

Office of Technology Commercialization

Title of Invention:

Duophonic Pitch Measurement Algorithm and Display (Duet-on-Pitch)

Technology ID: 08KU012L

Non-Confidential Description:

This is an algorithm, most likely embodied in a computer program that aims to provide accurate, real-time pitch measurements of two singing voices captured by a single microphone. *Pitch* is the musical note that we hear when someone plays or sings; it is essentially the same as the fundamental frequency of the harmonically-structured signal. By *accurate*, we mean to within 10 cents (the cents measure is a logarithmic measure of pitch, and there are 1200 cents between any two adjacent keys on a piano keyboard). By *real-time*, we mean with sufficiently small delay to allow the singers to correct their pitch based on the measurements while singing a duet.

Applications:

The target application at this moment is to provide visual, real-time feedback to two singers to help in training them to sing on-pitch in an acapella (no instrument accompaniment) duet environment. The goal is to have the necessary calculations be carried out in software on a conventional personal computing platform equipped with a sound card and a single microphone. Another possible application would be to expand current computer singing games like *SingStar* and *Karaoke Revolution* so that teams could complete in duets. A third use would be as a plug-in to professional sound creation and production software, such as *Pro Tools* by digidesign, or as a component of a *Pro Tools* plug-in like *Auto-Tune* by Antares.

Benefits:

This invention is aimed at training individuals, whether they are students or professionals, to sing on-pitch in a very challenging environment - the duet without instrumental accompaniment (a cappella). It also can provide an additional benefit to the karaoke-type gaming industry that has had no way to expand the features of their products beyond adding new songs and graphics. By having players compete in teams of two using one microphone, the number of players can be increased as well as the level of difficulty of the game. This technology would raise the interest in duet singing and literature.

Patent: Patent Pending

License: Negotiable

Confidential Disclosure Agreement: KU is willing to enter into a Confidential Disclosure Agreement for the purpose of negotiating a License Agreement. If you are interested in learning details of this invention, please contact:

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