

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### INSTRUMENTS

## G06 COMPUTING; CALCULATING OR COUNTING (NOTES omitted)

## G06T IMAGE DATA PROCESSING OR GENERATION, IN GENERAL

### WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:  
[G06T 1/40](#) covered by [G06T 1/20](#)
- In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>General purpose image data processing</b>	3/08	• Projecting images onto non-planar surfaces, e.g. geodetic screens
1/0007	• {Image acquisition}	3/10	• Selection of transformation methods according to the characteristics of the input images
1/0014	• {Image feed-back for automatic industrial control, e.g. robot with camera ( <a href="#">robots B25J 19/023</a> )}	3/12	• Panorpheric to cylindrical image transformations
1/0021	• {Image watermarking}	3/14	• Transformations for image registration, e.g. adjusting or mapping for alignment of images
1/0028	• . {Adaptive watermarking, e.g. Human Visual System [HVS]-based watermarking}	3/147	• . using affine transformations
1/0035	• . . {Output size adaptive watermarking}	3/153	• . using elastic snapping
1/0042	• . {Fragile watermarking, e.g. so as to detect tampering}	3/16	• Spatio-temporal transformations, e.g. video cubism
1/005	• . {Robust watermarking, e.g. average attack or collusion attack resistant}	3/18	• Image warping, e.g. rearranging pixels individually
1/0057	• . . {Compression invariant watermarking}	3/20	• Linear translation of whole images or parts thereof, e.g. panning
1/0064	• . . {Geometric transfor invariant watermarking, e.g. affine transform invariant}	3/40	• Scaling of whole images or parts thereof, e.g. expanding or contracting
1/0071	• . . {using multiple or alternating watermarks}	3/4007	• . based on interpolation, e.g. bilinear interpolation ( <a href="#">image demosaicing G06T 3/4015</a> ; <a href="#">edge-driven or edge-based scaling G06T 3/403</a> )
1/0078	• . . {using multiple thresholds}	3/4015	• . Image demosaicing, e.g. colour filter arrays [CFA] or Bayer patterns
1/0085	• . {Time domain based watermarking, e.g. watermarks spread over several images}	3/4023	• . based on decimating pixels or lines of pixels; based on inserting pixels or lines of pixels
1/0092	• . {Payload characteristic determination in a watermarking scheme, e.g. number of bits to be embedded}	3/403	• . Edge-driven scaling; Edge-based scaling
1/20	• Processor architectures; Processor configuration, e.g. pipelining	3/4038	• . Image mosaicing, e.g. composing plane images from plane sub-images
1/60	• Memory management	3/4046	• . using neural networks
<b>3/00</b>	<b>Geometric image transformations in the plane of the image</b>	3/4053	• . based on super-resolution, i.e. the output image resolution being higher than the sensor resolution
3/02	• Affine transformations ( <a href="#">for image registration G06T 3/147</a> ; <a href="#">for image mosaicing G06T 3/4038</a> )	3/4061	• . . by injecting details from different spectral ranges
3/04	• Context-preserving transformations, e.g. by using an importance map ( <a href="#">panospheric to cylindrical image transformations G06T 3/12</a> )	3/4069	• . . by subpixel displacements
3/047	• . Fisheye or wide-angle transformations	3/4076	• . . using the original low-resolution images to iteratively correct the high-resolution images
3/053	• . Detail-in-context presentations ( <a href="#">fisheye or wide-angle transformations G06T 3/047</a> )	3/4084	• . in the transform domain, e.g. fast Fourier transform [FFT] domain scaling
3/06	• Topological mapping of higher dimensional structures onto lower dimensional surfaces	3/4092	• . Image resolution transcoding, e.g. by using client-server architectures
3/067	• . Reshaping or unfolding 3D tree structures onto 2D planes	3/60	• Rotation of whole images or parts thereof
3/073	• . Transforming surfaces of revolution to planar images, e.g. cylindrical surfaces to planar images	3/602	• . by block rotation, e.g. by recursive reversal or rotation

