

IntonTrainer

for Singing

(Version: 2022-12-20)

ANALYZER AND TRAINER OF SINGING INTONATION

“IntonTrainer–Sing”

(User Guide)

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1. Appointment

The functional purpose of the program "**IntonTrainer-Sing**" is a screen display and comparison of the frequency contours of the fundamental tone (F0) of the reference and performed examples of singing for a numerical assessment of their melodic similarity. The assessment of similarity is carried out on the basis of the presentation of examples of singing in the form of a **Melodic (Tonal) Portrait**.

The **IntonTrainer-Sing** program is recommended for use:

- **In primary vocal education**

(used as a means of auditory and visual familiarization with a set of vocal exercises in singing lessons);

- **For self-study and self-control**

(used as a means of individual vocal training by numerical assessment of the quality of performing a set of vocal exercises)

1. introduction to the vocal exercises

The Initial window of the program, which opens after starting the program, is shown in Fig. 1.

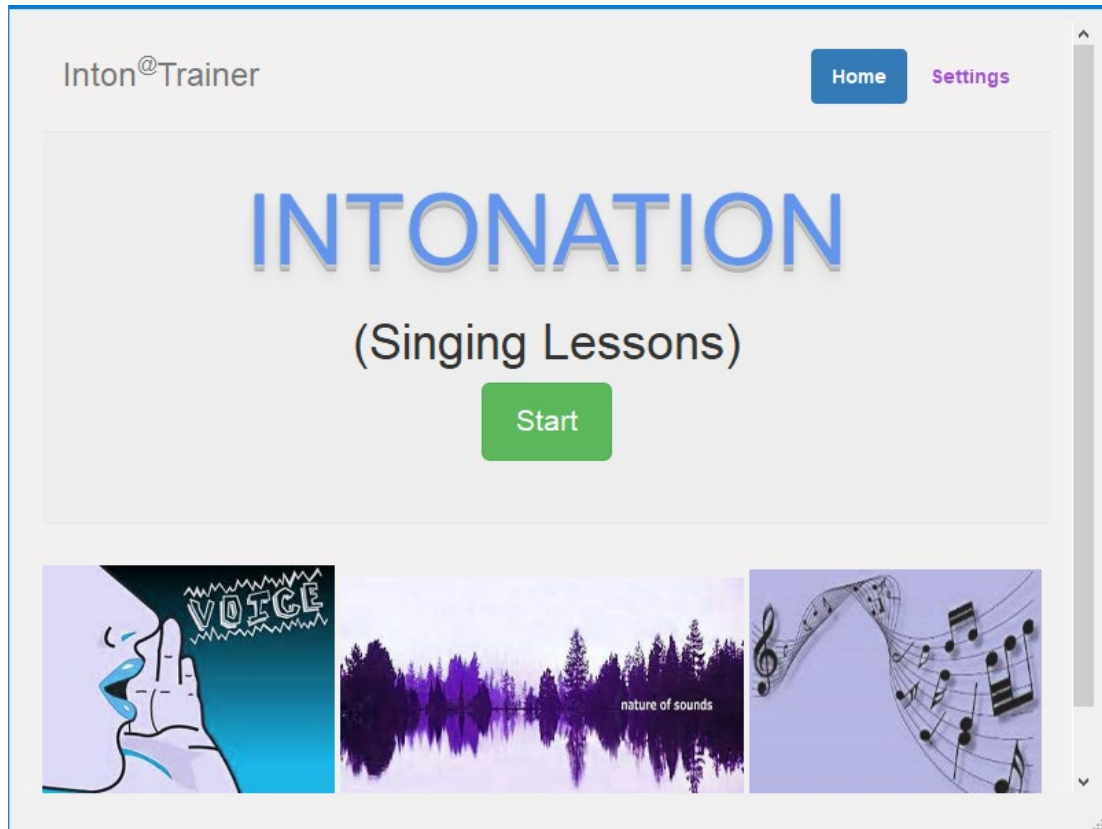


Fig. 1 Initial Window

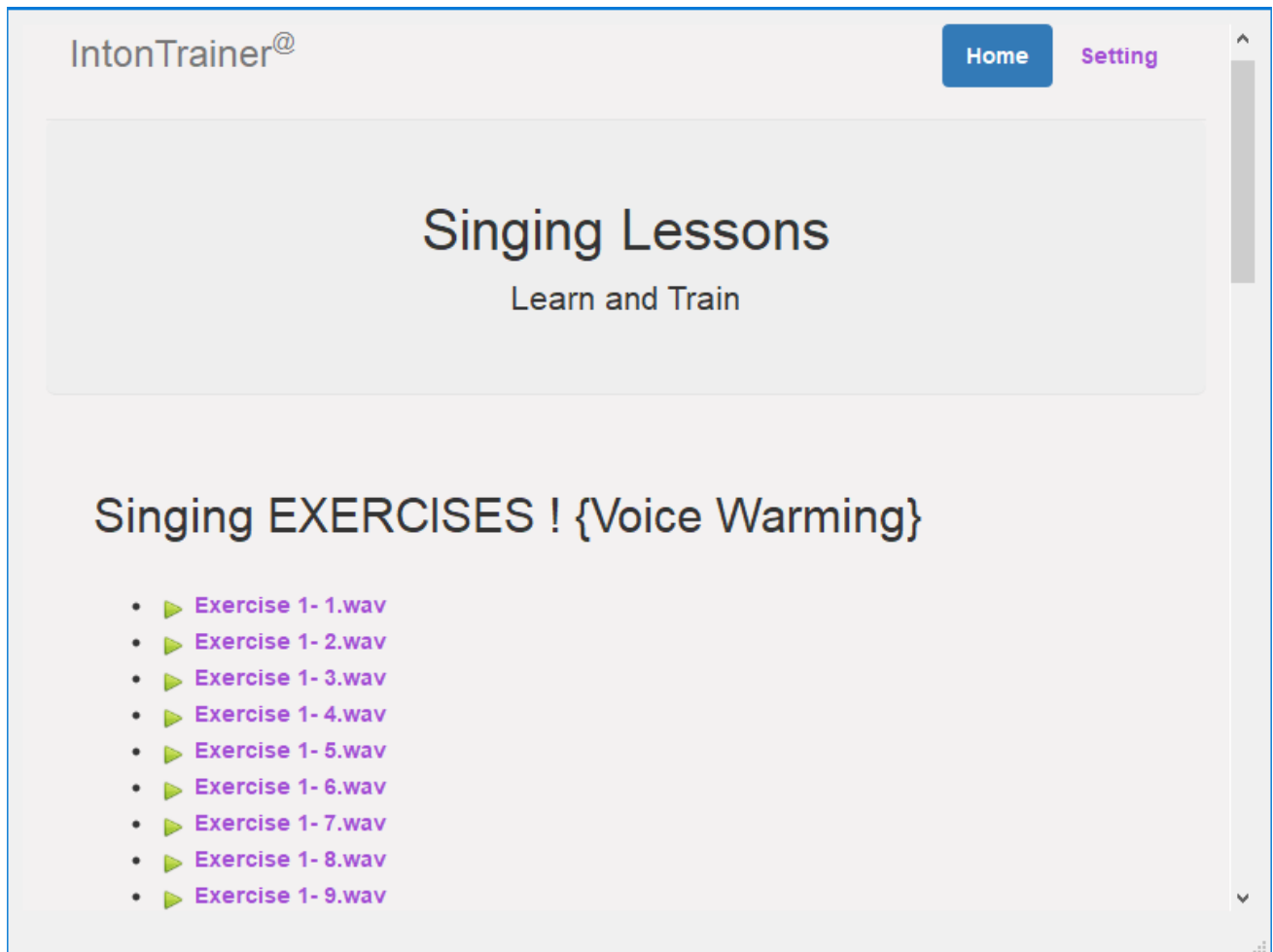
When you press the "Start" button (Fig. 1), the information window of the program (see Fig. 2.1 - 2.3) opens, containing a list of vocal exercises in singing lessons, namely:

- 9 exercises for - **{Voice Warming}**;
- 3 groups of exercises (4 in each group) for - **{Hamming Melody}**,
- 11 exercises for mastering the elements of the **Singing TECHNIQUES: Arpeggio, Crescendo, Decrescendo, Gamma, Glissando, Legato, Staccato** (separately represented by the voices of **{Alto}** and **{Baritone}**).

Vocal exercises are presented in the form of sound files performed by experienced singing teachers. The list of exercises given is largely in accordance with the technique of singing in speech position, developed by **Seth Riggs** - a famous singing teacher.

