

## Project Year

2006

## Project Team

Stephen Stone, Faculty, Music Theory, The Peabody Institute; Patrick Donnelly, Student, Computer Music, The Peabody Institute

## Project Title

Music Theory Workbook

## Audience

Students enrolled in either the beginning *Music Theory* courses or the advanced *Theory III* course at both Peabody and the Homewood Campus

## Pedagogical Issue

A major portion of any beginning level music theory course consists of an introduction to the basic rules of counterpoint. Students learn these rules by series of simple compositions, known as Part Writing Exercises. Students improve their skills through repetitive completion of these exercises. These exercises are very time-consuming to correct, however, and several days pass before the student receives feedback. Thus, because of the strain on the professor, students are limited in the number of assignments they may submit for corrections. Also, students would improve most by redoing assignments, thereby learning how to correct particular mistakes. Before this year, no efficient means existed for the students to get this practice.

## Solution

The Music Theory Workbook project will provide beginning level music theory students with the means to repeatedly practice contrapuntal Part Writing Exercises from any web browser, and to receive instantaneous feedback on their performance from the program, without having to wait for the professor to grade their work. This project provides students with an interactive environment where they can practice and directly apply the knowledge they learn in the classroom.

## Technologies Used

Digital Audio, Graphic Design, HTML/Web Design, JAVA

## Project Abstract

The Music Theory Workbook provides beginning level music theory students with the means to repeatedly practice contrapuntal Part Writing Exercises from any web browser. The interactive Java web applet will store a database of the most common part writing errors in a hierarchical system of importance. When a student uploads his submission, the applet will grammatically parse the student's work for these errors. The student will then receive instantaneous feedback in the form of an annotated list of errors and relevant suggestions, coupled with an acoustic playback of their submission that specifically emphasizes these errors. This significantly enhances the learning experience by allowing

students to both see and hear their mistakes, instantly. In addition, the web page will include a user login scheme and a PHP-controlled MySQL database that will enable each professor to monitor the students' progress. Professors will be able to identify areas of specific difficulty for each individual student, and graphically track improvement over time. Also, professors will be able to control which rules are used by the algorithm, so the program can be configured to become more comprehensive as new rules and concepts are introduced throughout the semester. This project will provide students with an interactive, multimedia means to practice and directly apply the knowledge they learn in the classroom. It will also provide the professor with an efficient means of monitoring the students' comprehension of the material. The webpage will be written in HTML, CSS, and PHP, featuring an interactive JAVA web applet and a MySQL database. Macromedia Flash may also be used. The project's technical needs will be accommodated by the Peabody Computer Music Department.