Kyffin Williams: Digital Analysis of Paintings

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1 Project Summary

Sir John "Kyffin" Williams is a Welsh landscape painter, also active in Patagonia, who is regarded as the defining artist of Wales in the 20th century.

2 Background

3 Goals and Objectives

4 Current Progress

4.1 Technical Challenges

4.2 Outline Design

4.3 Implementation Options and Choices

4.3.1 Computer Vision & Image Processing Library Decision

Aside from directly reading pixel values using built-in language features or a simple image or graphics library, there are a variety of computer vision and image processing libraries. Each of which have numerous functions to manipulate and process images.

OpenCV (Open Source Computer Vision (`http://opencv.org/`) is one of the more popular choices for Computer Vision libraries, boasting C, C++, Python and Java interfaces for several of the common platforms, including mobile devices. OpenCV leverages multicore processing and optimized C/C++ code to be able to handle real-time systems.

FIJI (FIJI Is Just ImageJ) (`http://fiji.sc/`) is Java-based image processing package, is akin to a distribution, packaging ImageJ, Java3D and a lot of other useful features to provide a coherent user interface for the packaged image libraries.

IVT (Integrating Vision Toolkit (`http://ivt.sourceforge.net/`) aims to provide an easy to use, stand-alone C++ computer vision toolkit. It's features include camera interfaces and fast implementations of computer vision techniques as well as mathematical data structures and functions.

5 Project Planning

5.1 Process Model

5.2 Weekly Plan for the Project

5.3 Demonstration Plan

Annotated Bibliography

List of Tables

Library	License	Language Support	Platform Support	Installation	Usage
OpenCV	BSD	C, C++, Python, Java	Windows, Mac, Linux, Android, iOS	Medium	Easy - Fair.
FIJI	GPL Individual per plug-in	Java	?	Easy - Fair	Medium
IVT	Modified BSD	C++	Windows, Mac, Linux	Medium	Medium

Table 1: Details of Computer Vision Libraries

Library	Image Filtering	Transformations	Histograms	Structural Analysis
OpenCV	✓	✓	✓	✓
FIJI				
IVT				

Table 2: Features of Computer Vision Libraries