(See: <https://www.riggsvocalstudio.com/speech-level-singing/>)

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Fig. 2.1 Information window
(beginning)



Fig. 2.2 Information window
(continuation)

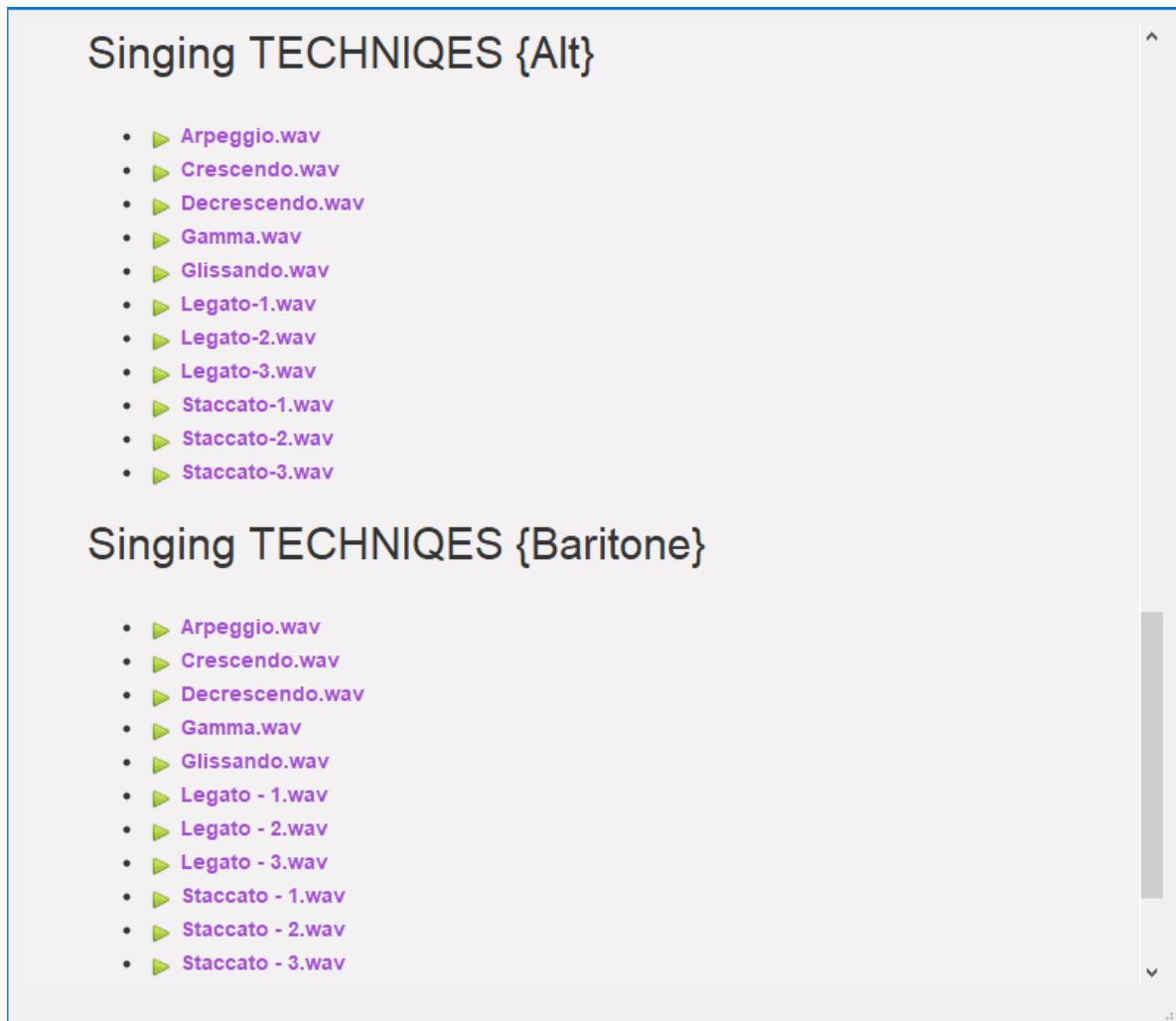


Fig. 2.3 Information window
(the ending)

By scrolling the page of the information window (Fig. 2), the user gets the opportunity to hear and visually familiarize himself with various vocal exercises by selecting the required directory with the cursor, for example:

Singing TECHNIQUES {Alt} Staccato.

As a result of this choice, the **Main window** of the program opens (see Fig. 3).

