

Presentation of Petitioner Google Inc.

IPR2015-00343, IPR2015-00345, IPR2015-347, IPR2015-348

U.S. Patent Nos. 8,010,988 (Ex. 1022)
8,205,237 (Ex. 1021)
8,640,179 (Ex. 1022)
8,656,441 (Ex. 1022)

Presented by:

Overview

- Only three references are at issue:

Reference	Non-exhaustive search	Identifying a neighbor	Determining an action	Sub sea
Ghias (Ex. 1010)	X	X	X	
Iwamura (Ex. 1012)	X	X		
Conwell (Ex. 1009)	X	X		

Overview

- Dr. Karypis agrees that the concepts of non-exhaustive search and neighbor search were known at the time of filing

4 Q. He does not. So as of 2000, when
5 Dr. Cox' patent applications were filed,
6 non-exhaustive searching was a concept known
7 in the art, correct?
8 A. Correct.

Karypis Tr. (Ex. 1020) at 26:4-8

24 Q. Dr. Cox doesn't purport to have
25 invented neighbor searching in his patents,
1 does he?
2 A. I don't believe so.
3 Q. And in fact it was a concept well
4 known to people skilled in the art in and
5 before 2000?
6 A. That is true.


Karypis Tr. (Ex. 1020) at 78:24-79

Ghias – Overview

Ex. 1010

- The parties' dispute with respect to Ghias is confined to the following limitations:

1. Non-exhaustive search
2. Identifying a neighbor
3. Determining an action



US00587468

United States Patent [19] [11] **Patent Number:**
Ghias et al. [45] **Date of Patent:**

[54] **APPARATUS AND METHOD FOR SEARCHING A MELODY** 5,402,339 3/1995 Nakashima et al.
5,510,572 4/1996 Hayashi et al.
5,619,004 4/1997 Dame et al.

[76] Inventors: **Asif U. Ghias**, 2306 Sultana Dr., Yorktown Heights, N.Y. 10598;
Jonathan A. Logan, 1186 Palomino Rd., Santa Barbara, Calif. 93105; **David W. Chamberlin**, 206 Flynn Ave., Mountain View, Calif. 94043

FOREIGN PATENT DOCUMENTS
405061917A 3/1993 Japan

OTHER PUBLICATIONS
Hawley, Michael J., Structure of a Melody, Doctoral Thesis, Abstract.

[21] Appl. No.: **742,260**

[22] Filed: **Oct. 31, 1996**

Related U.S. Application Data

[60] Provisional application No. 60/008,177, Oct. 31, 1995.

[51] **Int. Cl.**⁶ **A63H 5/00**; G04B 13/00; G10H 7/00

[52] **U.S. Cl.** **84/609**; 84/616

[58] **Field of Search** 84/600, 609, 634, 84/616, 654

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,688,464	8/1987	Gibson et al.	84/645
4,771,671	9/1988	Hoff, Jr.	84/645
5,038,658	8/1991	Tsuruta et al.	84/637
5,088,380	2/1992	Minamitaka	84/637

[57] **ABSTRACT**
Apparatus and method for easily searching melodies. A melody is converted into a form of a sequence of relative pitch differences thereof. A melody database is a sequence of digitized representative relative pitch differences between successive notes. A melody that most closely matches the sequence of relative pitch differences between notes of a melody is identified.

16 Claims, 3 Drawings

Ghias

Ghias Discloses A Second Search

- The subsequent searches do not consider all references



'988 Google's Reply (Paper 20) a

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