Links

[Authentication using Signature Verification (youtube.com)](https://www.youtube.com/watch?v=Pj1Z_K3Owu0&t=62s)

Ideas about diff types of signature auth

**Signature verification** is a crucial process used for **personal identification**. It involves analyzing an individual’s **handwriting style**, which exhibits both **inter-personal** and **intra-personal variations**. Let’s delve into the details:

1. **Offline Signature Verification**:
   * In this approach, signatures are analyzed after they have been written. It encompasses two main approaches:
     + **Writer-Dependent**: This method focuses on signatures from a specific individual. It considers the unique characteristics of their handwriting.
     + **Writer-Independent**: Here, the system generalizes across different writers. It aims to verify signatures regardless of the specific writer.
   * Techniques used for offline signature verification include **feature extraction** and **classification** methods. These help identify patterns and distinguish genuine signatures from forgeries.
   * [Researchers evaluate these techniques using various **signature databases**, and the results are reported for comparison1](https://link.springer.com/article/10.1007/s12652-021-03356-w).
2. **Online Signature Verification**:
   * In online verification, the system analyzes signatures as they are being written. It captures dynamic information such as **pen pressure**, **speed**, and **trajectory**.
   * [Common techniques for online signature verification include **dynamic time warping**, **hidden Markov models**, and **vector quantization**](https://link.springer.com/article/10.1007/s12652-021-03356-w)[2](https://en.wikipedia.org/wiki/Signature_recognition).
   * These methods allow for real-time verification during signature creation.
3. **Biometric Systems and Applications**:
   * Biometric identification relies on **unique physiological and behavioral attributes**.
   * **Physiological attributes** include fingerprints, hand geometry, iris patterns, DNA, and facial features.
   * **Behavioral attributes** encompass voice, signature dynamics, and other behavioral patterns.
   * Biometric systems offer **high accuracy** compared to traditional security methods like passwords or PINs.
   * [Applications of biometric recognition include **driving licenses**, **passport authentication**, **voter registration**, and **personal device login**](https://link.springer.com/article/10.1007/s12652-021-03356-w)[1](https://link.springer.com/article/10.1007/s12652-021-03356-w).

[In summary, signature verification plays a vital role in ensuring secure authentication, whether it’s validating handwritten signatures or verifying digital signatures in electronic documents3](https://helpx.adobe.com/acrobat/using/validating-digital-signatures.html). [If you’re interested in e-signatures, consider practices like requiring signers to verify their identity, sending confirmation emails, or implementing two-factor authentication (2FA)4](https://www.jsign.com/blog/a-guide-to-e-signature-verification)