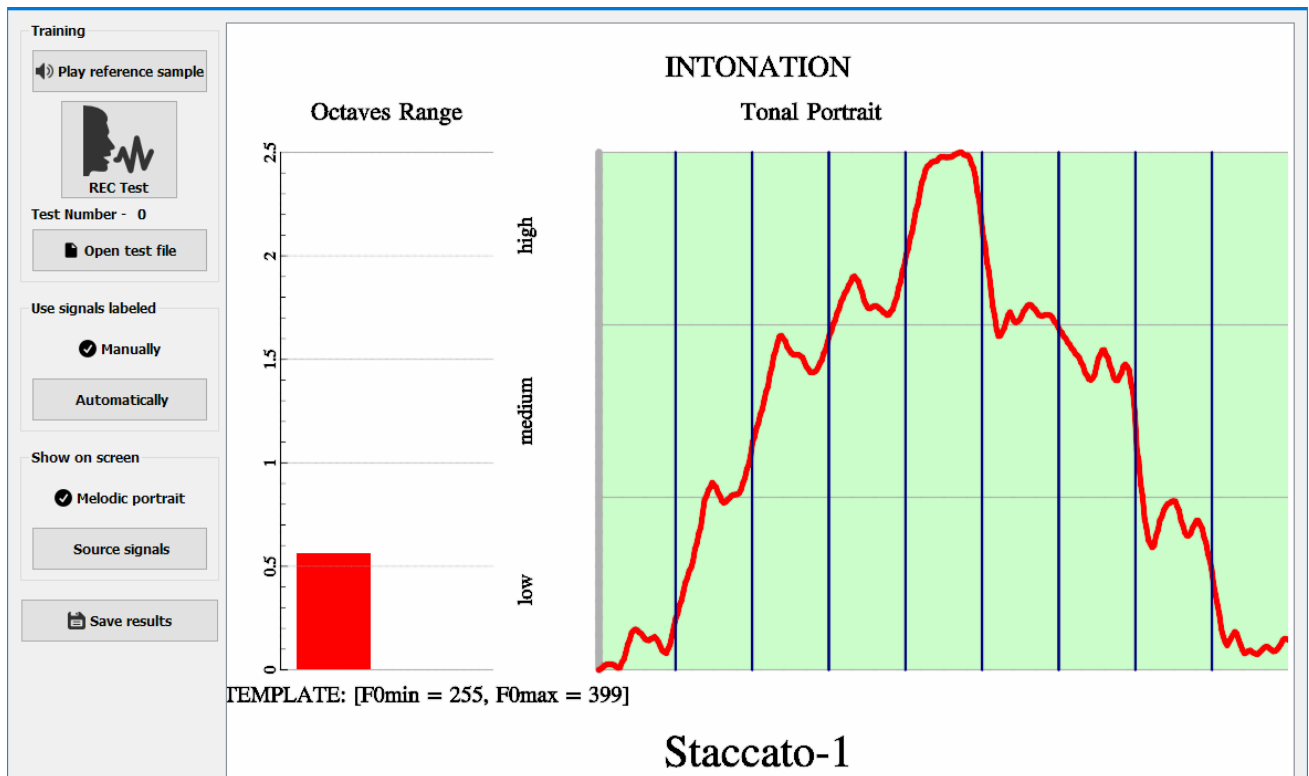


Fig. 3 The Main window

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The control buttons are concentrated in the left part of the window, allowing you to listen to the speech signal by pressing the "**Play reference sample**" button.

In the right part of the window, the **Tonal Portrait (TP)** is presented in a graphical form as a result of the analysis of changes in the fundamental tone frequency - F0 of the vocal exercise.

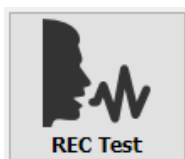
At the bottom, under the graph of the TP curve, are the minimum and maximum values of F0 in Hertz, as well as the name of the vocal exercise.

The red column (to the left of the melodic curve) displays **the range** of fundamental tone frequency change - F0, expressed in octaves according to the formula:

