PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2017/016756	06.02.2017	05.02.2016

International Patent Classification (IPC) or both national classification and IPC
INV. G10H1/36 G10H1/00 G10G1/00

Applicant
NEW RESONANCE, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Lecointe, Michael Telephone No. +49 89 2399-0

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/016756

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	13, 14
	No:	Claims	1-12, 15-21
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-21
Industrial applicability (IA)	Yes:	Claims	1-21
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1 US 2007/044642 A1 (SCHIERLE RAINER [LI]) 1 March 2007 (2007-03-01)

D2 EP 1 087 367 A1 (YAMAHA CORP [JP]) 28 March 2001 (2001-03-28)

D3 US 6 411 289 B1 (ZIMMERMAN FRANKLIN B [US]) 25 June 2002 (2002-06-25)

D4 EP 1 089 254 A1 (YAMAHA CORP [JP]) 4 April 2001 (2001-04-04)

Independent claims 1, 16 and 21

The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claims 1, 16 and 21 is not new.

D1 discloses

"A method of presenting a visualization of a piece of music on a display screen as the music is being played (D1, figure 6)*, the method comprising:*
(a) establishing a mapping system (D1, para. 52)*, by*
i. selecting a number of audio cues from a set of audio cues (D1, fig. 6, para. 52, 76 and fig. 9-10)*, wherein each audio cue represents a distinct acoustic element of the piece of music* (D1, fig. 6 and 9-10, where each note or chord is a musical element)*, and the number of audio cues is optimized with respect to the complexity of the piece of music and the size and the resolution of the display screen* (D1, para. 44 and fig. 7, where the events are converted based on the desired complexity. Further the mere reference to a sequencer in displayed in a window with an adequate zoom ratio and size so as to enable a user to actually read it)*, and wherein the audio cues comprise at least one cue selected from: a group of simultaneously played notes (chords)* (D1, fig. 9-10, see the Guitar chords)*, intervals* (see the chord constituent note intervals)*, note sequences and transitional notes* (D1, fig. 9, see the notes on the score display)*; and*
ii. assigning a different visual cue to represent each selected audio cue in a manner that provides one-to-one correspondence between each selected audio cue and each visual cue (D1, para. 76)*;*

(b) extracting the selected audio cues from the piece of music as it is being played, and converting the extracted audio cues to the corresponding visual cues in the mapping system (D1, para. 101)*; and*
(c) displaying the visual cues on the display screen as the piece of music is being played, so that one or more persons sees the corresponding visual cues at the same time that they hear the piece of music (D1, para. 79 and 83)*."*

In addition, the subject-matter of claim 1 also lacks novelty over D2 which discloses a real time input of MIDI performance from which audio events are converted based on a mapping table

"A method of presenting a visualization of a piece of music on a display screen as the music is being played (D2, title)*, the method comprising:*
(a) establishing a mapping system (D2, fig. 2 and 5)*, by*
i. selecting a number of audio cues from a set of audio cues (D2, fig. 2-4 block SL1 para. 19-20)*, wherein each audio cue represents a distinct acoustic element of the piece of music* (D2, para. 19-20*), and the number of audio cues is optimized with respect to the complexity of the piece of music and the size and the resolution of the display screen* (D2, fig. 2 and 7, where the customizable conversion and the presence of a sequencer interface necessarily implies that GUI windows are provided with an adequate zoom ratio and size so as to enable a user to actually read it)*, and wherein the audio cues comprise at least one cue selected from: a group of note sequences and transitional notes* (D2, para. 23*); and*
ii. assigning a different visual cue to represent each selected audio cue in a manner that provides one-to-one correspondence between each selected audio cue and each visual cue (D2, see para. 27)*;*
(b) extracting the selected audio cues from the piece of music as it is being played, and converting the extracted audio cues to the corresponding visual cues in the mapping system (D2, fig. 2 to 4, and para. 19-21)*; and*
(c) displaying the visual cues on the display screen as the piece of music is being played, so that one or more persons sees the corresponding visual cues at the same time that they hear the piece of music (D2, para. 29 where the sequencer S2 mandatorily displays the note events as the score is played back)*."*

It shall also be noted that the subject-matter of claim 1 is anticipated by documents D3, where a musical work is analysed in terms of musical characteristics such as melody, harmony, tonality, dynamic and a visual display of these analysed characteristics is provided in real time as in D3 col. 2 l.15-42 , and document D4, which discloses a sequencer display for musical parameters (D4, para. 6) having a

display of notation tempo, dynamics, articulation, etc. (see D4, fig. 2), the display being generated from an audio signal (D4, para. 14-16, reference to MIDI signal) and edited by the user using a graphical user interface.

The above objections also apply to the corresponding system claim 16 and computer readable medium claim 21.

Dependent claims 2-15 and 17-20

None of the dependent claims 1-12 and 15-20 is seen as making a novel contribution over the prior art. Claims 13-14 merely relate to an obvious detail of a graphical user interface. The additional features of claim 1-12, 15-20 are anticipated at least by the following sections of D1 and D2 (these claims are also anticipated by relevant passages of the disclosure of D3 and D4, as set out in the International Search Report):

Claim 2: see D1, para. 21 and 34 where the size of two overlapping windows is chosen for sake of improved resolution.

Claim 3: see D2, fig. 5 with the database SS and set selector SL3.

Claim 4: see D2, fig. 5 with the User Set US.

Claim 5: see D2, fig. 7, where the default converter set CS is considered as the claimed automatic selection

Claim 6: see D1, fig. 8 and 9, and para. 29-30 where note events, harmonic and percussive signals are derived.

Claim 7: see D1, para. 65

Claim 8: see D2, see the parameters of fig. 7, including e.g. attack parameters.

Claim 9: see D2, fig. 7, with e.g. affect as the vibrato effects, volume as the dynamics parameter.

Claim 10: see D1, fig. 6-9 and para. 52

Claim 11: see D1, fig. 6.

Claim 12: see D1, fig. 6-9 and para.61-65., see also D2, 28-31

Claims 13-14: define an arbitrary number of audio objects to be displayed on a visual GUI window. Depending on the size of the window, the scaling routine will only allow a certain number of audio objects on the screen. Hence these additional features are considered as normal execution details achieved with any implementation of documents D1 to D4 and do not involve any inventive step.

Claim 15: see D2, fig. 7 with the characteristic "release".

Claim 17: see D2, para. 19 with the word SMF

Claim 18: see D2, para. 19 with the real-time MIDI data.

Claim 19: see D2, para. 20-21

Claim 20: see D2, para. 19 and fig. 2