarking
- G06T 2201/0051
- • Embedding of the watermark in the spatial domain
- G06T 2201/0052
- • Embedding of the watermark in the frequency domain
- G06T 2201/0053
- • Embedding of the watermark in the coding stream, possibly without decoding; Embedding of the watermark in the compressed domain
- G06T 2201/0061
- • Embedding of the watermark in each block of the image, e.g. segmented watermarking
- G06T 2201/0062
- • Embedding of the watermark in text images, e.g. watermarking text documents using letter skew, letter distance or row distance
- G06T 2201/0063
- • in relation to collusion attacks, e.g. collusion attack resistant
- G06T 2201/0064
- • for copy protection or copy management, e.g. CGMS, copy only once, one-time copy
- G06T 2201/0065
- • Extraction of an embedded watermark; Reliable detection
- G06T 2201/0081
- • whereby both original and watermarked images are required at decoder, e.g. destination-based, non-blind, non-oblivious
- G06T 2201/0083
- • whereby only watermarked image required at decoder, e.g. source-based, blind, oblivious
- G06T 2201/0201
- • whereby only tamper or origin are detected and no embedding takes place

- G06T 2201/0202 . . . whereby the quality of watermarked images is measured; Measuring quality or performance of watermarking methods; Balancing between quality and robustness
- G06T 2201/0203 . . . whereby the image with embedded watermark is reverted to the original condition before embedding, e.g. lossless, distortion-free or invertible watermarking
- G06T 2201/0601 . . . whereby calibration information is embedded in the watermark, e.g. a grid, a scale, a list of transformations

**G06T 2207/00****Indexing scheme for image analysis or image enhancement**

- G06T 2207/10 . Image acquisition modality
- G06T 2207/10004 . . Still image; Photographic image
- G06T 2207/10008 . . . from scanner, fax or copier
- G06T 2207/10012 . . . Stereo images
- G06T 2207/10016 . . Video; Image sequence
- G06T 2207/10021 . . . Stereoscopic video; Stereoscopic image sequence
- G06T 2207/10024 . . Color image
- G06T 2207/10028 . . Range image; Depth image; 3D point clouds
- G06T 2207/10032 . . Satellite or aerial image; Remote sensing
- G06T 2207/10036 . . . Multispectral image; Hyperspectral image
- G06T 2207/10041 . . . Panchromatic image
- G06T 2207/10044 . . . Radar image
- G06T 2207/10048 . . Infrared image
- G06T 2207/10052 . . Images from lightfield camera
- G06T 2207/10056 . . Microscopic image
- G06T 2207/10061 . . . from scanning electron microscope
- G06T 2207/10064 . . Fluorescence image
- G06T 2207/10068 . . Endoscopic image
- G06T 2207/10072 . . Tomographic images
- G06T 2207/10076 . . . 4D tomography; Time-sequential 3D tomography
- G06T 2207/10081 . . . Computed x-ray tomography [CT]
- G06T 2207/10084 . . . Hybrid tomography; Concurrent acquisition with multiple different tomographic modalities
- G06T 2207/10088 . . . Magnetic resonance imaging [MRI]
- G06T 2207/10092 . . . . Diffusion tensor magnetic resonance imaging [DTI]
- G06T 2207/10096 . . . . Dynamic contrast-enhanced magnetic resonance imaging [DCE-MRI]
- G06T 2207/10101 . . . Optical tomography; Optical coherence tomography [OCT]
- G06T 2207/10104 . . . Positron emission tomography [PET]
- G06T 2207/10108 . . . Single photon emission computed tomography [SPECT]
- G06T 2207/10112 . . . Digital tomosynthesis [DTS]
- G06T 2207/10116 . . X-ray image
- G06T 2207/10121 . . . Fluoroscopy

