

# Music Genre Classification

API Workshop 2010

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## 1. Introduction

This workshop shows how the problem of 10-class music genre classification is addressed in the paper by R. Tao et al. [1]. Both the source code and dataset for the complete experimental setup and production of the final results of that paper are provided.

*Marsyas* (see <http://marsyas.info>) [2] is an open source framework for building and integrating audio analysis tools that is used for the implementation. Consult the *marsyas-user.pdf* when you have problems about the source code. Please note that you may need to read the source code of *Marsyas*, if you want to understand the details of the source code of this workshop.

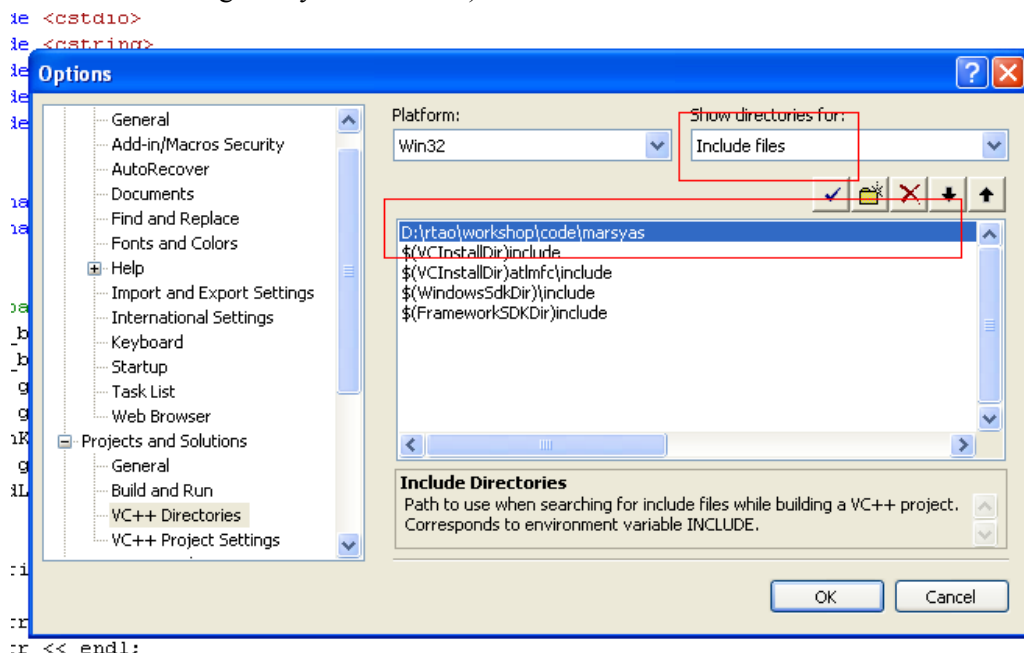
The dataset consist of 1000 30-sec music clips equally divided into 10 music genres, i.e., classical, rock, jazz, blues, hiphop, disco, country, reggae, metal and pop. This dataset was collected by G. Tzanetakis (see <http://marsyas.info>) [3].

The rest of the document gives some instructions that you may find helpful for understanding the experimental set up. For further details also read the original paper [1].