3/604	. . using coordinate rotation digital computer [CORDIC] devices	7/149	. . involving deformable models, e.g. active contour models
3/606	. . by memory addressing or mapping	7/155	. . involving morphological operators
3/608	. . by skew deformation, e.g. two-pass or three-pass rotation	7/162	. . involving graph-based methods
<b>5/00</b>	<b>Image enhancement or restoration</b>	7/168	. . involving transform domain methods
	<b>WARNING</b>	7/174	. . involving the use of two or more images
	Group <a href="#">G06T 5/00</a> is impacted by reclassification into group <a href="#">G06T 5/60</a> .	7/181	. . involving edge growing; involving edge linking
	Groups <a href="#">G06T 5/00</a> and <a href="#">G06T 5/60</a> should be considered in order to perform a complete search.	7/187	. . involving region growing; involving region merging; involving connected component labelling
5/10	. using non-spatial domain filtering	7/194	. . involving foreground-background segmentation
5/20	. using local operators	7/20	. Analysis of motion ( <a href="#">motion estimation for coding, decoding, compressing or decompressing digital video signals H04N 19/43, H04N 19/51</a> )
5/30	. . Erosion or dilatation, e.g. thinning	7/207	. . for motion estimation over a hierarchy of resolutions ( <a href="#">multi-resolution motion estimation or hierarchical motion estimation for coding, decoding, compressing or decompressing digital video signals H04N 19/53</a> )
5/40	. using histogram techniques	7/215	. . Motion-based segmentation
5/50	. using two or more images, e.g. averaging or subtraction	7/223	. . using block-matching
5/60	. using machine learning, e.g. neural networks	7/231	. . . using full search
	<b>WARNING</b>	7/238	. . . using non-full search, e.g. three-step search
	Group <a href="#">G06T 5/60</a> is incomplete pending reclassification of documents from group <a href="#">G06T 5/00</a> .	7/246	. . using feature-based methods, e.g. the tracking of corners or segments
	Groups <a href="#">G06T 5/00</a> and <a href="#">G06T 5/60</a> should be considered in order to perform a complete search.	7/248	. . . { <a href="#">involving reference images or patches</a> }
5/70	. Denoising; Smoothing	7/251	. . . { <a href="#">involving models</a> }
5/73	. Deblurring; Sharpening	7/254	. . involving subtraction of images
5/75	. . Unsharp masking	7/262	. . using transform domain methods, e.g. Fourier domain methods
5/77	. Retouching; Inpainting; Scratch removal	7/269	. . using gradient-based methods
5/80	. Geometric correction	7/277	. . involving stochastic approaches, e.g. using Kalman filters
5/90	. Dynamic range modification of images or parts thereof	7/285	. . using a sequence of stereo image pairs
5/92	. . based on global image properties	7/292	. . Multi-camera tracking
5/94	. . based on local image properties, e.g. for local contrast enhancement	7/30	. Determination of transform parameters for the alignment of images, i.e. image registration
<b>7/00</b>	<b>Image analysis</b>	7/32	. . using correlation-based methods
7/0002	. { <a href="#">Inspection of images, e.g. flaw detection</a> }	7/33	. . using feature-based methods
7/0004	. . { <a href="#">Industrial image inspection</a> }	7/337	. . . { <a href="#">involving reference images or patches</a> }
7/0006	. . . { <a href="#">using a design-rule based approach</a> }	7/344	. . . { <a href="#">involving models</a> }
7/0008	. . . { <a href="#">checking presence/absence</a> }	7/35	. . using statistical methods
7/001	. . . { <a href="#">using an image reference approach</a> }	7/37	. . using transform domain methods
7/0012	. . { <a href="#">Biomedical image inspection</a> }	7/38	. . Registration of image sequences
7/0014	. . . { <a href="#">using an image reference approach</a> }	7/40	. Analysis of texture ( <a href="#">depth or shape recovery from texture G06T 7/529</a> )
7/0016	. . . . { <a href="#">involving temporal comparison</a> }	7/41	. . based on statistical description of texture
7/10	. Segmentation; Edge detection ( <a href="#">motion-based segmentation G06T 7/215</a> )	7/42	. . . using transform domain methods
	<b>NOTE</b>	7/44	. . . using image operators, e.g. filters, edge density metrics or local histograms
	When classifying in groups <a href="#">G06T 7/11</a> - <a href="#">G06T 7/13</a> , classification is also made in relevant groups of <a href="#">G06T 7/136</a> - <a href="#">G06T 7/194</a> .	7/45	. . . using co-occurrence matrix computation
7/11	. . Region-based segmentation	7/46	. . . using random fields
7/12	. . Edge-based segmentation	7/48	. . . using fractals
7/13	. . Edge detection	7/49	. . based on structural texture description, e.g. using primitives or placement rules
7/136	. . involving thresholding	7/50	. Depth or shape recovery
7/143	. . involving probabilistic approaches, e.g. Markov random field [MRF] modelling	7/507	. . from shading ( <a href="#">G06T 7/586 takes precedence</a> )
		7/514	. . from specularities
		7/521	. . from laser ranging, e.g. using interferometry; from the projection of structured light
		7/529	. . from texture
		7/536	. . from perspective effects, e.g. by using vanishing points

