Digital Analysis of Paintings

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***Abstract*—**

I. Introduction

Digital image processing is a field which encourages the crossover of different scientific disciplines, often biological research and computer vision align to automate the collection and analysis of plant growth. However, art and computing are fields which, at first glance, have very little in common.

But a deeper look unveils a plethora of different avenues from detecting forgeries to being able to date an artists work within a catalogue of their known pieces.

This survey paper will unearth some techniques which can be applied to the digital analysis of paintings, as well as existing research which has already applied computer vision to the field of art.

II. Colour Analysis

A. Pigment Mapping

B. Difference Visualisation

III. Texture Analysis

Paintings are somewhat unlike the normal subject for image processing, whilst most images are either simple two dimensional images, or two dimensional slices of a three dimensional object. Paintings often thought of as two dimensional, but with many paint types these paintings become three dimensional.

This aspect is lost in the digitisation of the painting; but there are still ways of analysing the texture of the image.

A. Steerable Filters

B. Gabor Filters

C. Histograms of Edge Orientated Gradients

D. Multifractal Classification

E. Texton-Based Analysis

IV. Statistical Analysis

A. Stylistic Analysis

B. Authentication of Artwork

C. Dating an Artist's Work

V. Brushstroke Analysis

A. Artistic Identification

B. Rhythmic Brushstrokes

References