

EarTrainer

Dave de Jong

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Chapter 1

EarTrainer

1.1 EarTrainer V2.10 documentation

EarTrainer V2

The ultimate tool for musicians who want to train their relative hearing.

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Just Something For You To Enjoy

Description
Introduction To Those Unfamiliar With EarTrainer

Requirements
What You Should Own To Run EarTrainer

Usage
How To Use EarTrainer

More
More Info On EarTrainer.

1.2 Copyright & Disclaimer

Eartrainer is copyrighted to the author Dave de Jong © 1995.

Legal

Eartrainer V2.10 can be freely used and distributed as long as:

- The program's code and this document are not changed in any matter.
- The program is accompanied by this document file.
- There is no fee charged for the program, other than costs for Copying, Floppy Disks, CDROMs and Postage & Packing.

Disclaimer

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NOTE: midi.library is copyright of Pregnant Badger Music, many thanks !

1.3 Discription

Why Eartrainer ?

Some time ago I had to pass entrance examination in order to get accepted to the University Of Arts here in Holland. This test included a part in which the student had to name the Intervals played (harmonically), the Chords played (and their Inversions) and had to write down a few melodies and rhythms.

In order to prepare myself for this exam I had to train my hearing abilities practically from scratch. So to save me some time (and that of my friends), I came up with the great idea to write me a program with which I could train it all by myself, and in no time. Well, not all, rhythms and full melodies are not YET included.

Features:

- o Eartraining for all musicians from beginner to expert.
- o Easy to use GUI with saveable settings.
- o Currently implemented training in:
 - Melodic and harmonic intervals
 - Chords and Arpeggios (diminished, augmented, sus4, and 7th chords)
 - Scales (all the seven modes, harmonic and melodic minor, octatonic and whole tone scales).
- o Many difficulty altering parameters.
- o Both midi and Amigasound output.

1.4 Requirements

What you absolutely need.

- Your Amiga has to be at least WB2.0.
- Have the midi.library installed in your LIBS: drawer. Version 2.0 of the midi.library is included with this package. This is about the only installation you have to do, provided you haven't got it already there.
- An S: assign to a physical place.
- A set a fully functional ears.

1.5 Usage

Using EarTrainer V2.

To start the program just click on the icon or run it from the CLI.

The minute you started the program, eartrainer will play you a interval, chord or scale (depending on the saved settings or of the way you left Eartrainer earlier).

Our quest begins, just click one of the lower gadgets on which you think the right answer is printed. If your guess was right, Eartrainer moves to the next quiz. In case of an incorrect answer, the gadget with the right answer will flicker for a few seconds.

If you wanna hear the question again just push the 'Hear' gadget.

When temporarily get a blackout and haven't got a clue: push the 'Solve' button. EarTrainer will then point out the correct answer (affecting the score anyway).

Changing The Kind Of Training.

Clicking on the top gadget, the one which is labelled 'Mode', you can browse through the three different trainingmodes. These are Intervals, Chords and Scales. When you hit the gadget and the program still waits for you to answer the previous question, it will continue after you answered.

The Options Sliders.

With these you can change the midichannel ET2 sends over, the patch of your midi-device(s). The 'Velo' (volume) slider controls midi as well as internal sound volume. The 'Speed' slider sets the tempo with which the melodic intervals, arpeggios and scales are played.

Interval Options.

Mode: You can toggle this between Melodic and Harmonic. As it says, in melodic mode the interval is played as two separate notes after each other, on the other hand, when in harmonic mode, the notes are

played together at once.

It's even possible to toggle between them during a question, just press 'Hear' again.

Scale: With this you can select if the interval is deducted from a Major, Minor scale, or all notes are used ('Chr' = Chromatic). The appropriate gadgets will be disabled. Great for beginners !

Range: The gadget which is marked with '12' and '24' selects the distance between the first (or lower) note and the second (or higher note). With the '12' selected, the interval will be played within an octave (within the 12 notes). When the '24' is selected all intervals will be transposed an octave, causing a larger frequency distance between the two notes. This is for the more advanced among us.

Direct: This causes the direction a melodic interval is played. 'Up' and 'Down' cause the interval to be played only above resp. below the root. When 'Both' is selected, EarTrainer chooses, everytime, a direction randomly.

When training harmonic intervals this function is disabled (a harmonic interval as played here can not be called absolutely above or below).

The Chord Options.

Mode: This determines if the chord is played at once 'Chord' or as an arpeggio 'Arpeg' (arpeggio = broken chord). The same here as with the intervalmode, it can be toggled during a question to make things a bit easier for us.

