

A test case for pattern recognition systems: Recognizing Characters and Cursive Words

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Abstract: We will examine an algorithm that hypothesize all possible letters, all possible pair of letters, and uses a dictionary to eliminate spurious words. The building blocks of the algorithm are differential geometrical structures extracted from characters, combined into a character recognition engine, and a visual bigram evaluation. We are improving on every aspect of the algorithm by examining various pattern recognition questions:

- (i) how to extract reliable differential geometric structures of images (characters here can be written in various different formats and noise can be added)
- (ii) how to integrate these geometric structures to construct efficient geometrical models of deformed shapes (characters)
- (iii) how to use a hierarchical representation of objects to efficiently compare shapes (i.e., to measure all the hypothesis for each data character when the data base of models is large)
- (iv) how to propagate hypothesis and eliminate hypothesis to build a larger system (to build a cursive word recognition system from a character recognition system).