UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Google Inc.
Petitioner,
v.
Network-1 Technologies, Inc.
Patent Owner.

Case IPR2015-00345
U.S. Patent 8,205,237

UNITED STATES PATENT AND TRADEMARK OF

BEFORE THE PATENT TRIAL AND APPEAL BOA

Google Inc.
Petitioner,
v.
Network-1 Technologies, Inc.
Patent Owner.

Case IPR2015-00347
U.S. Patent 8,010,988

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Google Inc.
Petitioner,
v.
Network-1 Technologies, Inc.
Patent Owner.

Case IPR2015-00343
U.S. Patent 8,640,179

UNITED STATES PATENT AND TRADEMARK OFFI

BEFORE THE PATENT TRIAL AND APPEAL BOAR

Google Inc.
Petitioner,
v.
Network-1 Technologies, Inc.
Patent Owner.

Case IPR2015-00348
U.S. Patent 8,656,441

Iwamura

- ‘237 Ground 1
- ‘237 Ground 3
- ‘988 Ground 3

Ghias

- ‘237 Ground 2
- ‘988 Ground 1
- ‘988 Ground 2
- ‘179 Ground 2
- ‘441 Ground 2

Conwell

- ‘179 Ground 1
- ‘441 Ground 1

Iwamura

	Independent claim	Key missing elements
'237	1	sub-linear time search identify a neighbor
	5	sub-linear time search identify a neighbor
	9	approximate nearest neighbor
	13	approximate nearest neighbor
	25	identify a neighbor non-exhaustive search
	33	sublinear approximate nearest neighbor
'988	15	non-exhaustive search identifying a neighbor

Iwamura

	Independent claim	Key missing elements
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	33	sublinear approximate nearest neighbor
'988	15	non-exhaustive search search identifying a neighbor

Petition asserts that Boyer-Moore algorithm is sublinear:

Iwamura determines an identification of the media work using the extracted features by "find[ing] the closest melody from the database," which is a neighbor. 9:25-38, 12:1-2. Iwamura discloses searching using the "Boyer-Moore algorithm" (9:63-64, 10:1-3), which is sublinear (Ex. 1017 at 1). Ex. 1004 at ¶ 72.

'237 Petition 10-11
'237 Moulin Decl. (1004) ¶75

72. It is my opinion that Iwamura further teaches how this sear sublinear. For example, Iwamura discloses that different "search algorit be applied to perform melody searches," (*id.* at 10:2-3), such as the "Bo algorithm," (*id.* at 9:63). "On the average the [Boyer-Moore] algorithm sublinear behaviour." Ex. 1017 at 1.

'237, Moulin Decl. (

23 Q The only thing you identify in your
24 Declaration about Iwamura that could disclose a
25 sublinear time search is the Boyer-Moore algorithm;
1 correct?
2 A As far as I remember, yes. In that
3 Declaration at that time, yes.

Moulin (A2006-Part 1) 82:23-83:3

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