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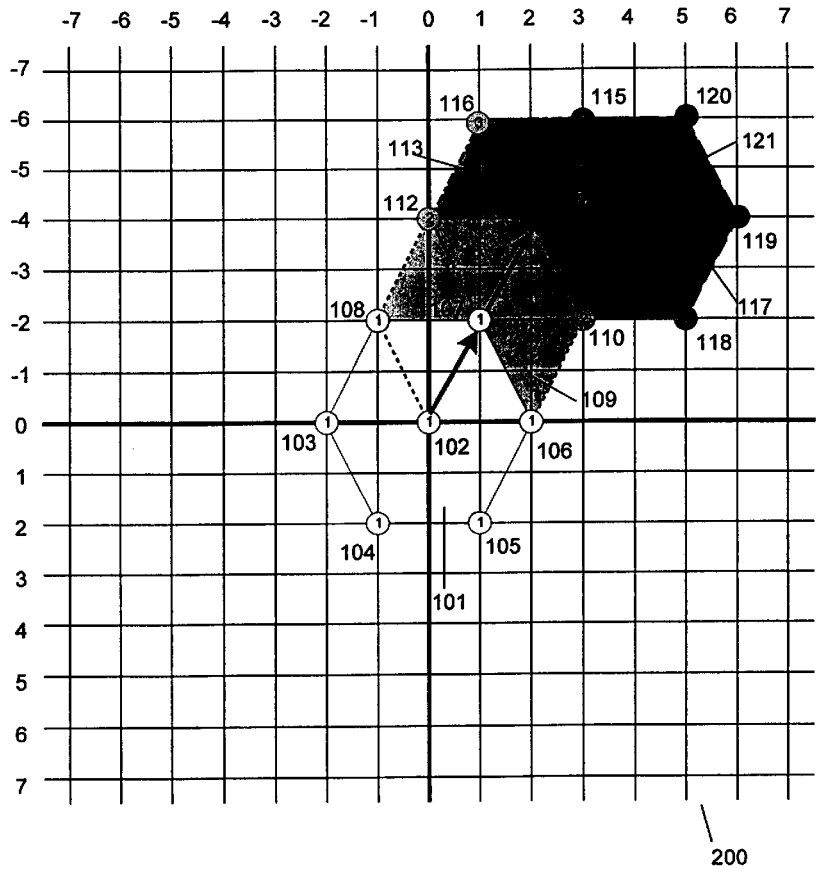
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(54) Title: A HEXAGON-BASED FAST SEARCH METHOD FOR BLOCK MOTION ESTIMATION IN VIDEO ENCODING



(57) Abstract: In block motion estimation, search pattern with different shape or size has very important impact on search speed and distortion performance. We invent a fast algorithm using hexagon-based search pattern in block motion estimation, which demonstrates significant speedup gain over the diamond-based search and other square shape based search methods while maintaining similar distortion performance. The proposed hexagon-based search algorithm, employs two different sizes of hexagonal search patterns. Strikingly, for large motion image sequences, the new method may use much fewer search points than the diamond search (DS) algorithm, with a speed improvement of around 80 % over the DS algorithm in certain cases. Generally speaking, the larger the motion vector, the more significant the speedup gain for the new method.

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