IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reexamination of: U.S. Patent No. 6,438,180	)	**Examiner:** Nguyen, Linh M.
Inventors: Aleksandar Kavcic et al.	)	**Art Unit:** 3992
Reexamination Control No.: 90/013,124	)	**Atty. Docket No**. 97168CIPREX
Reexamination Filing Date: January 21, 2014	)	

Title: SOFT AND HARD SEQUENCE DETECTION IN ISI MEMORY CHANNELS

RESPONSE TO OFFICE ACTION

K&L Gates LLP
Pittsburgh, PA 15222
October 28, 2014

VIA EFS-Web

Mail Stop *Ex Parte* Reexam
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action mailed July 31, 2014 in connection with the above-referenced *ex parte* reexamination of U.S. Patent 6,438,180 ("the '180 patent"), the patent owner, Carnegie Mellon University ("CMU"), responds as follows, wherein:

Remarks begin on page 2.

REMARKS

I. INTRODUCTION

The Office already has determined that the principal reference upon which this reexamination proceeding is based does not disclose or suggest a key claim element in claim 2 of the '180 patent. In light of that determination, that reference, the "Zeng Thesis," cannot invalidate claim 2 of the '180 patent.

Specifically, dependent claim 2 of the '180 patent recites selecting a branch metric function from "***a set of signal-dependent branch metric functions.***" By virtue of claim 2's dependence upon independent claim 1, the selected signal-dependent branch metric function is applied to a received "plurality of time variant signal samples" in order to "determine the [branch] metric values" in a detector.

In connection with the *ex parte* reexamination of claim 4 of a related patent, U.S. Patent 6,201,839 ("the '839 patent")[1], the Office determined that Zeng's Thesis does not disclose or suggest "a set of signal-dependent branch metric functions." The Office stated:

> There is not taught or disclosed in the prior art including [Zeng's Thesis] a method of determining branch metric values for branches of a trellis for a Viterbi-like detector having a step of selecting a branch metric function for each of the branches at a certain time index from a set of ***signal-dependent branch metric functions***…
>
> * * *
>
> The examiner agrees with Patent Owner that ***Zeng does not disclose a set of signal-dependent branch metric functions***…

Ex. 60 at 2-3 (emphasis added).[2] The Office's conclusion regarding the content (or lack thereof) of Zeng's Thesis during the reexamination of claim 4 of the '839 patent applies equally to claim 2 of the '180 patent. Since Zeng's Thesis does not disclose "a set of signal-dependent branch

[1] *See* Control No. 90/013,125. The '180 patent is a continuation-in-part of the '839 patent. CMU owns both patents and they are referred to herein collectively as "the CMU patents."

[2] "Ex. __" herein refers to exhibits attached the Declaration of Mark G. Knedeisen in Support of CMU's Response to Office Action, filed herewith.

metric functions," it does not invalidate claim 2 and the Office should confirm the patentability of that claim.

Additionally, Zeng's Thesis does not anticipate either claims 1 or 2 of the '180 patent because Sections 4.4 and 5.2 of Zeng's Thesis are not enabling. The so-called "detectors" described in those sections are based on a channel model that defies the laws of physics. Zeng's model permits consecutive positive or consecutive negative transitions, and the parameters of the branch metric functions (BMFs) of Zeng's detectors in Section 4.4 and 5.2 cannot be set. This defect in Zeng's model is manifested in his reported simulation results, which also defy the laws of physics since the detector's performance does not deteriorate with increasing noise. On top of that, there are so many mathematical errors in Zeng's equations in Section 5.2 that the equations in that section are unusable in a detector. The Requester and Dr. Lee did not discuss the physics-defying channel model, the physically impossible simulation results, or the pervasive mathematical errors; to the contrary, the Requester and Dr. Lee quoted the erroneous equations verbatim in the Request papers. But the physics-defying channel models and pervasive errors make Zeng's detectors in Sections 4.4 and 5.2 inoperative even to a person having more than ordinary skill in the art. Therefore, these sections of Zeng's Thesis are nonenabling and neither constitutes an anticipatory reference.

The declarations filed contemporaneously with this response likewise overcome the obviousness rejections of claims 1 and 2. These declarations detail numerous reasons that a person having ordinary skill in the art would not have been motivated to modify the detectors in Sections 4.4 and 5.2 of Zeng's Thesis based on Lee's Thesis to arrive at the subject matter of claims 1 and 2. For example, Zeng's Thesis is nonenabling and Lee's Thesis does not remedy those flaws in Zeng's Thesis, and a person having ordinary skill in the art would not have been able to, let alone motivated to, modify Zeng's nonenabled detectors. Neither the Requester nor Dr. Lee describe any rationale for modifying Zeng's nonenabled detectors to arrive at the subject matter of claims 1 and 2, and numerous technical reasons weigh against any such combination. *See e.g.*, Ex. 63 at pp. 89-96.

