Recogniform Image Processor

BEYOND BATCH DOCUMENTS ENHANCEMENT
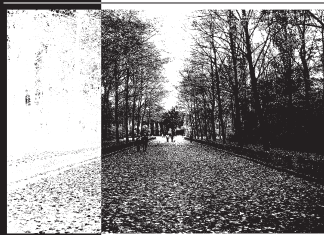
Recogniform Image Processor

BEYOND IMAGE ENHANCEMENT

Recogniform Image Processor is the complete solution for batch image processing, allowing to execute image enhancement and image transformation on groups of monochrome, grayscale or color images.

Recogniform Image Processor inherits the effectiveness and the elaboration power of our SDK image processing libraries. The user has no need to create a new application every time he needs a new processing pipe: the goal is simply reached using a custom script.

Thanks to its visual interface, Recogniform Image Processor is really easy-to-use. Creating the images batch and to define and customize processing parameters.

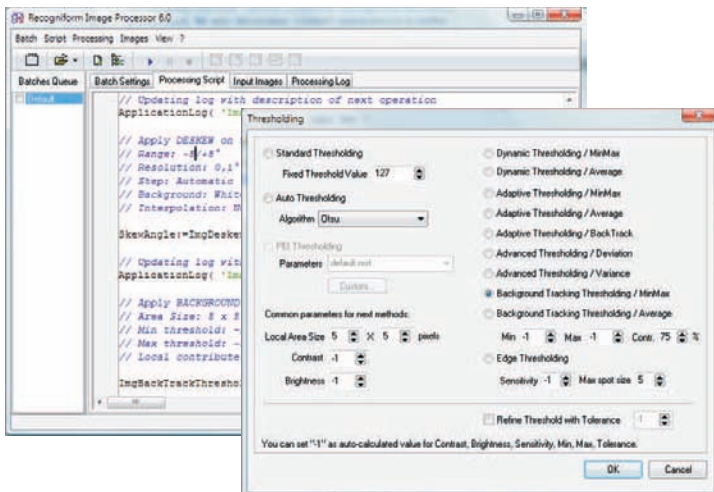You can create set of images (batches) in three easy ways:

▶ dragging files from your folders and dropping them into the input images list;

▶ using the built-in dialogs to select files and directories;

▶ importing .txt files containing lists of image files to process.

Problem: bad quality grayscale drawing with dark and not homogeneus background
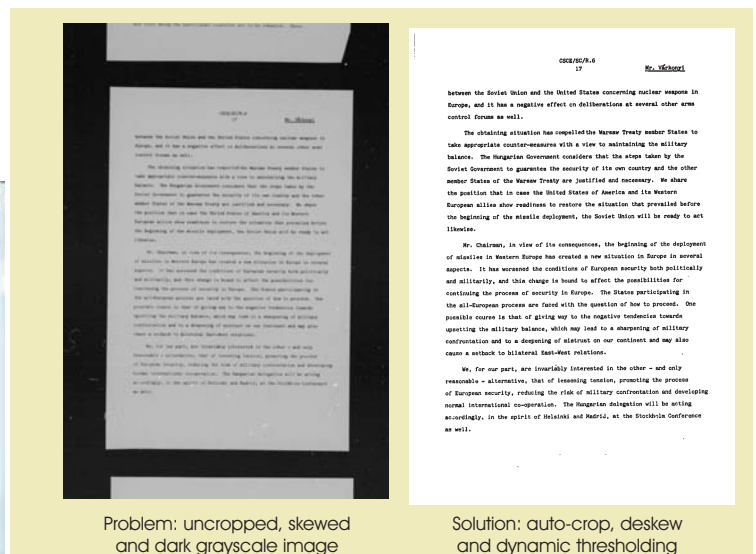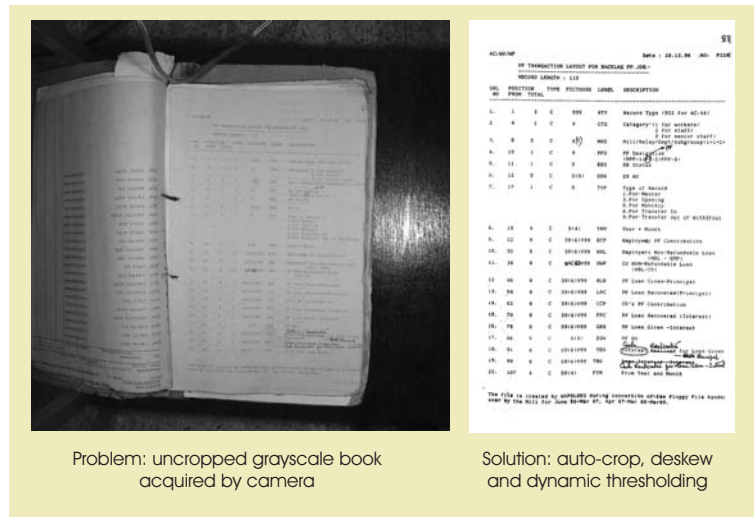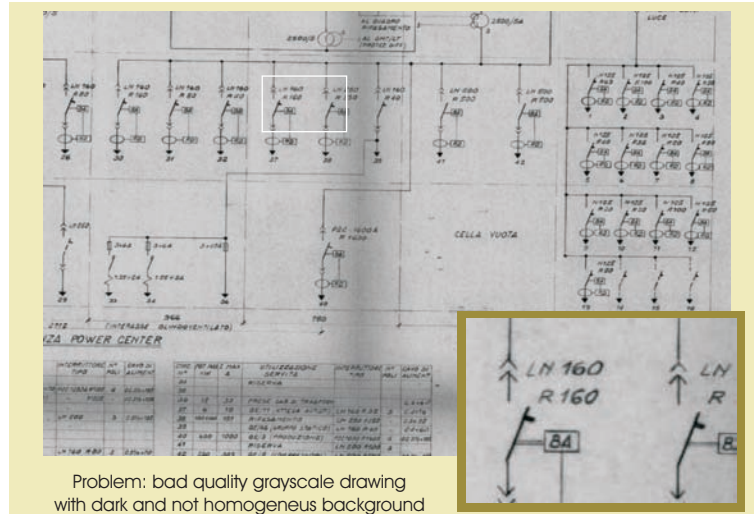
SCRIPT-ORIENTED LANGUAGE

