Computer Vision System for Western Music Notations Risk Report

Version 1.0

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Risk Report

1. Introduction

The risk report is a detailed analysis of the potential threats which the Computer Vision System for Western Music Notations project faces.

2. Brief Description of the project

The proposed system is to convert western music notations into eastern music notations. This will take images of western music notation and identify the notes in the staff and convert into eastern music notation.

The basic functionality is condensed within the Computer Vision library which is developed to first identify the staff and then the notations. Before the computer vision algorithms are run the image is enhanced by a series of image processing algorithms to make the computer vision process more accurate.

The conversion from western music notation to the eastern music notations is to illustrate a use of this computer vision system. There can be many applications using this computer vision system like this.

3. Risks

3.1 Technical Risks

3.1.1 Risk Magnitude or Ranking

The project heavily depends on many technical aspects. And the success of the project will depend on the used techniques working properly, therefore the risk magnitude can be seen as high.

3.1.2 Description

The project is a research based project for developing computer vision algorithms to detect western music notation scheme. The existing algorithms for such implementation would have to be studied and adopt to best match the needs of this application.

The computer vision libraries which are to be used are the OpenCV and JavaCV. The lack of documentation and support for JavaCV is also an identified technical risk however the flexibility given by java is the reason to go with it.

Development of the library must be done keeping in mind the wide variety of applications possible. Therefore the algorithms developed must be highly optimized and memory efficient since they can be used in any environment.

3.1.3 Impacts

The project success will depend on the correct use of the identified vision libraries and their performance as well as the custom algorithms. If the technical risks are not faced properly the project would fail to deliver the expected outputs.

3.2 Consistency/Accuracy Risks

3.2.1 Risk Magnitude or Ranking

The usability of the computer vision system in various applications will heavily depend on the accuracy of the results and the consistency. Therefore the risk associated with this is high.

3.2.2 Description

The computer vision algorithms will not be 100% accurate all the time. Depending on many aspects of the input image the vision algorithm could give unexpected results. Some of the examples of irregular images are, blurry images, low pixel density images, images with un-sharp edges. When this kind of images are input to the system the computer vision system will find it difficult to function in the normal way.
To overcome this a set of image processing algorithms have been developed which can be used by the user to make sure the images are in the proper standard before sending them to the computer vision algorithm. However the accuracy level of the algorithm will definitely impact its usefulness.

3.2.3 Impacts

The main impact will be in that the reliability of the system will be lost when the accuracy level of the algorithm is low. Therefore it is important to improve the images and enhance quality to ensure the level of accuracy is high.

3.3 Performance Risks

3.3.1 Risk Magnitude or Ranking

Depending on the application the computer vision system is use for the risk of the performance will vary.

3.3.2 Description

The time taken to the detection process will make an impact on the usability. If the time taken for the detection is very high the applications using this algorithms cannot give a responsive reaction to the users, therefore the usability will be in risk.

3.3.3 Impacts

The applications which can use the algorithm will be limited to those which do not need high performance. This will