G06T 2207/10124	. . . Digitally reconstructed radiograph [DRR]
G06T 2207/10128	. . . Scintigraphy
G06T 2207/10132	. . Ultrasound image
G06T 2207/10136	. . . 3D ultrasound image
G06T 2207/10141	. . Special mode during image acquisition
G06T 2207/10144	. . . Varying exposure
G06T 2207/10148	. . . Varying focus
G06T 2207/10152	. . . Varying illumination
G06T 2207/20	. Special algorithmic details
G06T 2207/20004	. . Adaptive image processing
G06T 2207/20008	. . . Globally adaptive
G06T 2207/20012	. . . Locally adaptive
G06T 2207/20016	. . Hierarchical, coarse-to-fine, multiscale or multiresolution image processing; Pyramid transform
G06T 2207/20021	. . Dividing image into blocks, subimages or windows
G06T 2207/20024	. . Filtering details
G06T 2207/20028	. . . Bilateral filtering
G06T 2207/20032	. . . Median filtering
G06T 2207/20036	. . Morphological image processing
G06T 2207/20041	. . . Distance transform
G06T 2207/20044	. . . Skeletonization; Medial axis transform
G06T 2207/20048	. . Transform domain processing
G06T 2207/20052	. . . Discrete cosine transform [DCT]
G06T 2207/20056	. . . Discrete and fast Fourier transform, [DFT, FFT]
G06T 2207/20061	. . . Hough transform
G06T 2207/20064	. . . Wavelet transform [DWT]
G06T 2207/20068	. . Projection on vertical or horizontal image axis
G06T 2207/20072	. . Graph-based image processing
G06T 2207/20076	. . Probabilistic image processing
G06T 2207/20081	. . Training; Learning
G06T 2207/20084	. . Artificial neural networks [ANN]
G06T 2207/20088	. . Trinocular vision calculations; trifocal tensor
G06T 2207/20092	. . Interactive image processing based on input by user
G06T 2207/20096	. . . Interactive definition of curve of interest
G06T 2207/20101	. . . Interactive definition of point of interest, landmark or seed
G06T 2207/20104	. . . Interactive definition of region of interest [ROI]
G06T 2207/20108	. . . Interactive selection of 2D slice in a 3D data set
G06T 2207/20112	. . Image segmentation details
G06T 2207/20116	. . . Active contour; Active surface; Snakes
G06T 2207/20121	. . . Active appearance model [AAM]

G06T 2207/20124	. . .	Active shape model [ASM]
G06T 2207/20128	. . .	Atlas-based segmentation
G06T 2207/20132	. . .	Image cropping
G06T 2207/20136	. . .	Edge growing; Edge linking
G06T 2207/20141	. . .	Region-growing; Region merging; Connected component labeling
G06T 2207/20144	. . .	Foreground-background segmentation
G06T 2207/20148	. . .	Thresholding
G06T 2207/20152	. . .	Watershed segmentation
G06T 2207/20156	. . .	Automatic seed setting
G06T 2207/20161	. . .	Level set
G06T 2207/20164	. . .	Salient point detection; Corner detection
G06T 2207/20168	. . .	Radial search
G06T 2207/20172	. .	Image enhancement details
G06T 2207/20182	. . .	Noise reduction or smoothing in the temporal domain; Spatio-temporal filtering
G06T 2207/20192	. . .	Edge enhancement; Edge preservation
G06T 2207/20201	. . .	Motion blur correction
G06T 2207/20204	. . .	Removing film grain; Adding simulated film grain
G06T 2207/20208	. . .	High dynamic range [HDR] image processing
G06T 2207/20212	. .	Image combination
G06T 2207/20216	. . .	Image averaging
G06T 2207/20221	. . .	Image fusion; Image merging
G06T 2207/20224	. . .	Image subtraction
G06T 2207/20228	. .	Disparity calculation for image-based rendering
G06T 2207/30	. .	Subject of image; Context of image processing
G06T 2207/30004	. .	Biomedical image processing
G06T 2207/30008	. . .	Bone
G06T 2207/30012	. . . .	Spine; Backbone
G06T 2207/30016	. . .	Brain
G06T 2207/30021	. . .	Catheter; Guide wire
G06T 2207/30024	. . .	Cell structures in vitro; Tissue sections in vitro
G06T 2207/30028	. . .	Colon; Small intestine
G06T 2207/30032	. . . .	Colon polyp
G06T 2207/30036	. . .	Dental; Teeth
G06T 2207/30041	. . .	Eye; Retina; Ophthalmic
G06T 2207/30044	. . .	Fetus; Embryo
G06T 2207/30048	. . .	Heart; Cardiac
G06T 2207/30052	. . .	Implant; Prosthesis
G06T 2207/30056	. . .	Liver; Hepatic
G06T 2207/30061	. . .	Lung

