

100	APPLICATIONS	134	...Blood cells
101	.Mail processing	135	.Reading paper currency
102	..ZIP code	136	.Reading coins
103	.Target tracking or detecting	137	.Reading bank checks (e.g., documents bearing E-13B type characters)
104	.Vehicle or traffic control (e.g., auto, bus, or train)	138	..Reading monetary amount
105	..License plate	139	..Reading MICR data
106	.Range or distance measuring	140	...Including an optical imager or reader
107	.Motion or velocity measuring	141	.Manufacturing or product inspection
108	.Surface texture or roughness measuring	142	..Bottle inspection
109	.Seismic or geological sample measuring	143	..Inspection of packaged consumer goods
110	.Animal, plant, or food inspection	144	..Mask inspection (e.g., semiconductor photomask)
111	.Textiles or clothing	145	..Inspection of semiconductor device or printed circuit board
112	.Document or print quality inspection (e.g., newspaper, photographs, etc.)	146	...Measuring external leads
113	.Reading maps, graphs, drawings, or schematics	147	...Inspecting printed circuit boards
114	.Reading aids for the visually impaired	148	...At plural magnifications or resolutions
115	.Personnel identification (e.g., biometrics)	149	...Fault or defect detection
116	..Using a combination of features (e.g., signature and fingerprint)	150Faulty soldering
117	..Using a characteristic of the eye	151	...Alignment, registration, or position determination
118	..Using a facial characteristic	152	..Tool, workpiece, or mechanical component inspection
119	..Using a signature	153	.Robotics
120	...Sensing pressure together with speed or acceleration	154	.3-D or stereo imaging analysis
121	...Sensing pressure only	155	LEARNING SYSTEMS
122	...Sensing speed or acceleration only	156	.Neural networks
123	...Sensing geometrical properties	157	..Network learning techniques (e.g., back propagation)
124	..Using a fingerprint	158	..Network structures
125	...Extracting minutia such as ridge endings and bifurcations	159	.Trainable classifiers or pattern recognizers (e.g., adaline, perceptron)
126	...With a guiding mechanism for positioning finger	160	..Generating a standard by statistical analysis
127	...With a prism	161	..Alphanumerics
128	.Biomedical applications	162	COLOR IMAGE PROCESSING
129	..DNA or RNA pattern reading	163	.Drop-out color in image (i.e., color to be removed)
130	..Producing difference image (e.g., angiography)	164	.Image segmentation using color
131	..Tomography (e.g., CAT scanner)	165	.Pattern recognition or classification using color
132	..X-ray film analysis (e.g., radiography)	166	.Compression of color images
133	..Cell analysis, classification, or counting	167	.Color correction
		168	HISTOGRAM PROCESSING

169	.With a gray-level transformation (e.g., uniform density transformation)	199	...Pattern boundary and edge measurements
170	.With pattern recognition or classification	200	...Measurements made on alphanumeric characters
171	.For segmenting an image	201	...Point features (e.g., spatial coordinate descriptors)
172	.For setting a threshold	202	...Linear stroke analysis (e.g., limited to straight lines)
173	IMAGE SEGMENTATION	203	...Shape and form analysis
174	.Using projections (i.e., shadow or profile of characters)	204	...Topological properties (e.g., number of holes in a pattern, connectivity, etc.)
175	.Separating document regions using preprinted guides or markings	205	...Local neighborhood operations (e.g., 3x3 kernel, window, or matrix operator)
176	.Distinguishing text from other regions	206	..Global features (e.g., measurements on image as a whole, such as area, projections, etc.)
177	.Segmenting individual characters or words	207	..Waveform analysis
178	..Separating touching or overlapping characters	208	...With a tapped delay line
179	..Segmenting hand-printed characters	209	.Template matching (e.g., specific devices that determine the best match)
180	.Region labeling (e.g., page description language)	210	..Spatial filtering (e.g., holography)
181	PATTERN RECOGNITION	211	...With electrically controlled light modulator or filter
182	.Limited to specially coded, human-readable characters	212	..Nonholographic optical mask or transparency
183	..Characters formed entirely of parallel bars (e.g., CMC-7)	213	...Using both positive and negative masks or transparencies
184	..With separate timing or alignment marks	214	...With a display
185	.Ideographic characters (e.g., Japanese or Chinese)	215	..Using dynamic programming or elastic templates (e.g., warping)
186	.Unconstrained handwriting (e.g., cursive)	216	..At multiple image orientations or positions
187	.On-line recognition of handwritten characters	217	..Electronic template
188	..Writing on ordinary surface (i.e., electronics are in pen)	218	...Comparator
189	..With a display	219	...Determining both similarities and differences
190	.Feature extraction	220	...Calculating weighted similarity or difference (e.g., don't-care areas)
191	..Multispectral features (e.g., frequency, phase)	221	...Counting difference pixels
192	..Feature counting	222Using an Exclusive-OR gate
193	...Counting intersections of scanning lines with pattern	223	...Resistor matrix
194	...Counting individual pixels or pixel patterns	224	.Classification
195	..Local or regional features	225	..Cluster analysis
196	...Slice codes	226	..Sequential decision process (e.g., decision tree structure)
197	...Directional codes and vectors (e.g., Freeman chains, compasslike codes)		
198Extracted from alphanumeric characters		

