



Signature Matching

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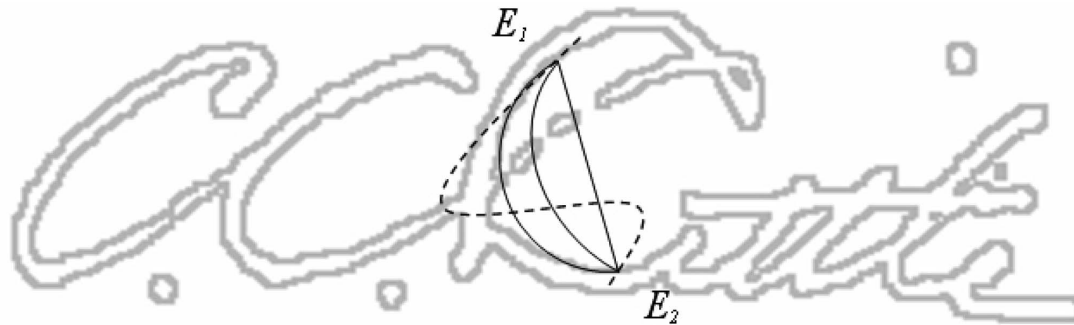
Problem and Challenges

- Problem
 - Match a given Signature with reference Signature
- Challenges
 - Signatures are Images, thus requires image processing techniques
 - When a user sign, a signature is most likely may not be identical to the reference signature
 - It is difficult of match with Precision, thus signature matching must have an acceptable tolerance for error

Signature Matching Approach

- Extract features from signature image
 - Spatial - Geometrical, Topological
 - Extract salient structure
 - Contour grouping and learning
 - Temporal
- Shape matching as optimization problem
 - Preserves local neighborhood structure
 - Use graph matching, meaning maximize number of matched edges between a reference signature and a signature in question

Example of Feature extraction

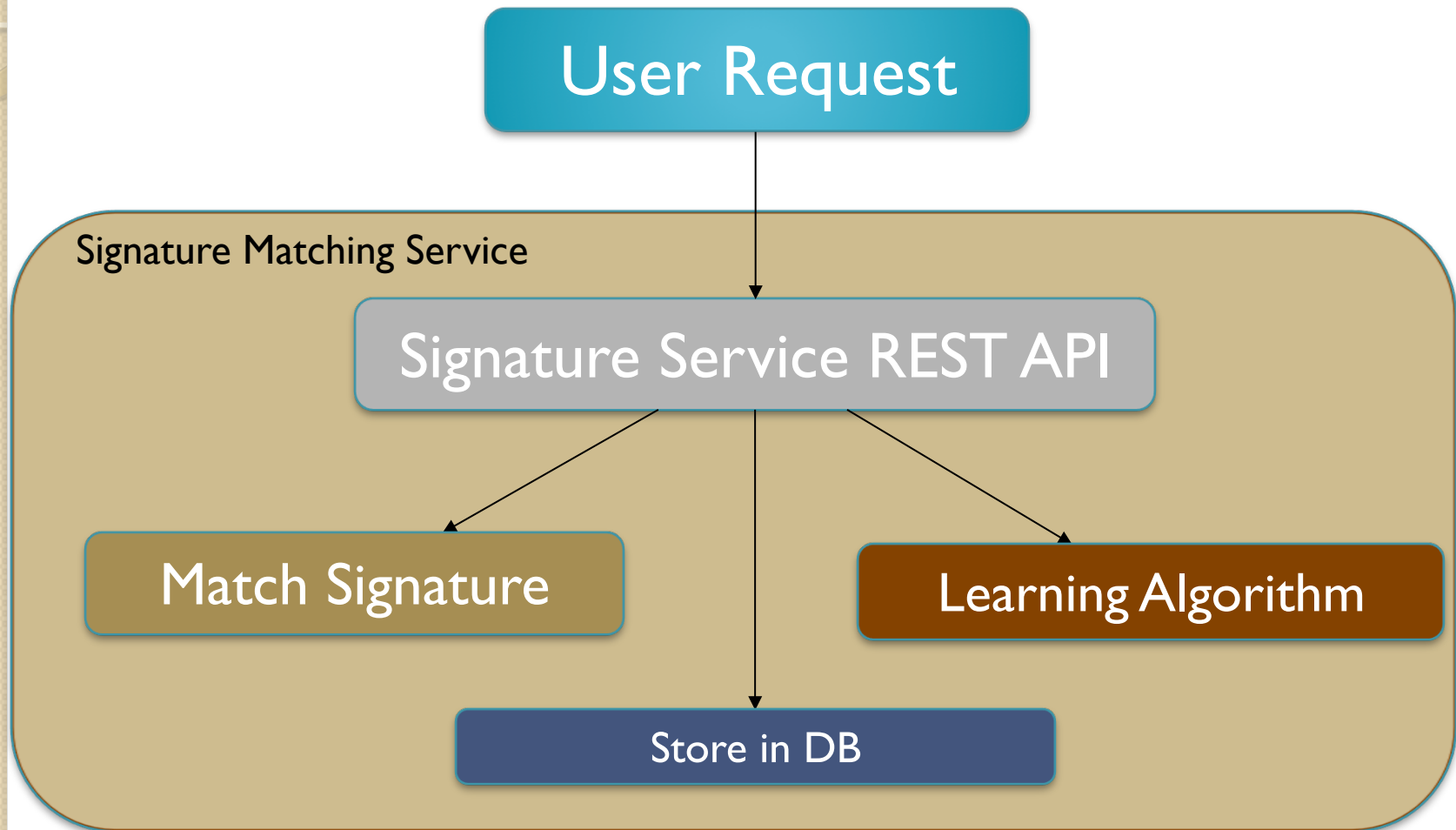


- Solid geometric curves passing through the two end points E_1 and E_2 on a signature are feature curves
- Features are of type cycloid, cycloid, and prolate cycloid

Signature Matching as a Service

- A REST or Request/Reply Service
- The service has a database of reference signature
 - A user can add/update a reference Signature with the Service
 - A user request with a Signature for matching for which the Service will respond with a tolerance/precision of matching such as 90% or 10% indicating a Signature is a match or not match or needs to be manually verified.

Signature Matching Service Flow



Service Architecture

Signature Matching RETS API

Add/Update
Signature

Match
Signature

Signature
DB

Learning
Algorithms

Trained
Algorithms