ICAP PATENT BROKERAGE

High Quality Intelligent Imaging, Processing, & Compression

Xerox Corporation

Initial Bidding Guidance: High 6 Figures to Low 7 Figures

With early priority dates from 1997, this portfolio is directed to methods for improving, compressing, and manipulating digital images, including the following:

1. Systems and methods to accomplish the automatic determination of independent regions or segments for objects within a scanned image. This involves locating a plurality of independent objects within the image, modeling the shape of the identified objects, and creating a structured image description identifying the location, shape, and orientation of each object within the image. Productivity can be enhanced by decreasing the time required for scanning multiple images, by automating corrections for alignment of multiple images, or automatically placing multiple images in a document template. *[6,738,154]*
2. Methods and systems to control de-screening of documents. The system comprises a filter bank, a control module and a blend module. The filter bank filters the image signal and produces a set of filter output signals. The control module generates at least one control signal based on the image signal and some of the filter output signals. The blend module dynamically blends the filter output signals in accordance with the control signal to produce a de-screened output signal. Also included is an efficient method and system for eliminating halftone screens from scanned documents while preserving the quality and sharpness of text and line art. *[6,983,076; 7,218,418; 7,433,084; 7,532,363; 7,375,856]*
3. An efficient method for implementing an interpolation or extrapolation operation, in one or multiple dimensions, for image processing, via computing the function value of an input node based on function values of known nodes within a database. *[6,975,331; 7,382,489; 7,233,695]*
4. Systems for automatically processing images to produce highly compressed and high image quality files that accurately capture the original document content. The system efficiently separates an image, to optimize the compression advantages of Mixed Raster Content (MRC) representation. Includes the following techniques:
   a. Segmenting digitally scanned documents or images into two or more planes, suitable for a MRC representation of up to four independent planes: foreground, background, selector, and rendering hints. A foreground erosion method may also used to meet thin (but unbroken) text requirements using linear YCC segmentation. The system comprises a min-max module, a dynamic threshold module and a separation module. *[6,987,882; 7,031,518; 7,366,357; 7,356,183; 7,269,294; 7,242,802]*
   b. Dynamically thresholding an image signal. *[6,859,204; 7,456,982]*
   c. Converting a document to a mixed raster content format with multiple foreground planes. *[7,324,120]*
   d. Improving mixed raster compression segmentation by utilizing a second stage of a process to generate the MRC Selector plane by operating on a multibit selector signal. *[7,308,136]*
   e. A method of generating a binary selector plane for image compression. *[7,227,988]*
   f. A Gamut Enhance Module (GME) for applying 3 independent Tone Reproduction Curves (TRC) to each of the color components of an input image. *[7,200,263]*

TECHNOLOGY
IMAGE PROCESSING; DIGITAL GRAPHICS EDITING

NOVELTY
METHOD AND SYSTEM TO DETERMINE INDEPENDENT REGIONS WITHIN A SCANNED IMAGE, DE-SCREEN DIGITALLY SCANNED DOCUMENTS OR IMAGES, AND IMAGE COMPRESSION USING MIXED RASTER CONTENT (MRC)

IMPORTANCE
A VALUABLE PORTFOLIO FOR COMPANIES PROVIDING SCANNERS, IMAGING EQUIPMENT, AND MULTIMEDIA OR GRAPHIC DESIGN SOFTWARE

NUMBER OF ASSETS
69

US PATENTS (22)
6,738,154
6,859,204
6,975,331
6,983,076
6,987,882
7,031,518
7,200,263
7,218,418
7,227,988
7,233,695
7,236,641
7,242,802
7,269,294
7,308,136
7,324,120
7,356,183
7,366,357
7,375,856
7,382,489
7,433,084
7,456,982
7,532,363

OTHER PATENTS (42)

APPLICATIONS (5)

Please inquire for a complete asset listing.

5. A Statistics Module (STS) that collects content data about an image for the purpose of applying image enhancement operations, such as page background removal and automatic neutral detection to determine if the page is gray or colored. The output may be provided in the form of a 3D color histogram. *[7,236,641]*

Forward Citing Companies: Abbyy Software, Adobe Systems, Apple, Aptina Imaging Corporation, Arcsoft, AT&T, Autodesk, Avigilon, Brother Industries, Canon, Casio, Cvision Technologies, Eastman Kodak, Fujifilm, Fujitsu, Hewlett-Packard, Intel, Intellectual Ventures, IBM, Konica Minolta, Lagardère Group, Lexmark, Microsoft, NEC, Qualcomm, Ricoh, Samsung, Seiko, Sharp, Sony, Verizon

Priority Date: 01-21-1997

Representative Claim: US 6,987,882 – Claim #1
A method for separating an image signal into a set of image planes in accordance with a control signal, the method comprising the operations of: (a) receiving the control signal and producing a selector signal, via a selector module, the control signal representing a distance and a direction of a current pixel in the image signal relative to a threshold plane, the distance and direction determined based on minimum and maximum values within one or more windows of pixel arrays containing the current pixel; (b) receiving the selector signal and producing a decision signal, via an edge processing module; and (c) receiving the image signal and the decision signal, and outputting a foreground signal and a background signal, via a foreground/background separation module, a representation of the current pixel of the image signal being included in at least one of the foreground signal and the background signal in accordance with the decision signal.

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