

Shapes Characterization on Event Address Representation Using
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Shapes Characterization on Event Address Representation Using Histograms of Oriented Events and an Extended LBP Approach

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Abstract

Address Event Representation is a thriving technology that can change the digital image processing paradigm. This paper proposes a methodology to characterize the shape of objects using the streaming of asynchronous events. A new descriptor that enhances spikes connectivity is associated with two oriented histogram based representations. This paper uses those features to develop both a non-supervised and supervised multi-classification framework to recognize poker signs from the Poker-DVS public dataset. The aforementioned framework, which uses a very limited number of events and a simple class modeling, yield results that challenge more sophisticated methodologies proposed by the state of the art. A feature family based on context shapes is applied to the more challenging 2015 Poker-DVS dataset with a supervised classifier to obtain an accuracy of 98.5 %. The system is also applied on the MNIST-DVS dataset yielding an accuracy of 90.5 %.

Keywords: dynamic vision sensors, address event representation, histograms of oriented events, extended local binary patterns, events shape context, sign recognition

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