G06T 2207/30064	. . . .	Lung nodule
G06T 2207/30068	. . .	Mammography; Breast
G06T 2207/30072	. . .	Microarray; Biochip, DNA array; Well plate
G06T 2207/30076	. . .	Plethysmography
G06T 2207/30081	. . .	Prostate
G06T 2207/30084	. . .	Kidney; Renal
G06T 2207/30088	. . .	Skin; Dermal
G06T 2207/30092	. . .	Stomach; Gastric
G06T 2207/30096	. . .	Tumor; Lesion
G06T 2207/30101	. . .	Blood vessel; Artery; Vein; Vascular
G06T 2207/30104	. . . .	Vascular flow; Blood flow; Perfusion
G06T 2207/30108	. .	Industrial image inspection
G06T 2207/30112	. . .	Baggage; Luggage; Suitcase
G06T 2207/30116	. . .	Casting
G06T 2207/30121	. . .	CRT, LCD or plasma display
G06T 2207/30124	. . .	Fabrics; Textile; Paper
G06T 2207/30128	. . .	Food products
G06T 2207/30132	. . .	Masonry; Concrete
G06T 2207/30136	. . .	Metal
G06T 2207/30141	. . .	Printed circuit board [PCB]
G06T 2207/30144	. . .	Printing quality
G06T 2207/30148	. . .	Semiconductor; IC; Wafer
G06T 2207/30152	. . .	Solder
G06T 2207/30156	. . .	Vehicle coating
G06T 2207/30161	. . .	Wood; Lumber
G06T 2207/30164	. . .	Workpiece; Machine component
G06T 2207/30168	. .	Image quality inspection
G06T 2207/30172	. .	Centreline of tubular or elongated structure
G06T 2207/30176	. .	Document
G06T 2207/30181	. .	Earth observation
G06T 2207/30184	. . .	Infrastructure
G06T 2207/30188	. . .	Vegetation; Agriculture
G06T 2207/30192	. . .	Weather; Meteorology
G06T 2207/30196	. .	Human being; Person
G06T 2207/30201	. . .	Face
G06T 2207/30204	. .	Marker
G06T 2207/30208	. . .	Marker matrix
G06T 2207/30212	. .	Military
G06T 2207/30216	. .	Redeye defect
G06T 2207/30221	. .	Sports video; Sports image

- G06T 2207/30224 . . . Ball; Puck
- G06T 2207/30228 . . . Playing field
- G06T 2207/30232 . . Surveillance
- G06T 2207/30236 . . Traffic on road, railway or crossing
- G06T 2207/30241 . . Trajectory
- G06T 2207/30242 . . Counting objects in image
- G06T 2207/30244 . . Camera pose
- G06T 2207/30248 . . Vehicle exterior or interior
- G06T 2207/30252 . . . Vehicle exterior; Vicinity of vehicle
- G06T 2207/30256 . . . . Lane; Road marking
- G06T 2207/30261 . . . . Obstacle
- G06T 2207/30264 . . . . Parking
- G06T 2207/30268 . . . Vehicle interior

#### **G06T 2210/00 Indexing scheme for image generation or computer graphics**

- G06T 2210/04 . Architectural design, interior design
- G06T 2210/08 . Bandwidth reduction
- G06T 2210/12 . Bounding box
- G06T 2210/16 . Cloth
- G06T 2210/21 . Collision detection, intersection
- G06T 2210/22 . Cropping
- G06T 2210/24 . Fluid dynamics
- G06T 2210/28 . Force feedback
- G06T 2210/32 . Image data format
- G06T 2210/36 . Level of detail
- G06T 2210/41 . Medical
- G06T 2210/44 . Morphing
- G06T 2210/52 . Parallel processing
- G06T 2210/56 . Particle system, point based geometry or rendering
- G06T 2210/61 . Scene description
- G06T 2210/62 . Semi-transparency
- G06T 2210/64 . Weathering

#### **G06T 2211/00 Image generation**

- G06T 2211/40 . Computed tomography
- G06T 2211/404 . . Angiography
- G06T 2211/408 . . Dual energy
- G06T 2211/412 . . Dynamic
- G06T 2211/416 . . Exact reconstruction
- G06T 2211/421 . . Filtered back projection [FBP]
- G06T 2211/424 . . Iterative

- G06T 2211/428 . . Real-time
- G06T 2211/432 . . Truncation
- G06T 2211/436 . . Limited angle

**G06T 2213/00****Indexing scheme for animation**

- G06T 2213/04 . Animation description language
- G06T 2213/08 . Animation software package
- G06T 2213/12 . Rule based animation

**G06T 2215/00****Indexing scheme for image rendering**

- G06T 2215/06 . Curved planar reformation of 3D line structures
- G06T 2215/08 . Gnomonic or central projection
- G06T 2215/12 . Shadow map, environment map
- G06T 2215/16 . Using real world measurements to influence rendering

**G06T 2219/00****Indexing scheme for manipulating 3D models or images for computer graphics**

- G06T 2219/004 . Annotating, labelling
- G06T 2219/008 . Cut plane or projection plane definition
- G06T 2219/012 . Dimensioning, tolerancing
- G06T 2219/016 . Exploded view
- G06T 2219/021 . Flattening
- G06T 2219/024 . Multi-user, collaborative environment
- G06T 2219/028 . Multiple view windows (top-side-front-sagittal-orthogonal)
- G06T 2219/20 . Indexing scheme for editing of 3D models
- G06T 2219/2004 . . Aligning objects, relative positioning of parts
- G06T 2219/2008 . . Assembling, disassembling
- G06T 2219/2012 . . Colour editing, changing, or manipulating; Use of colour codes
- G06T 2219/2016 . . Rotation, translation, scaling
- G06T 2219/2021 . . Shape modification
- G06T 2219/2024 . . Style variation