Additionally, claim 2 is not obvious because neither Zeng's Thesis nor Lee's Thesis teach or suggest "a set of signal-dependent branch metric functions" that are applied to a received

"plurality of time variant signal samples." Furthermore, the CMU patents are involved in ongoing litigation, *Carnegie Mellon University v. Marvell Technology Group, Ltd. et al.*, No. 2:09-cv-00290-NBF (W.D. Pa.) ("the CMU case"), and trial record in the case (among other things) contains compelling evidence of secondary considerations that shows the nonobviousness of claim 2. The Requester and Dr. Lee failed to disclose this evidence despite having access to the trial record.[3] These secondary considerations include:

- Marvell copied the CMU patents -- not Zeng's Thesis -- even though Marvell's engineers studied Zeng's work at the time and even though Zeng is an employee of Marvell;

- Marvell named its infringing products after Dr. Kavcic because, according to one of Marvell's own engineers and its current Chief Technology Officer, "it's common practice" to name something after the author who discovered the solution, just like "Gaussian noise" is named after Gauss and the "Viterbi detector" is named after Dr. Viterbi;

- Marvell realized approximately ***$5 billion in profit*** (and more than $10 billion in total revenue) over nine years (2003-2012) from sales of HDD read channel chips specifically designed to copy of the CMU patents; it cited the "KavcicPP" circuit as one of two technologies that made it the "market leader"; and it continues to keep the infringing circuit in its products even after the court in the CMU case found that Marvell willfully infringed the CMU patents and ordered Marvell to pay 50 cents per infringing chip on an on-going basis through the term of the CMU patents;

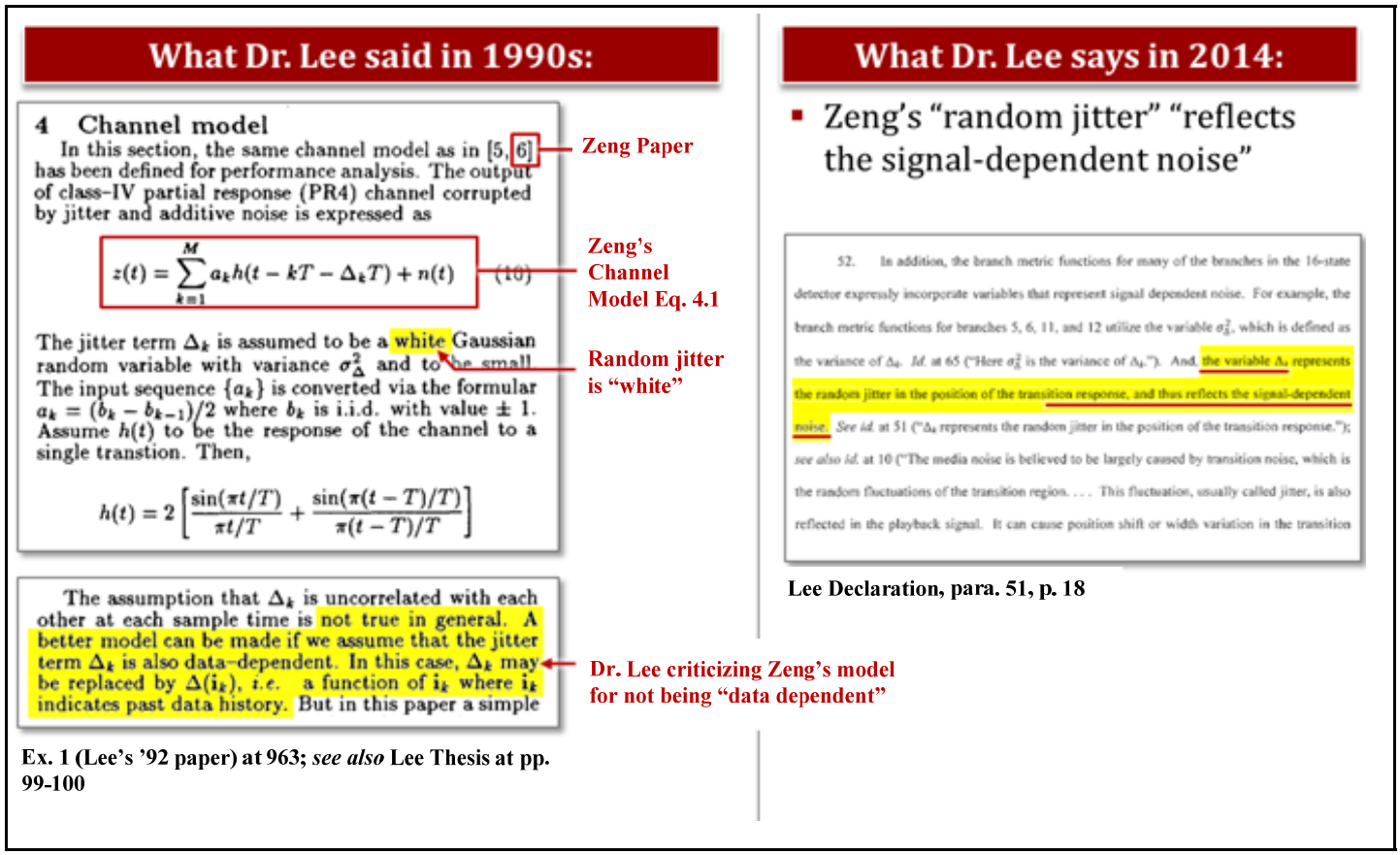
- After Marvell commercially introduced its infringing "KavcicPP" detector to the market, the sales of its prior-generation, noninfringing detector ceased almost immediately because the industry demanded the solution provided in the CMU patents and after more than ten years it is still "a must";