[illegible]

2200/32	. involving image mosaicing	2207/10076	. . . 4D tomography; Time-sequential 3D tomography
2200/36	. Review paper; Tutorial; Survey	2207/10081	. . . Computed x-ray tomography [CT]
<b>2201/00</b>	<b>General purpose image data processing</b>	2207/10084	. . . Hybrid tomography; Concurrent acquisition with multiple different tomographic modalities
2201/005	. Image watermarking	2207/10088	. . . Magnetic resonance imaging [MRI]
2201/0051	. . Embedding of the watermark in the spatial domain	2207/10092	. . . . Diffusion tensor magnetic resonance imaging [DTI]
2201/0052	. . Embedding of the watermark in the frequency domain	2207/10096	. . . . Dynamic contrast-enhanced magnetic resonance imaging [DCE-MRI]
2201/0053	. . Embedding of the watermark in the coding stream, possibly without decoding; Embedding of the watermark in the compressed domain	2207/10101	. . . Optical tomography; Optical coherence tomography [OCT]
2201/0061	. . Embedding of the watermark in each block of the image, e.g. segmented watermarking	2207/10104	. . . Positron emission tomography [PET]
2201/0062	. . Embedding of the watermark in text images, e.g. watermarking text documents using letter skew, letter distance or row distance	2207/10108	. . . Single photon emission computed tomography [SPECT]
2201/0063	. . in relation to collusion attacks, e.g. collusion attack resistant	2207/10112	. . . Digital tomosynthesis [DTS]
2201/0064	. . for copy protection or copy management, e.g. CGMS, copy only once, one-time copy	2207/10116	. . . X-ray image
2201/0065	. . Extraction of an embedded watermark; Reliable detection	2207/10121	. . . Fluoroscopy
2201/0081	. . whereby both original and watermarked images are required at decoder, e.g. destination-based, non-blind, non-oblivious	2207/10124	. . . Digitally reconstructed radiograph [DRR]
2201/0083	. . whereby only watermarked image required at decoder, e.g. source-based, blind, oblivious	2207/10128	. . . Scintigraphy
2201/0201	. . whereby only tamper or origin are detected and no embedding takes place	2207/10132	. . . Ultrasound image
2201/0202	. . whereby the quality of watermarked images is measured; Measuring quality or performance of watermarking methods; Balancing between quality and robustness	2207/10136	. . . 3D ultrasound image
2201/0203	. . whereby the image with embedded watermark is reverted to the original condition before embedding, e.g. lossless, distortion-free or invertible watermarking	2207/10141	. . . Special mode during image acquisition
2201/0601	. . whereby calibration information is embedded in the watermark, e.g. a grid, a scale, a list of transformations	2207/10144	. . . Varying exposure
<b>2207/00</b>	<b>Indexing scheme for image analysis or image enhancement</b>	2207/10148	. . . Varying focus
2207/10	. Image acquisition modality	2207/10152	. . . Varying illumination
2207/10004	. . Still image; Photographic image	2207/20	. Special algorithmic details
2207/10008	. . . from scanner, fax or copier	2207/20004	. . Adaptive image processing
2207/10012	. . . Stereo images	2207/20008	. . . Globally adaptive
2207/10016	. . Video; Image sequence	2207/20012	. . . Locally adaptive
2207/10021	. . . Stereoscopic video; Stereoscopic image sequence	2207/20016	. . Hierarchical, coarse-to-fine, multiscale or multiresolution image processing; Pyramid transform
2207/10024	. . Color image	2207/20021	. . Dividing image into blocks, subimages or windows
2207/10028	. . Range image; Depth image; 3D point clouds	2207/20024	. . Filtering details
2207/10032	. . Satellite or aerial image; Remote sensing	2207/20028	. . . Bilateral filtering
2207/10036	. . . Multispectral image; Hyperspectral image	2207/20032	. . . Median filtering
2207/10041	. . . Panchromatic image	2207/20036	. . Morphological image processing
2207/10044	. . . Radar image	2207/20041	. . . Distance transform
2207/10048	. . Infrared image	2207/20044	. . . Skeletonization; Medial axis transform
2207/10052	. . Images from lightfield camera	2207/20048	. . Transform domain processing
2207/10056	. . Microscopic image	2207/20052	. . . Discrete cosine transform [DCT]
2207/10061	. . . from scanning electron microscope	2207/20056	. . . Discrete and fast Fourier transform, [DFT, FFT]
2207/10064	. . Fluorescence image	2207/20061	. . . Hough transform
2207/10068	. . Endoscopic image	2207/20064	. . . Wavelet transform [DWT]
2207/10072	. . Tomographic images	2207/20068	. . Projection on vertical or horizontal image axis
		2207/20072	. . Graph-based image processing
		2207/20076	. . Probabilistic image processing
		2207/20081	. . Training; Learning
		2207/20084	. . Artificial neural networks [ANN]
		2207/20088	. . Trinocular vision calculations; trifocal tensor
		2207/20092	. . Interactive image processing based on input by user
		2207/20096	. . . Interactive definition of curve of interest
		2207/20101	. . . Interactive definition of point of interest, landmark or seed
		2207/20104	. . . Interactive definition of region of interest [ROI]
		2207/20108	. . . Interactive selection of 2D slice in a 3D data set
		2207/20112	. . Image segmentation details

