Writing style belongs to the user?

Training (Qualified users) | **Testing (Any user)**

User System Interaction

Writings of Enrolled Users
e.g., 90 seconds Input

Writings of Testing Users
e.g., 5 seconds Input

User Login

↓

Random string given
by the system
(the challenge)

↓

User's corresponding
handwriting
(the response)

↓

Given content? — No

Yes
↓

**Writing style belongs
to the user?** — No

Yes
↓

*Authorize
the user*

*Reject
the user*

Outlier Elimination | Outlier Elimination
Word Segmentation | Word Segmentation
Sample Generation | Sample Generation

Data Processing

Frame-Level Feature | Frame-Level Feature

Frame-Level Feature Extraction

Component-Level Feature | Component-Level Feature

Component-Level Feature Extraction

Component feature
Quantization

↓

Vocabulary of
Primitives

Component Indices | Component Indices

↓

Sample-Level Feature | Sample-Level Feature

Sample-Level Feature Extraction

SVM
Training → SVM
Model(s) → SVM
Classification

Label: User
Identity

User Identity

User Identification