$$\text{Octave's Range} = (F0_{max} / F0_{min}) - 1.$$

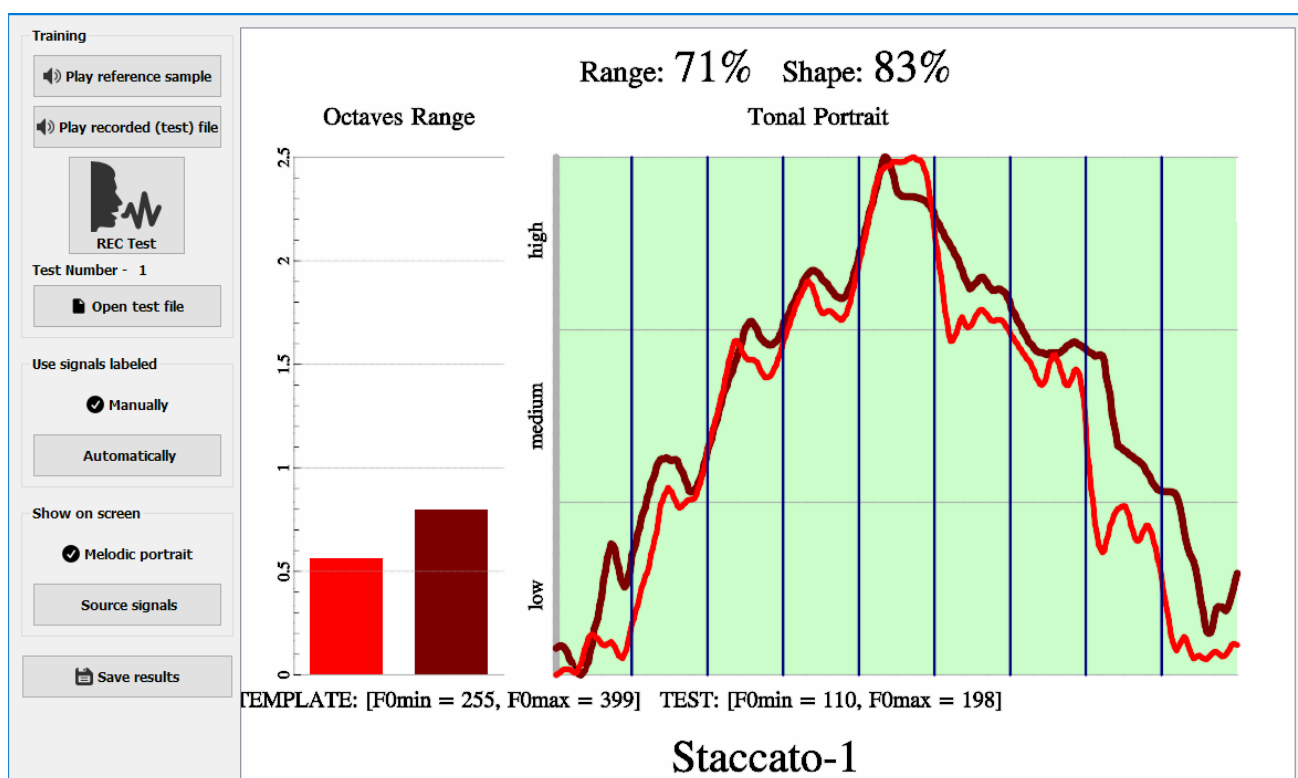
1. Режим вокального тренинга

After the user has listened to the selected vocal exercise, he can use an external or built-in microphone to input a speech signal with his voice. To do this, he must press the "Rec" button.



in the left section of the window (see Fig. 3), wait for a short "beep" and repeat the vocal exercise heard as accurately as possible.

After recording and processing by the program the entered singing, the user will hear the 2nd "beep" signal, and the image in the right section of the window (Fig. 3) will be replaced by the image shown in Fig. 4.



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Рис. 4 Главное окно

On fig. 4 on the left, the red column represents the **F0 range** of the reference song, and the brown column represents the user's sung F0.

On the right, **the graph of the TP** of the reference singing is displayed in red, and brown is the one sung by the user.

Below the graphs are the minimum and maximum F0 values of the reference and the user's singing.

The upper part of the window shows the results of comparing the reference and spoken phrases: **Range (71%)** - similarity in the range of change in FR and **Shape (83%)** - similarity in shape (correlation) of the compared curves of change in FR.

Listening to the selected reference singing is carried out by pressing the **"Play reference sample"** buttons, and the user singing - **"Play recorded (test) file"**, located in the upper part of the left section of the main window (Fig. 4).

The goal of the user's lessons is to achieve 100% success in **both Range and Shape** by repeating the exercises multiple times.

2. CONCLUSION

This version of the **"User's Guide"** is intended for a wide range of teachers and singing enthusiasts who are not experts in the field of computers.

For this reason, the "Manual" does not describe the numerous settings available that allow an experienced specialist to experiment and improve the technical capabilities of the **"IntonTrainer" program**.

A much more complete description of the features of **the Program** can be found on our Site in the **"Advanced User Guide"**