2207/20116	. . . Active contour; Active surface; Snakes	2207/30152	. . . Solder
2207/20121	. . . Active appearance model [AAM]	2207/30156	. . . Vehicle coating
2207/20124	. . . Active shape model [ASM]	2207/30161	. . . Wood; Lumber
2207/20128	. . . Atlas-based segmentation	2207/30164	. . . Workpiece; Machine component
2207/20132	. . . Image cropping	2207/30168	. . Image quality inspection
2207/20152	. . . Watershed segmentation	2207/30172	. . Centreline of tubular or elongated structure
2207/20156	. . . Automatic seed setting	2207/30176	. . Document
2207/20161	. . . Level set	2207/30181	. . Earth observation
2207/20164	. . . Salient point detection; Corner detection	2207/30184	. . . Infrastructure
2207/20168	. . . Radial search	2207/30188	. . . Vegetation; Agriculture
2207/20172	. . Image enhancement details	2207/30192	. . . Weather; Meteorology
2207/20182	. . . Noise reduction or smoothing in the temporal domain; Spatio-temporal filtering	2207/30196	. . Human being; Person
2207/20192	. . . Edge enhancement; Edge preservation	2207/30201	. . . Face
2207/20201	. . . Motion blur correction	2207/30204	. . Marker
2207/20204	. . . Removing film grain; Adding simulated film grain	2207/30208	. . . Marker matrix
2207/20208	. . . High dynamic range [HDR] image processing	2207/30212	. . Military
2207/20212	. . Image combination	2207/30216	. . Redeye defect
2207/20216	. . . Image averaging	2207/30221	. . Sports video; Sports image
2207/20221	. . . Image fusion; Image merging	2207/30224	. . . Ball; Puck
2207/20224	. . . Image subtraction	2207/30228	. . . Playing field
2207/20228	. . Disparity calculation for image-based rendering	2207/30232	. . Surveillance
2207/30	. Subject of image; Context of image processing	2207/30236	. . Traffic on road, railway or crossing
2207/30004	. . Biomedical image processing	2207/30241	. . Trajectory
2207/30008	. . . Bone	2207/30242	. . Counting objects in image
2207/30012	. . . . Spine; Backbone	2207/30244	. . Camera pose
2207/30016	. . . Brain	2207/30248	. . Vehicle exterior or interior
2207/30021	. . . Catheter; Guide wire	2207/30252	. . . Vehicle exterior; Vicinity of vehicle
2207/30024	. . . Cell structures <u>in vitro</u> ; Tissue sections <u>in vitro</u>	2207/30256	. . . . Lane; Road marking
2207/30028	. . . Colon; Small intestine	2207/30261	. . . . Obstacle
2207/30032	. . . . Colon polyp	2207/30264	. . . . Parking
2207/30036	. . . Dental; Teeth	2207/30268	. . . Vehicle interior
2207/30041	. . . Eye; Retina; Ophthalmic	<b>2210/00</b>	<b>Indexing scheme for image generation or computer graphics</b>
2207/30044	. . . Fetus; Embryo	2210/04	. . Architectural design, interior design
2207/30048	. . . Heart; Cardiac	2210/08	. . Bandwidth reduction
2207/30052	. . . Implant; Prosthesis	2210/12	. . Bounding box
2207/30056	. . . Liver; Hepatic	2210/16	. . Cloth
2207/30061	. . . Lung	2210/21	. . Collision detection, intersection
2207/30064	. . . . Lung nodule	2210/22	. . Cropping
2207/30068	. . . Mammography; Breast	2210/24	. . Fluid dynamics
2207/30072	. . . Microarray; Biochip, DNA array; Well plate	2210/28	. . Force feedback
2207/30076	. . . Plethysmography	2210/32	. . Image data format
2207/30081	. . . Prostate	2210/36	. . Level of detail
2207/30084	. . . Kidney; Renal	2210/41	. . Medical
2207/30088	. . . Skin; Dermal	2210/44	. . Morphing
2207/30092	. . . Stomach; Gastric	2210/52	. . Parallel processing
2207/30096	. . . Tumor; Lesion	2210/56	. . Particle system, point based geometry or rendering
2207/30101	. . . Blood vessel; Artery; Vein; Vascular	2210/61	. . Scene description
2207/30104	. . . . Vascular flow; Blood flow; Perfusion	2210/62	. . Semi-transparency
2207/30108	. . Industrial image inspection	2210/64	. . Weathering
2207/30112	. . . Baggage; Luggage; Suitcase	<b>2211/00</b>	<b>Image generation</b>
2207/30116	. . . Casting	2211/40	. . Computed tomography
2207/30121	. . . CRT, LCD or plasma display	2211/404	. . Angiography
2207/30124	. . . Fabrics; Textile; Paper	2211/408	. . Dual energy
2207/30128	. . . Food products	2211/412	. . Dynamic
2207/30132	. . . Masonry; Concrete	2211/416	. . Exact reconstruction
2207/30136	. . . Metal	2211/421	. . Filtered back projection [FBP]
2207/30141	. . . Printed circuit board [PCB]	2211/424	. . Iterative
2207/30144	. . . Printing quality	2211/428	. . Real-time
2207/30148	. . . Semiconductor; IC; Wafer	2211/432	. . Truncation

