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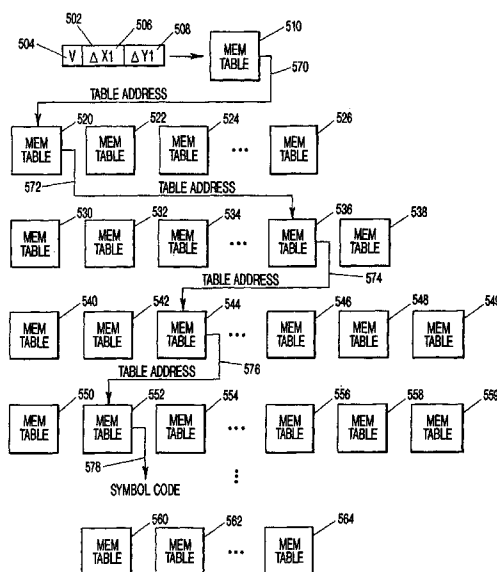
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(54) Title: SYSTEM, METHOD AND APPARATUS FOR PATTERN RECOGNITION WITH APPLICATION TO SYMBOL RECOGNITION AND REGENERATION FOR A CALIGRAPHIC DISPLAY



(57) Abstract: The invention provides a technique for pattern recognition that employs a state machine that incorporates a sequence of table-look-up operations. A sequence of input parameters, derived according to an application-specific algorithm, generates a corresponding sequence of memory addresses for these operations. The memory tables are organized in a hierarchical structure that corresponds to the input sequence. Table data is designed to recognize a specific library of input patterns. An input sequence traces an input-specific path through the memory tables until one of the patterns in the library is recognized (578) or until it is determined that the input sequence is inconsistent with any of the library patterns. For each library pattern, the table data is designed to accommodate the variations in the input values that are specific to the application (e.g., variations due to noise and/or tolerances). Table data can be derived by analysis, simulation, learning or a combination of these methods. The invention can replace neural networks or DSP correlation techniques in real-time applications. It achieves very high performance by comparing the input sequence to all of the patterns in the library simultaneously. The invention can be employed to improve the image quality of a caligraphic display system that uses flat-panel display technology. A method for improving the performance of display systems that employ image memories to refresh a computer generated image is also disclosed.

WO 01/048729 A3