227	...With a multilevel classifier	263	..Highpass filter (i.e., for sharpening or enhancing details)
228	..Statistical decision process		
229	.Context analysis or word recognition (e.g., character string)	264	..Lowpass filter (i.e., for blurring or smoothing)
230	..Trigrams or digrams	265	..Recursive filter
231	..Checking spelling for recognition	266	.Edge or contour enhancement
232	IMAGE COMPRESSION OR CODING	267	..Minimize discontinuities in dot-matrix image data (i.e., connecting or merging the dots)
233	.Including details of decompression		
234	.Parallel coding architecture	268	..Minimize discontinuities at boundaries of image blocks (i.e., reducing blocking effects or effects of wrap-around)
235	.Substantial processing of image in compressed form		
236	.Interframe coding (e.g., difference or motion detection)	269	..Minimize jaggedness in edges (e.g., anti-aliasing)
237	.Gray level to binary coding	270	.Variable threshold, gain, or slice level
238	.Predictive coding	271	..Based on the results of a count
239	.Adaptive coding (i.e., changes based upon history, activity, busyness, etc.)	272	..Based on a local average, mean, or median
240	.Pyramid, hierarchy, or tree structure	273	..Based on peak levels
241	.Polygonal approximation	274	.Intensity, brightness, contrast, or shading correction
242	.Contour or chain coding (e.g., Bezier)	275	.Artifact removal or suppression (e.g., distortion correction)
243	.Shape, icon, or feature-based compression	276	IMAGE TRANSFORMATION OR PREPROCESSING
244	.Lossless compression		
245	..Run-length coding	277	.Transforming each dimension separately
246	..Huffman or variable-length coding	278	.Correlation
247	..Arithmetic coding	279	.Convolution
248	.Transform coding	280	.Fourier transform
249	..Fractal	281	.Walsh, Hough, or Hadamard transform
250	..Discrete cosine or sine transform	282	.Selecting a portion of an image
251	.Quantization	283	..Using a mask
252	..Error diffusion or dispersion	284	.Combining image portions (e.g., portions of oversized documents)
253	..Vector quantization		
254	IMAGE ENHANCEMENT OR RESTORATION	285	.Mapping 2-D image onto a 3-D surface
255	.Focus measuring or adjusting (e.g., deblurring)	286	.Measuring image properties (e.g., length, width, or area)
256	.Object boundary expansion or contraction	287	..Detecting alignment marks
257	..Dilation or erosion (e.g., opening or closing)	288	..Determining center of gravity or moment
258	..Line thinning or thickening	289	..Determining amount an image is rotated or skewed
259	..Skeletonizing	290	...Where the image is a character, word, or text
260	.Image filter	291	..Determining the position of an object
261	..Adaptive filter		
262	..Median filter		

292 ...Where the object is a
character, word, or text

293 .Changing the image coordinates

294 ..Registering or aligning
multiple images to one another

295 ..To position or translate an
image

296 ..To rotate an image

297 ...Rotation of image is limited
to 90 degrees, 180 degrees, or
270 degrees

298 ..To change the scale or size of
an image

299 ...Raising or lowering the image
resolution (e.g., subpixel
accuracy)

300 ...Interpolation

301 ...Where the image is an
alphanumeric character

302 .Multilayered image
transformations

303 ..Pipeline processing

304 ..Parallel processing

305 .Image storage or retrieval

306 ..Using identification indicia on
document

307 .General purpose image processor

308 ..Morphological operations (i.e.,
local neighborhood operations)

309 **EDITING, ERROR CHECKING, OR
CORRECTION (E.G.,
POSTRECOGNITION PROCESSING)**

310 .Correcting alphanumeric
recognition errors

311 .Including operator interaction

312 **IMAGE SENSING**

313 .Hand-held

314 ..Sensing mechanism in stylus

315 ..Sensing mechanism in platen

316 .Curve tracer

317 .Sensor control (e.g., OCR sheet
controls copier or fax)

318 .Multiple scanning

319 ..Prescanning

320 .Magnetic

321 .Optical (e.g., OCR)

322 ..Single spot

323 ..Single line

324 ..Full retina

325 **MISCELLANEOUS**

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