Call for Participation

# SVC 2004: First International Signature Verification Competition

The First International Signature Verification Competition (SVC 2004, http://www.cs.ust.hk/svc2004/) will be held in conjunction with the First International Conference on Biometric Authentication (ICBA 2004, http://www4.comp.polyu.edu.hk/~icba/) as one of the three competitions to be held. The other two competitions (FVC 2004 and FAC 2004) are based on the fingerprint and face biometrics.

**Background**

Handwritten signature verification is the process of confirming the identity of a user based on his or her handwritten signature. Automatic handwritten signature verification is not a new problem. Many early research attempts were reviewed in the survey papers, e.g., [Plamondon and Lorette 1989; Leclerc and Plamondon 1994]. The primary advantage that signature verification has over other types of biometric technologies is that signature is already the most widely accepted biometric for identity verification. The long history of trust over signature verification means that people are very willing to accept a signature-based biometric authentication system.

However, there has not been any major international effort that aims at comparing different signature verification methods systematically. As common benchmark databases and benchmarking rules are often used by researchers in such areas as information retrieval and natural language processing, researchers in biometrics increasingly see the need for such common benchmarks for comparative studies. For example, fingerprint verification competitions were organized twice (FVC2000 and FVC2002) to attract participants from both academia and industry to compare their algorithms objectively. As inspired by these efforts, we are organizing the first international competition on handwritten signature verification. We intend to make this an important event for both academics and industrialists working in this challenging area.

[Leclerc and Plamondon 1994] F. Leclerc and R. Plamondon. Automatic signature verification: the state of the art – 1989-1993. *International Journal of Pattern Recognition and Artificial Intelligence*, 8(3):643-660, 1994.

[Plamondon and Lorette 1989] R. Plamondon and G. Lorette. Automatic signature verification and writer identification – the state of the art. *Pattern Recognition*, 22(2):107-131, 1989.

**Objective**

The objective of this competition is to allow researchers and practitioners from both academia and industry to compare the performance of different signature verification systems based on common benchmark databases and benchmarking rules. Since on-line handwritten signatures collected via a digitizing tablet or some other pen-based input device can provide very useful dynamic features such as writing speed, pen orientation and pressure in addition to static shape information, only on-line handwritten signature verification will be included in this competition.

However, this event should not be considered as an official certification exercise, since the databases to be used in this competition have only been acquired in laboratory rather than real environments. Moreover, the performance of a system can vary significantly with how forgeries are provided. Furthermore, handwritten signature databases are highly language dependent. Nevertheless, it is hoped that through this exercise, researchers and practitioners could identify areas where possible improvements to their algorithms could be made.

**Participants**

Each participating team may consist of one or more members from an organization. We expect participants to come from both academia and industry. Organizers of this event will not participate in the competition.

Each team will be informed of the results confidentially. The team will then be asked to decide whether to disclose its identify or to remain anonymous in all subsequent publications. This decision is entirely up to each participating team to make after knowing the results.

**On-line Registration**

Registration should be done on-line at the Web site by 15 October 2003. On-line registration will be accepted starting from about two months before the registration deadline.

**Two Tasks**

Each team may register for either one or both of the two signature verification tasks. The major difference between the two tasks is in the information provided by the signature data. The signature data for the first task contain coordinate information only, but the signature data for the second task also contain additional information including pen orientation and pressure. Some sample data for both tasks will be made available on the Web site in September 2003.

**Code Submission**

Both tasks use the same code submission scheme. Each team is required to submit two executable files, one for performing enrollment and the other for matching. Executable files must be for the Windows platform and can run in command-line mode without any graphical user interface.

The first executable enrolls a handwritten signature and then produces a corresponding template. Its command-line syntax is:

```
enroll_TXYZ  <signature_file> <templates_file> <log_file>
```

where

| | |
|---|---|
| `TXYZ` | team ID to be assigned during registration |
| `<signature_file>` | filename for handwritten signature to enroll |
| `<templates_file>` | filename for templates created for a user |
| `<log_file>` | filename for enrollment log |

The second executable matches a new signature against templates for a user and then produces the matching result. Its command-line syntax is:

```
match_TXYZ  <signature_file> <templates_file> <results_file>
```

where

| | |
|---|---|
| `TXYZ` | team ID to be assigned during registration |
| `<signature_file>` | filename for handwritten signature to test |
| `<templates_file>` | filename for templates created for a user |
| `<results_file>` | filename for matching results |

Instead of giving a "yes/no" answer, the program should return a similarity score to indicate the similarity between the signature and the templates for a certain user. This allows us to generate a ranked list of the test examples according to their similarity scores and to produce a ROC curve based on the ranked list.

Under no circumstances will the code be used for purposes other than the SVC 2004 competition. After the competition, all the executable files collected will be destroyed. If a team chooses to use some expiration mechanism, the expiration date should be set to 31 December 2004.

**Performance Measures**

Based on the similarity scores in the matching results, we will compute the false rejection rate (FRR) and false acceptance rate (FAR) for different threshold values. The equal error rate (EER) and ROC curve will also be computed.

**Schedule**

| | |
|---|---|
| 15 October 2003 | Deadline for competition registration |
| 18 October 2003 | Databases available online |
| 30 November 2003 | Deadline for code submission |
| 15 February 2004 | Announcement of results |

**Organizing Committee**


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