

# Handwriting Recognition System

**Definition:** Handwritten character recognition is a field of research in artificial intelligence, computer vision, and pattern recognition. A computer performing handwriting recognition is said to be able to acquire and detect characters in paper documents, pictures, touch-screen devices and other sources and convert them into machine-encoded form.

It is a system that provides a full alphanumeric recognition of printed or handwritten characters at electronic speed by simply scanning the document.

## Why do we need this system?

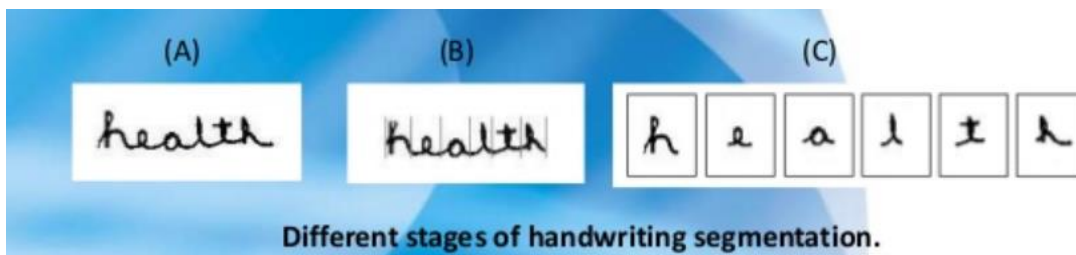
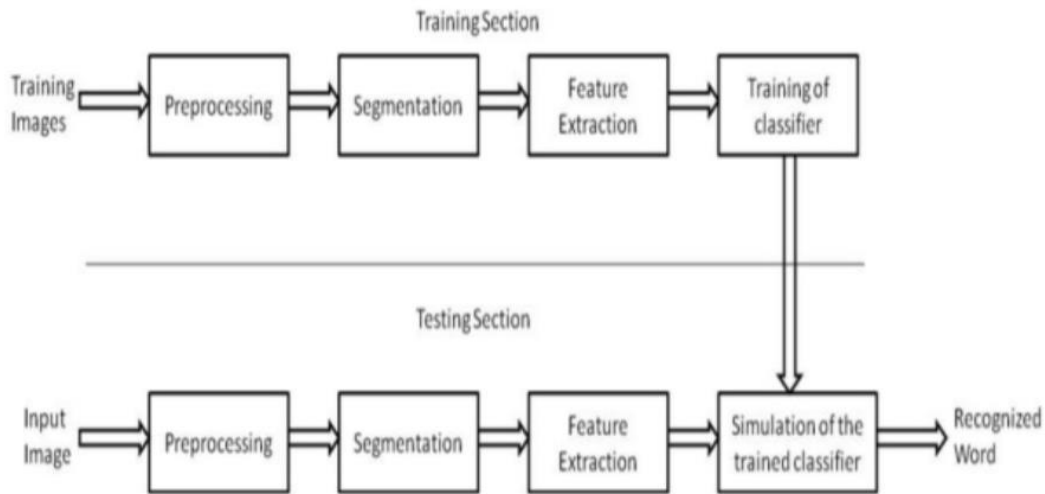
- Recognizing handwriting and converting them into digitized format makes your task easier and smoother.
- Handwriting recognition technology through artificial neural networks (ANNs) is helping us to build platforms that are reflective of the human experience.
- The ability to interpret the meaning of users handwritten input in real-time is teaching machines to adapt to the user.

**Implementation:** Character classification can be done in multiple ways in which 2 major ways are as follows:

- 1) Neural Networks:  
    Multilayer perceptron  
    Back propagation algorithm
- 2) Support Vector Machine Algorithm

## Decision methods include:

- 1) Various statistical methods
- 2) Neural Networks, structural matching



## An example of segmentation and recognition

### Challenges/Constraints

The constraints are mainly characterized by the:

- Types of handwriting.
- Number of scripters.
- Size of the vocabulary.
- Spatial layout.

- **Pros**
  - Much faster than someone manually entering large amount of texts.
  - Cheaper
- **Cons**
  - Not 100% accurate.
  - If original document is of poor quality, it will be difficult for the machine to read, hence, leading to more mistakes.
  - Not worthy doing for small amounts of texts.