Inv: With this checkbox you can en- or disable the chord or arpeggio to be played within inversions (meaning that every note in the chord can function as the lowest one). When checked EarTrainer chooses randomly an inversion. The kind of inversion isn't asked, but it increases the difficulty of recognizing enormously. Therefore, I should recommend it to advanced only.

Bass: Determines wheter a bassnote is played along with the chord or arpeggio. This function can be toggled during a quiz. The option is a kind of compensation for previous one. Now the bassnote is the lowest note !

Note: In the harmonic-chord mode bassnotes are not audible via the Amiga's sound output.

Chords: These five boxes tell ET2 which chord to train you in. The first 'M,m' is always disabled and checked, creating a basic repertoire to test you in.

M,m mean the Major and minor chords here.

Dim means diminished. In conjunction with the 7th's it can become ø7 or o7.

Aug means augmented. In conjunction with the 7 it becomes +7.

7,x7 stand for the seventh chords 7, x7, Maj7 and minMaj7.

Sus means suspended. In conjunction with the 7th's it can become sus4Maj7 or sus4min7.

To avoid confusion over this I've included a
Table
in which all
used chords are spelled out.

The Scale Options.

Scales: These six gadgets determine which scales are chosen from randomly. The first four, marked with the Roman numbers, are the seven modes deduced from the major scale. In normal English this means: I is the major scale itself, II is the major scale but started on the second scale note (in case of a C major a D), III beginning on the third note of the major scale, and so on.

Like within the Chord options the first one is disabled. This stands on for the basic scales I = ionic and VI = aeolic (major and minor).

The following three stand for the other 5 scale modes.
II = doric, III = frygic, IV = lydian, V = mixolydian, VII = lokrian.

Direct: Again you can specify the direction in which the quiz is played, 'Up', 'Down' or 'Both'.

The Score Window.

The window next to the midi parameters is used to display the current scores you've got. Each bar graphically displays the score on that particular interval. The score window can be seen as a sort of audioanalyzer for your ear-recognition abilities. Each guess in the Interval, Chords or Scales mode affects the score window.

For instance: a x7 chord was played, but you picked Maj7. The notes that correspond to the correct chord will be added to the score, the notes that didn't will be subtracted.

Pressing Solve will cause the right answer to be subtracted from the appropriate bars (a sorry to cheaters).

When a bar is above the black line you score is ok, when below it is not ok. After a period of training you can just read out the results here and know which areas of your hearing need more practice.

Configuration File.

When Eartrainer is started for the first time, all the options are set to default. When you select 'Save Settings' from the menu, all the current options are saved to the configurationfile in the S: directory, called 'ET2.conf'.

If you leave the program and haven't saved during its run, ET2 will automatically save the options for you. Selecting 'Last Saved' brings all the options back to the moment the configurationfile was last saved.

1.6 More info on Eartrainer V2

So you want to know more ?

ET2 was programmed in 90% assembler on an Amiga1200 with a overdrive HD, Pyramid MidiInterface, and a Trust 14k4 modem. For the GUI development I have used (partially) the excellent GadToolsBox V2.0b GUI-designer from Jaba Development.

EarTrainer V2 is a follow up on the V1.x, of course.
Version 1 only trained melodic intervals.

Changes

V2.00 Final release version
V2.01 Adjusted programchange to be send on slider activation
V2.10 Major bug-fixed version, finally learned how to program C.
Added an Amiga internal sound routine.

What's Next ?

In order of importance:

- Add a staff bar to display all the note graphically.
- Add a rhythm trainer
- Add a melody trainer

If your feelings tell you differently: let me know !

The Author

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Any bug reports, suggestions please do !!!

Greetz, Dave.

1.7 Table of spelled out Chords

Table of all the used chord spelled out in intervals.

Maj - 1 , 3 , 5

min	-	1	,	b3	,	5			
dim	-	1	,	b3	,	b5			
aug	-	1	,	3	,	#5			
sus4	-	1	,	4	,	5			
Maj7	-	1	,	3	,	5	,	7	
min7	-	1	,	b3	,	5	,	b7	
x7	-	1	,	3	,	5	,	b7	(also known as dominant 7)
ø7	-	1	,	b3	,	b5	,	b7	(also known as ø or half-diminished 7)
o7	-	1	,	b3	,	b5	,	bb7 or 6	(also known as diminished 7)
+7	-	1	,	3	,	#5	,	7	(also known as augmented 7 or #5/7)
mM7	-	1	,	b3	,	5	,	7	(pronounced as minorMajor7)
s4M7	-	1	,	4	,	5	,	7	(pronounced as sus4Major7)
s4m7	-	1	,	4	,	5	,	b7	(pronounced as sus4minor7)