The image processing is script-oriented. This means that you can write the sequence of image processing function to apply on your images. The scripting language used is pascal-like: simple but very powerful. For usual image processing tasks you can avoid writing lines of code manually: using the visual interface you can leave the task to the application! Just select from popup menu the image processing function you wish to use, set the parameters required to fine-tune the operation in the next dialog box, and you will see a processing script instantly self-generated!

IMPROVE THE RECOGNITION

Applying the right image processing on your images you will obtain great benefits: Optical Character Recognition accuracy is improved, file size decreases, content appearence is better: if you have to make form processing, data capure, OCR, ICR, or if you simply wish to store your images, you need this tool!

Problem: uncropped grayscale book acquired by camera

Solution: auto-crop, deskew and dynamic thresholding

Recogniform Image Processor user-friendly visual interface creates scripts for you!

Problem: uncropped, skewed and dark grayscale image

Solution: auto-crop, deskew and dynamic thresholding

Solution: dynamic thresholding

Problem: old book with visible ink from the rear side

Solution: Bled Throw Removal

Problem: color image, not suitable for OCR

Solution: color drop-out

FEATURES
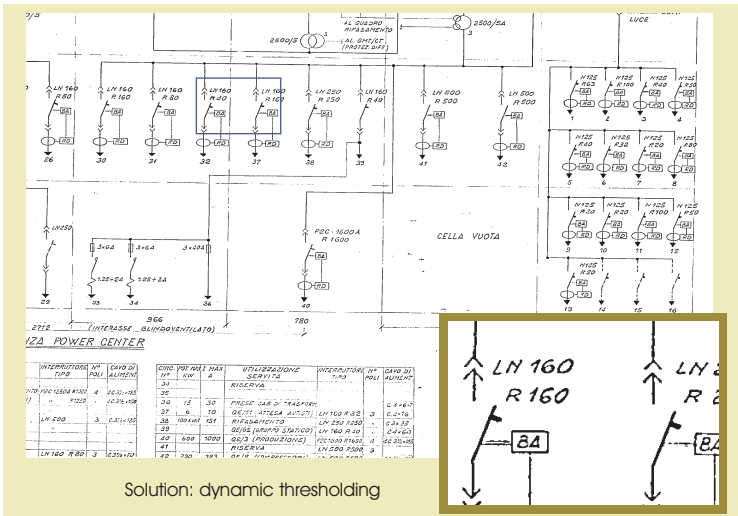
Batch processing: Simply create your images batches and start the processing! It's the ideal solution to process high volumes of images: the software can run unattended overnight. You can insert specific files in a batch, or full directories, or import pre-built list of files.

Multi-threading: Maximize the throughput with multi-thread technology. You can choose up to eight concurrent "agents" to use in the batch.

Comprehnsive file formats support: All standard file formats are supported: TIFF (Uncompressed, Jpeg Compressed, Packbits, CCITT G3, CCITT G4, LZW, Zip), JPEG (JFIF), BMP, PNG, PDF (CCITT G4, JPEG). Other formats available upon request.

