



PARASCRIPT®

Parascript® SignatureXpert®

The frontline defense against signature fraud.

Check fraud incurs multi-billion-dollar-a-year business losses and is a problem for all banks, financial institutions, and retailers. Formerly the specialty of professional forgers, check fraud has become a widespread crime. One of the primary reasons for this is advances in technology. Highly sophisticated and low-cost technology is now available to criminals allowing them to hone their skills when creating counterfeit checks and forging signatures. This changed situation requires an increased level of alertness for the institutions that want to protect themselves from the threat of check fraud losses. Banks and financial institutions are now turning to advanced fraud protection tools for assistance.

Parascript *SignatureXpert* is a trusted method of handwritten signature verification that meets the requirements of the information age. This award winning* signature authentication software detects signature presence, verifies signatures on checks, Image Replacement Documents (IRDs) and other documents, and reveals all types of signature fraud, including random and skilled forgery. *SignatureXpert* delivers the industry's highest accuracy and lowest error rates and can be easily integrated into existing document processing applications.

A Mature Solution for Banking and Financial Services

In applications that deal with signed paper documents, only a static, two-dimensional image is available for verification. This poses a challenge when developing an automatic solution, because the detection has to address not only random forgeries that were produced without knowing the shape of the original signature, but also skilled forgeries, generated by people who imitate or trace the original signature as closely as possible. In order to account for the missing important biometric data and produce highly accurate signature comparison results, off-line signature verification systems imitate the methods and approaches used by human forensic document examiners.

Until recently, the technology for automated off-line signature verification did not offer an industrially mature solution that was at least on a par with visual verification. *SignatureXpert* is a breakthrough in the current state-of-the-art of automatic signature verification, offering a solution that detects random and skilled forgeries of signatures with accuracy that not only equals but far surpasses visual verification.

Product Benefits

- **Eliminate background and remove noise from any type of input images**

SignatureXpert provides advanced capabilities to eliminate background and remove all kinds of noise from check images, IRDs, and signature snippets cut from documents with diverse and unpredictable layouts, such as voting cards, forms, and different formats of reference cards. In particular, it efficiently removes lines, preprinted text, intrusions from other fields, stamps and other undesired elements around the signature to ensure a clean image.

- **Automate signature location on input images**

SignatureXpert automatically locates one or two signatures on check images, IRD images and snippets, allowing the software to efficiently detect fraud on a variety of documents.

- **Apply multiple verification engines**

SignatureXpert combines seven verifiers to analyze dozens of signature features. Additionally, each verifier has a distinctive capability in exploiting a unique verification methodology. These tactics allow unprecedented accuracy of verification by taking into consideration all informative data extracted from a signature image, including biometric characteristics restored from the still image.

- **Verify signatures with different resolutions**

SignatureXpert can reliably verify signatures even if input images presented for verification and reference images have a different resolution.

• Use multiple reference images

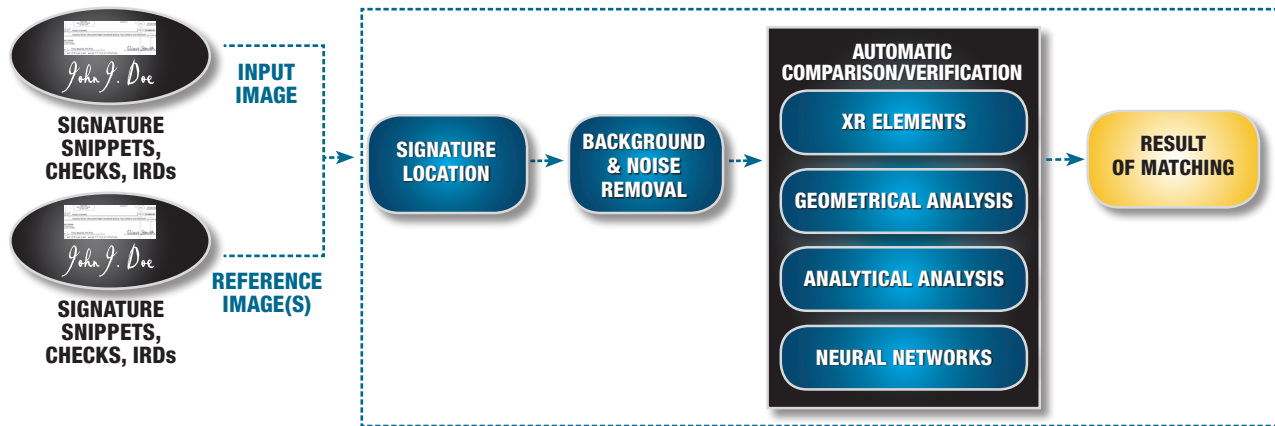
SignatureXpert may use multiple references to differentiate between natural deviations typical of a genuine signature and deformation digressions that indicate fraud. This allows it to consider more data to detect stable distinctive characteristics in a signature and to focus on them during the verification process, while ignoring random distortions and variations inherent in genuine signatures. You can update reference signatures and add new ones as needed to ensure the availability of up-to-date data for verification.

• Get diverse output options

Applications that may benefit from signature verification are

diverse and so are the accuracy requirements, purposes, and scenarios that have to be implemented in these applications. *SignatureXpert* issues a confidence value that serves as a basis for making a decision about signature genuineness and drawing a conclusion about probable fraud type. You can set the confidence value as a threshold depending on the percentage of false positives versus the percentage of false negatives required by a specific application. This mechanism provides additional flexibility and allows you to implement different scenarios when interpreting results. In addition to the confidence value of the best match, *SignatureXpert* produces other types of output results, thus enhancing product flexibility and adaptability to any environment and application needs.

How *SignatureXpert* Works



Technical Product Specifications

Requirements

- Platforms: Windows® NT 4.0 Service pack 4 and higher, Windows® 2000 Professional, Windows® XP Professional, Windows 2003 Server. Porting to other systems is available upon request.
- CPU: Pentium III, 500 MHz minimum required
- RAM: 256 MB minimum required
- Storage: Complete installation requires a minimum of 130 MB of free disk space

Input

- Image Format: Black-and-white TIFF, bitmap (BMP), and JPEG industry-standard images from a file, as well as images from

DIB or from memory. *SignatureXpert* also accepts grayscale images (TIFF, BMP and JPEG) with 8 bits per pixel.

- Image Resolution: 200 - 300 dpi

Output

- Confidence value of the best match
Note: If a check with two signatures is used as an object for verification, the function returns the confidence value of the verified document. This confidence value is calculated as the lowest of the confidence values received individually for the first and the second signature on a check
- Number of signatures found on a document presented for verification or on a reference document
- Preprocessed (cleaned from noise) snippet of a signature from the document

presented for verification or the signature reference document

- Coordinates of a rectangle that contains a signature found on the document
- The reference signature that is the best match for a specified signature presented for verification

License Protection

- Softlock

SignatureXpert is just one of many solutions within Parascript's product suite. For more information visit our web site at www.parascript.com

* *SignatureXpert* is the winner of the 2010 Forensic Signature Verification Competition organized by the International Conference on Frontiers in Handwriting Recognition



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