Design and Implementation an Automated System for Analyzing Brushstrokes to Distinguish between Van Gogh and his Contemporaries by using Swarm Intelligent Method

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 179
Number 11

Year of Publication: 2018

Authors:
Laheeb Mohammed Ibrahim

10.5120/ijca2018915896

Abstract

In this paper, An Automated System for Distinguish Between Van Gogh and his Contemporaries by using Swarm Intelligent is designed. Swarm intelligence can be defined as the collective intelligence that emerges from a group of simple entities; these agents enter into interactions, sense and change their environment locally.

A system for Distinguish Between Van Gogh painting and his Contemporaries consists of three steps: processing step (In processing step, the digital paintings for Van Gogh and his contemporaries are processed automatically through many steps (Edge detection(Canny Edge detection and Ant colony optimization method), Edge linking (Hough transform method), Extract all the connected components from the image, Thinning and Resize image), feature extraction step based on histogram of oriented gradients (HOG), and recognition step using Artificial Fish Swarm Algorithm.

An Automated System for Distinguish Between Van Gogh and his Contemporaries by using
Swarm Intelligent have been tested, and the recognized rate is 94.51%.

References

1. Ahmed E., Babak S., 2015, Ahmed E., Babak S., 2015, "Quantifying Creativity in Art Networks", the sixth International Conference on Computational Creativity (ICCC), June 29-July 2nd 2015, Park City, Utah, USA.
https://www.google.iq/?gfe_rd=cr&ei=n7ApWOHLNqiz8weqlq_4Bw#q=Van+Gogh%E2%80%99s+brushstrokes:+marks+of+authenticity%3F+Hendriks%26Shannon+Hughes
https://www.google.iq/?gfe_rd=cr&ei=NNgzWYS5NrPb8Afbo88g&gws_rd=ssl#q=Computer+Vision+%26+Digital+Image+Processing+Edge+Linking+and+Boundary+Detection
15. Jia Li, Lei Yao, Ella H., James Z. W., 2012, "Rhythmic Brushstrokes Distinguish Van
Gogh From His Contemporaries: Findings Via Automated Brushstroke” IEEE transactions on pattern analysis and machine intelligence Journal, Volume 34, Issue 6, June 2012, Pages 1159-1176.


22. Solberg A. INF 4300 – Hough transform


http://dx.doi.org/10.14257/ijca.2013.6.5.10


31. 

Index Terms

Computer Science Algorithms
Keywords

Swarm intelligence, feature extraction, Canny Edge detection method, Ant colony optimization method (ACO), Hough transform, Histogram of Oriented Gradients (HOG), Artificial Fish Swarm Algorithm.