- 2211/436 . . Limited angle
- 2211/441 . . AI-based methods, deep learning or artificial neural networks
- 2211/444 . . Low dose acquisition or reduction of radiation dose
- 2211/448 . . involving metal artefacts, streaking artefacts, beam hardening or photon starvation
- 2211/452 . . involving suppression of scattered radiation or scatter correction
- 2211/456 . . Optical coherence tomography [OCT]
- 2211/461 . . Phase contrast imaging or dark field imaging
- 2211/464 . . Dual or multimodal imaging, i.e. combining two or more imaging modalities
  
- 2213/00 Indexing scheme for animation**
- 2213/04 . Animation description language
- 2213/08 . Animation software package
- 2213/12 . Rule based animation
  
- 2215/00 Indexing scheme for image rendering**
- 2215/06 . Curved planar reformation of 3D line structures
- 2215/08 . Gnomonic or central projection
- 2215/12 . Shadow map, environment map
- 2215/16 . Using real world measurements to influence rendering
  
- 2219/00 Indexing scheme for manipulating 3D models or images for computer graphics**
- 2219/004 . Annotating, labelling
- 2219/008 . Cut plane or projection plane definition
- 2219/012 . Dimensioning, tolerancing
- 2219/016 . Exploded view
- 2219/021 . Flattening
- 2219/024 . Multi-user, collaborative environment
- 2219/028 . Multiple view windows (top-side-front-sagittal-orthogonal)
- 2219/20 . Indexing scheme for editing of 3D models
- 2219/2004 . . Aligning objects, relative positioning of parts
- 2219/2008 . . Assembling, disassembling
- 2219/2012 . . Colour editing, changing, or manipulating; Use of colour codes
- 2219/2016 . . Rotation, translation, scaling
- 2219/2021 . . Shape modification
- 2219/2024 . . Style variation