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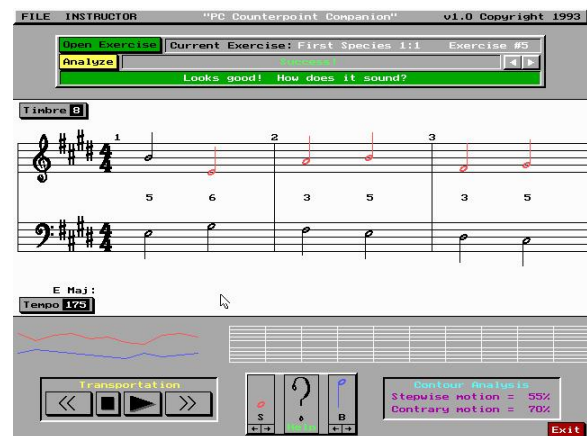
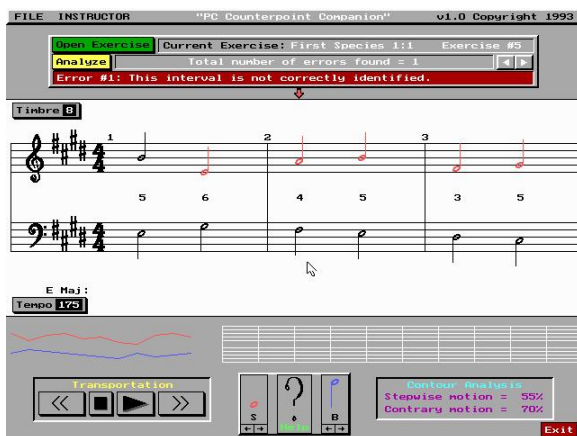
In 1993, the Department of Music at Virginia Commonwealth University (VCU) was granted money from Mobil Oil to be applied towards integrating technology into the university's music program. One of the proposed projects envisioned creating a software program that could be used to help students learn to compose species counterpoint in the style of J. S. Bach.

Challenge

A software program was needed that would provide a graphic interface into which students could enter notes onto a staff for analysis and playback. The software needed to be able to judge whether or not the student had conformed to the rules of species counterpoint as defined by J. S. Bach in the 18th century. An instructor's module was required for creating exercises for the students. Likewise, a student's module was required for the students to study the exercises and save their work. Instructors needed to be able to reload the student's work back into the program for grading.

Solution

The solution was a software program called Counterpoint Companion. It was written for MS-DOS using Borland's C++ compiler. The Borland graphics code library was used to create the graphic interface. With the help of the music professors at VCU, the rules of species counterpoint were studied, interpreted and converted into computer code. Fortunately, these rules are fairly mathematical in nature, and lend themselves well to translation into computer code. The students were able to load the exercises created by instructors into the program, and enter their own notes into the staff using a mouse. Buttons on the interface allowed the user to navigate through the exercises, which could be up to 64 bars in length, and in any key. After an attempt to complete an exercise, the student could click the "Analyze" button to view the analysis of their composition. If errors were found, the student could scroll through the errors, read the comments, and make adjustments as needed. Finally, they could click the "Play" button to hear their composition. Compositions could be saved and handed in to the instructor on floppy disc for grading.



Benefits

Counterpoint Companion was a success. It was installed into the computer music labs at VCU. Professors used the program as part of their curriculum for teaching classical music. Students found it to be a fun way to learn counterpoint, thus inspiring them to spend more time composing and learning. The artificial intelligence in Counterpoint Companion provided students with a "virtual professor" that could be installed onto any PC.