Full bit depth range: Bitonal, grayscale and color images are supported. The color depth can be 1, 4, 8 or 24 bits per pixel!

Powerful scripting language: A pascal-like language easy to learn and user-friendly, with built-in wizard to generate automatically scripts. You can use variables, library functions, conditional and loop statements, and more...

Large functions library: Hundreds of functions ready to be used in your processing scripts: image processing and management, data handling and conversion, files and database access, DDE, system and more...

Conditional processing: Using if-then-else scripting construct you can decide in run-time to make some processing operation only and when some conditions are verified.

Zonal processing: You can define your region of interest: extract a sub-image, process only a specific area, output processed zone and/or re-applying changes on unmodified original.

Customizable log: You can decide the information to insert in the log, reporting the process results you need.

Dual Image Viewer companion: A viewer utility performing a double view of the image (before and after the processing) is enclosed at no extra charge. You can zoom and pan the two version of the same image at the same time with one single mouse click.
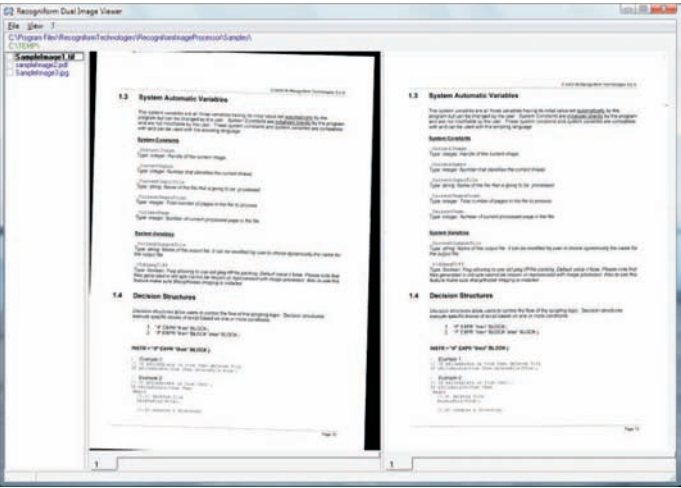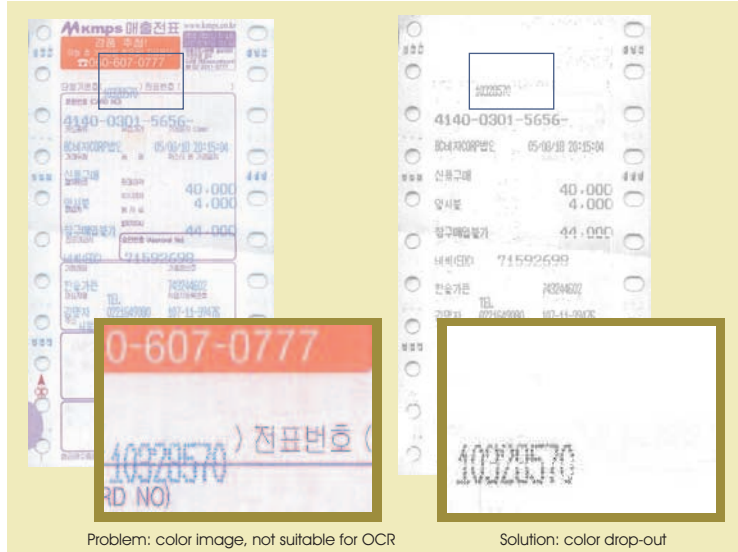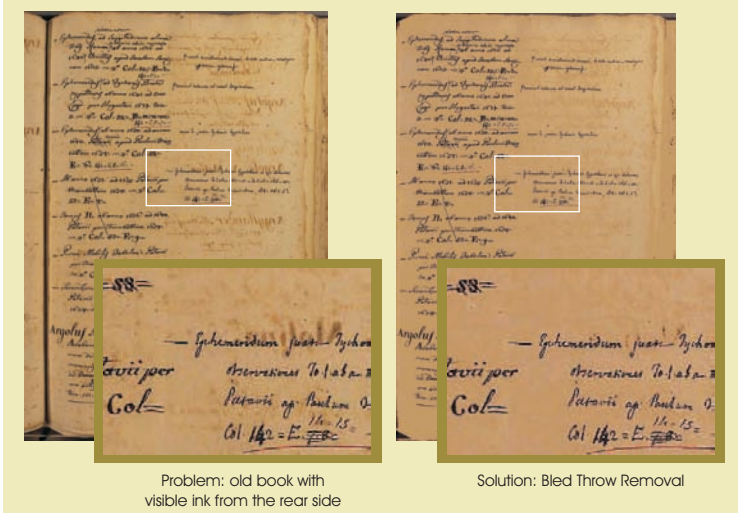
Dual Image Viewer

IMAGE PROCESSING FUNCTIONS

(Also available as SDK)

Deskew: Straighten crooked images! Using high-volume scanners, automatic document feeder inevitably skews paper: you can fix the problem and obtain straighten images without rescan, correcting skew in full automatic way at high speed. Up to 45 degrees of skew are handled and the angle can be estimated with great accuracy in two ways: analyzing the text on the image or finding the black border around the paper.