[3] The Request repeatedly cites documents and alleged arguments from the CMU case. *See* Request at pp. iv, 14, 21, 33, 46, 52.

- Similar to Marvell's internal acclaim for the CMU invention, others in the field, including Zeng's own thesis advisor, Prof. Jaekyun Moon, recognized the CMU inventors -- not Zeng -- as "first deriving" the solution; and

- Others, including Marvell, were working on the problem of improving detector performance in view of increasingly dominant media noise in magnetic recording channels at the same time, but they all failed.

Finally, Dr. Lee's declaration is so unreliable that the Office should not and cannot reasonably rely upon it or the Request. For example, Dr. Lee's declaration contradicts his prior technical writings on the technical issue most pertinent to this reexamination with no explanation for the reversal in positions. Specifically, in the 1990s Dr. Lee explicitly criticized Zeng's channel models, first in a peer reviewed paper and later in his Ph.D. thesis, stating in those earlier papers that Zeng's "random jitter" is "white," which is mutually exclusive of signal-dependent noise. He further criticized Zeng's "random jitter" in those papers for not being "data [signal] dependent." Dr. Lee, however, squarely contradicted his earlier statements in his reexamination declaration, stating instead that Zeng's random jitter "reflects the signal-dependent noise." *Compare* Ex. 1 ("Lee '92 Paper) at 963 and Exhibit E to the Request (Lee's Ph.D. thesis) at 99-100 *to* Lee Dec. (Ex. J of the Request) at ¶ 52 (graphic with side-by-side comparison below).



Dr. Lee's declaration also cannot be relied upon because it ignores well-known, universally-accepted mathematical principles; did not discuss the pervasive math errors in Zeng's Thesis; relies on demonstrably faulty logic; is internally inconsistent; and relies on out-of-context and irrelevant statements in Zeng's Thesis to support his erroneous assertions.

II. NOTICE OF CONCURRENT PROCEEDINGS

A. *Ex Parte* Reexamination of the '839 Patent

On the same day (January 21, 2014) that the Requester requested reexamination of claims 1 and 2 of the '180 patent, he also requested *ex parte* reexamination of claim 4 of the '839 patent. The *ex parte* reexamination of the '839 patent has been assigned Control No. 90/013,125. The Office granted the Request for the '839 patent on February 26, 2014 and issued a first, non-final Office Action on June 4, 2014.

Representatives of CMU participated in an examiner interview on August 22, 2014 (*see* Exs. 61 and 62, summaries of the interview) and CMU filed its response to the Office Action on September 3, 2014. A copy of the response, referred to herein as "CMU's '839 Patent Response," is provided as Ex. 63 hereto and incorporated herein by reference in its entirety.[4]

On September 19, 2014 the Office issued a "Notice of Intent to Issue *Ex Parte* Reexamination Certificate" for the '839 patent confirming the patentability of claim 4. *See* Ex. 60. Pertinent to this reexamination, as noted above, the Office found that the prior art, including Zeng's Thesis and Lee's Thesis, fails to disclose or suggest a set of signal-dependent branch metric functions that are applied to a plurality of time variant signal samples, stating:

> There is not taught or disclosed in the prior art including [Zeng's Thesis] a method of determining branch metric values for branches of a trellis for a Viterbi-like detector having a step of selecting a branch metric function for each of the branches at a certain time index from a set of ***signal-dependent branch metric functions***…
>
> * * *
>
> The examiner agrees with Patent Owner that ***Zeng does not disclose a set of signal-dependent branch metric functions***…

Ex. 60 at 2-3 (emphasis added). That determination effectively confirms the patentability of claim 2 of the '180 patent.

