

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TOYOTA MOTOR CORPORATION,

Petitioner

v.

AMERICAN VEHICULAR SCIENCES,

Patent Owner

Patent No. 6,772,057

Issue Date: Aug. 3, 2004

Title: VEHICULAR MONITORING SYSTEMS USING IMAGE PROCESSING

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**PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE**

Case No. IPR2013-00419

## TABLE OF CONTENTS

	Page
I. INTRODUCTION.....	1
II. THE “GENERATED FROM” LANGUAGE IS NOT A LIMITATION FOR PURPOSES OF THE PATENTABILITY ANALYSIS.....	3
III. THE “GENERATED FROM” LANGUAGE IS NOT LIMITED TO TRAINING WITH REAL DATA .....	4
IV. LEMELSON EXPLICITLY DISCLOSES TRAINING WITH REAL DATA.....	5
A. Lemelson Discloses Training With All Types of “Known Inputs,” Including “Real Data” .....	6
B. One of Ordinary Skill Would Have Understood Lemelson’s Disclosure of “Known Inputs” to Refer to Training with Real Data.....	7
C. Lemelson Separately Discloses “Adaptive Operation” and “On-Line Adjustment” of its Neural Network Which Constitutes Training with “Real Data” .....	11
D. Dr. Koutsougeras’s Declaration Should Be Given Little Weight Because He Lacks Expertise With Neural Networks in Vehicles .....	11
V. SPECIFIC GROUNDS OF REVIEW .....	12
A. Ground of Review A: Claims 1-4, 7-10, 40, 41, 46, 48, 49, 56, 59-61, and 64 are Anticipated Under 35 U.S.C. § 102(e) by Lemelson.....	12
B. Ground of Review B: Claims 30-34, 37-39, and 62 are Obvious Under 35 U.S.C. § 103(a) Over Lemelson and Borcherts .....	12
C. Ground of Review C: Claims 4, 43, and 59 are Obvious Under 35 U.S.C. § 103(a) Over Lemelson and Asayama.....	14
D. Ground of Review D: Claim 34 is Obvious Under 35 U.S.C. § 103(a) Over Borcherts, Lemelson and Asayama.....	14
E. Ground of Review E: Claims 30, 32, and 37-39 are Obvious Under 35 U.S.C. § 103(a) Over Yamamura and Borcherts .....	15
VI. CONCLUSION.....	15

## TABLE OF AUTHORITIES

### Cases

<i>Beckson Marine, Inc. v. NFM, Inc.</i> , 292 F.3d 718 (Fed. Cir. 2002).....	13
<i>Ex Parte Klasing et al.</i> , App. No. 11/507,120, 2013 Pat. App. LEXIS 1619 (PTAB March 14, 2013).....	4
<i>Greenliant Sys.</i> , <i>Inc. v. Xicor LLC</i> , 692 F.3d 1261 (Fed. Cir. 2012).....	3
<i>In re Baxter Travelnol Labs.</i> , 952 F.2d 388 (Fed. Cir. 1991).....	8
<i>In re Gleave</i> , 560 F.3d 1331 (Fed Cir. 2009).....	7
<i>In re Graves</i> , 69 F.3d 1147 (Fed. Cir. 1996).....	8
<i>In re Petering</i> , 301 F.2d 676 (C.C.P.A. 1962).....	7
<i>In re Warmerdam</i> , 33 F.3d 1354 (Fed. Cir. 1994).....	2, 3
<i>KSR Int'l v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	13
<i>SmithKline Beecham Corp. v. Apotex Corp.</i> , 439 F.3d 1312 (Fed. Cir. 2006).....	1, 3

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## I. INTRODUCTION

Petitioner Toyota Motor Corporation (“Petitioner”) submits the following Reply under 37 C.F.R. § 42.23-24 to Patent Owner’s Response (Paper 33) in IPR2013-00419 concerning U.S. Patent No. 6,772,057 (“the ’057 patent”). This filing is timely. *See* Papers 20 and 30.

AVS argues that U.S. Patent No. 6,553,130 (“Lemelson”) does not disclose a pattern recognition algorithm “generated from data of possible exterior objects and patterns of received waves from the possible objects” (hereinafter, the “generated from” language). AVS asserts that this language requires training with data and waves from actual objects (hereinafter, “real data”), as opposed to simulated data and waves (hereinafter, “simulated data”) or “data and waves not representing exterior objects to be detected” (hereinafter, “partial data”). AVS also asserts that Lemelson’s disclosure of training is too vague to discern which of the three categories of data (real, simulated, or partial) is taught. AVS asserts that Petitioner and the Board must, therefore, have implicitly been relying on the doctrine of inherency. AVS is wrong.

First, the “generated from” language is not a limitation, since it is a process step within apparatus claims. *See SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1317, 1319 (Fed. Cir. 2006) (“one cannot avoid anticipation by an earlier product disclosure by claiming the same product more narrowly, that is, by claiming the product as produced by a particular process.”); *In re Warmerdam*, 33 F.3d 1354, 1360-

61 & n. 6 (Fed. Cir. 1994) (noting that the claim language “data representing a bubble hierarchy generated by the method of . . .” likely fit into the “conventional definition” of a product-by-process claim). The claimed “pattern recognition algorithm” constitutes computer code, regardless of how it was created. AVS makes no argument that generating it with real data somehow structurally alters that code.

Second, even if the “generated from” language constitutes a limitation, it is not limited to training with real data. The claims merely specify that the algorithm is generated from (1) data *of* possible exterior objects, and (2) patterns *of* received waves from those possible exterior objects. The claimed patterns “*of* received waves, as opposed to, “patterns *from*” received waves, merely require patterns *representing* what received waves would look like (which would include simulations).

Third, Lemelson explicitly discloses the “generated from” language, even under AVS’s construction. Lemelson discloses a neural network trained to identify roadway hazards, such as automobiles and pedestrians, by providing “known inputs” until desired output responses are obtained. Ex. 1002 at 8:1-10. AVS’s expert admits that real data was one “known input” at the time of Lemelson, and that there were only two other categories of data that he discussed in his declaration (simulated and partial data). Ex. 1022 at 86:25-87:14, 163:18-164:7. The disclosure of “known inputs” is, therefore, sufficient to connote to one of ordinary skill that *any* known category of data could be used for training. In any event, as explained by Toyota’s expert, one of

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