Despeckle and Noise Removal: Remove speckle cleaning images! Scanning paper copies and microfilms, dot shading, or just dust and dirt can generate noisy images: you can fix the problem with automatic noise removal. You can determinate how large an area of speckle can be, fine-tuning the process for your images.

Black Border Removal and Auto Cropping: Remove black border around images! Using microfilm scanner or paper scanner with black background, this black border is produced around the image: you can fix the problem and obtain cleaned images without rescan. You can select a threshold level and choice to remove the dark border cropping the image or simply turn it white.

Auto-Orientation: Automatically detect text orientation, rotating in proper way landscape images acquired in portrait or portrait images acquired in landscape!

Deformation Correction: Correct deformated images! Using microfilm or microfiches scanners is usual to get deformed images, similar to parallelograms more than rectangulars. You can fix the problem and obtain geometrically correct images.

Inverse Text Correction: You can fix inverted text zone allowing OCR systems to read all the data without skipping this dark boxes. A function to invert full images is also available.

Lines Removal: Expecially before making OCR/ICR, you should use this tool to get a better recognition rate. Set several parameters to remove only the elements you wish to remove: minimum line length, minimum length/thickness ratio, max number of interruptions. Moreover, characters crossed by a line are repaired and reconnected after the lines removal!

Streak removal: You can delete very thin vertical or horizontal dark or white wires generated during the scan as well as dithered background.

Smoothing: Fix ragged images featuring poor text/drawings quality without re-scan, obtaining smoothed images.

Erosion and Dilation: Make readable dot matrix characters using dilation filter or disconnect dark characters using erosion filter.

Light and Color Balance: Increse or decrease contrast and brightness by a custom percentage or ask the system to equalize this values automatically. Adjust gamma curve to better color/grayscale visualization.

Registration: When you're scanning forms it's very important to register image before extracting fields and zones for processing. You can shift the image horizontally and vertically as you wish.

Resizing and Scaling: Set the width and the height of the output image and choose if preserve the aspect ratio or not. Choose if resize the image but not the content or scale image and content. A specific function to get grayscale thumbnails from monochrome images is also available.

Rotation and Flipping: Rotate images by any angle and flip it horizontally or vertically.

Color Conversion: Convert images between true-color, grayscale or bitonal classes with great quality. In any file format!

File Format Conversion: Convert files in batch to/from TIFF, JPEG, BMP, PNG and PDF format! Arrange images in multi-pages files or split multi-pages files into single ones… automatically!

Fixed Thresholding, Automatic Thresholding, Dynamic Thresholding, Edge Thresholding, Adaptive Thresholding: Choose the best algorythm to threshold graylevel images, set custom parameters and obtain perfect monochromatic images.

Dithering: Convert your gray images into monochrome preserving halftones.

Convolution and Filtering: Apply image filter using a 3x3 matrix. You can find edges, make image sharpen, and more... The new median filter, mean filter and polynomial filter allow you to remove all the noise from grayscale images!

Color Dropping: Instead of rescanning using an Ink Drop-Out Lamp, use your color images to get grayscale or bitonal images with the colored form removed. You can select the color to be removed or find at run-time the dominant color to remove.

Quality Control: Evaluate at run-time image properties as brightness, contrast, variance, dominant color, size, bit depth, skew and orientation and make your own quality control!

Watermarking: Prevent unauthorized usage of your documents and photo adding copyright text or company logo in a specific position with a customizable transparency level!

Annotations, Drawings, Barcoding: Place any combination of alphanumeric annotations (Bates Stamp), barcodes, rectangles, circles, lines on your images!

Merging with logical operators (OR, AND, XOR): You can apply masks and logos on images in a poweful way!

Bleed-Through removal: Clean color images removing data and text on back side and visible in trasparency on front side!

All image processing functions are also available as SDK

RECOGNIFORM TECHNOLOGIES is a private Italian R&D company, leader in high technology image processing and image recognition software. Constantly providing solutions to many Industry and Services private Companies, Government Agencies and Educational Institutions all over the world, Recogniform Technologies is the only Italian company to develop all the image processing and recognition engines used in its products.