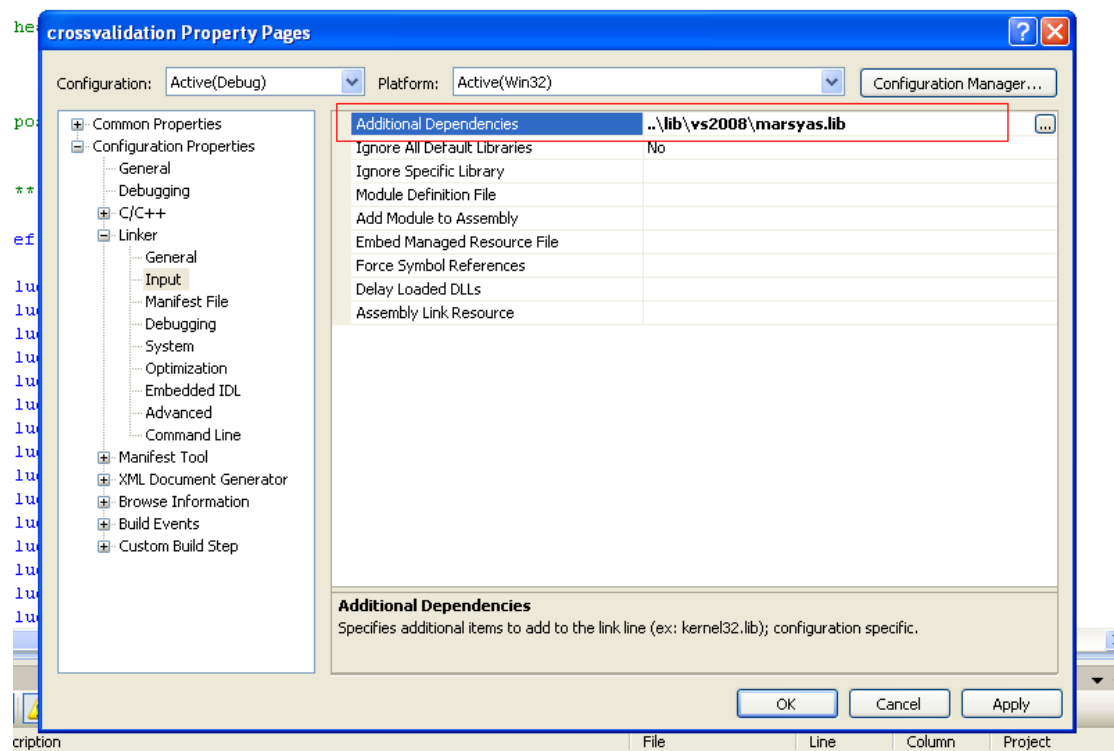
## 2. Environment Setting

In order to compile the source code successfully, you have to set the right parameters within Visual Studio. (*Please note that because of the compatible issues, both the codes for VS2005 and VS2008 are provided. The Visual Studio versions older than VS2005 will not work.*)

1. Set the correct path of the `.h` files in `<marsyas>`. (The path in the following picture should be changed to your situation.)



2. Set the right path for the *marsyas.lib*.



After these settings, you can compile and build the source code to get the executables. (Please note that in order to run these executables, *marsyas.dll* is needed, which is in `<dll>`. Put *marsyas.dll* in the same directory as the executables)

### 3. Executing the Experiments

Please note: You may need to modify the *.mf* files in `<data>` to make sure that the paths of the music clips are correct for your situation.

The experiments consist of a 10-fold cross validation of the methods discussed in the paper [1]. The experiments are executed from the command-line and will produce after some lengthy computation the final results, like the confusion matrix depicted in the paper.

Open the *cmd* and issue the following commands. These are just provided as examples, you can change them when necessary. Use *-h* to show the help information.

#### 3.1. One-stage Texture Windowing Experiment

1. *texwinFeatureExtractor.exe -d -w texwin.arff classical.mf rock.mf reggae.mf pop.mf jazz.mf blues.mf hip-hop.mf country.mf disco.mf metal.mf*
2. *crossvalidation.exe -w texwin.arff*

### 3.2. Two-stage Texture Windowing Experiment

1. `texwin2FeatureExtractor.exe -w texwin2.arff "frameBased+delta.arff"`
2. `crossvalidation.exe -w texwin2.arff`

Please note: It costs quite a while for feature extraction and there is no output on the screen for quite a long time at the very beginning. Be patient. It is not an error.

### 4. Results

Verify with the code and dataset of this work the results that were reported in the original paper [1]. Finally, if you use this code for your own experiments, please mention the references [1-3].

### References

1. R. Tao, Z. Li, Y. Ji, E.M. Bakker, *Music Genre Classification Using Temporal Information and Support Vector Machine*, ASCI Conference 2010, November 2010.
2. G. Tzanetakis and P. Cook, *Marsyas : a Framework for Audio Analysis*, Organized Sound, vol. 4, no. 3, pp. 169-175, 2000.
3. G. Tzanetakis, *GTZAN Genre Collection*.