B. Infringement Litigation

In the CMU case, CMU asserted that Marvell Technology Group, Ltd. and Marvell Semiconductor, Inc. (collectively "Marvell") infringed claim 2 of the '180 patent and claim 4 of the '839 patent.

A trial was held in the CMU case from November 26, 2012 to December 26, 2012, and following post-trial motions the district court entered final judgment on May 7, 2014. CMU proved that Marvell willfully infringed both claim 4 of the '839 patent and claim 2 of the '180 patent. Marvell also failed to prove that these claims were invalid. The jury awarded CMU

[4] Exhibits 1-59 referred to in CMU's '839 Patent Response match Exhibits 1-59 in the concurrently filed Knedeisen declaration.

$1.169 billion in damages, one of the largest patent infringement verdicts ever. In post-trial orders, Judge Fischer increased the damages to approximately $1.536 billion "to penalize Marvell for its egregious behavior…." Ex. 4 (Dkt. 933) at 45-46. Presently the CMU case is on appeal before the United States Court of Appeals for the Federal Circuit, Appeal No. 14-1492. *See* Ex. 5 (copy of the district court docket) and Ex. 64 (copy of the Federal Circuit docket).

Claim 2 of the '180 patent and claim 4 of the '839 patent are similar. Both relate to determining branch metric values using "a set of signal-dependent branch metric functions," where the selected signal-dependent branch metric functions are applied "to a plurality of time variant signal samples" in order to determine the branch metric values. There are certain differences between the claims. For example, he preamble of claim 4 recites a "Viterbi-like detector" whereas claim 2 recites a "detector." Also, claim 2 has the "receiving" step, which claim 4 does not have. These differences were not material to the issues of infringement and validity in the CMU case.[5]

As CMU described in CMU's '839 Patent Response (Ex. 63) at pp. 63-64, there is strong evidence that Marvell is the true proponent of this reexamination request, yet Marvell's behavior during the CMU case confirms that Zeng's Thesis does not anticipate. Marvell produced a copy of Zeng's Thesis from its files at the outset of the litigation, and identified Dr. Zeng (who was and is a Marvell employee) as a person with relevant knowledge of the prior art. *See* Ex. 12 at 3-4; Ex. 63 at 67-68. Marvell's technical invalidity expert, Dr. John Proakis, expressly reviewed and considered Zeng's Thesis in preparing his expert report, but did not opine in his expert report or at trial that Zeng's Thesis invalidated claim 2 in any way. *See* Ex. 21; Ex. 63 at p. 68. Moreover, Marvell never called Zeng to testify at trial or otherwise that his work anticipated or otherwise invalidated claim 2. *See* Ex. 63 at pp. 68-69. Further demonstrating that Zeng's Thesis does not anticipate claim 2, when Marvell set out to design its first signal-dependent detector in the early 2000s, its engineers studied Zeng's work, but instead copied the CMU patents. *See* Ex. 63 at pp. 70-73. Marvell even named its first signal-dependent detector

[5] Marvell's experts treated the claims as essentially the same. *See* Ex. 65 (Tr. 12/17/12 at 71) (Marvell's validity expert, Dr. Proakis, testifying that his analysis was "exactly the same"); Ex. 15 (Tr. 12/13/12) at 246 and 259 (Marvell's infringement expert, Dr. Blahut, testifying there is a "similar analysis").

"KavcicPP" after Prof. Kavcic, the first-named inventor for the CMU patents. *See* Ex. 63 at pp. 71-72. Marvell's conscious decision to ignore Zeng and his thesis when contesting validity in a billion-dollar trial, and its decision to knowingly copy the CMU patents despite studying Zeng's work, is powerful evidence that neither Marvell nor its experts believe that Zeng invalidates claim 2. *See generally* Ex. 63 at pp. 63-79.

III. CONCURRENTLY FILED SUPPORTING DECLARATIONS

In addition to the Knedeisen declaration (*see* footnote 2) and CMU's attached '839 Patent Response, CMU files this response concurrently with four other supporting declarations:

- A declaration from Prof. Steven W. McLaughlin (referred to herein as "McLaughlin Dec."). Prof. McLaughlin is the Chair of the School of Electrical and Computer Engineering at The Georgia Institute of Technology ("Georgia Tech.") and one of the world's leading experts in the areas of communications and information theory with decades of experience working with Viterbi detectors.

- A declaration from Dr. Christopher H. Bajorek ("Bajorek Dec."). Dr. Bajorek managed IBM's HDD business unit and Komag's disk business for many years, and is one of the world's leading experts on magnetic recording and the HDD industry.

- A declaration from Prof. Aleksandar Kavcic ("Kavcic Dec."). Prof. Kavcic is the first named inventor of the '180 patent and currently is a professor at the University of Hawaii in the Department of Electrical Engineering.

- A declaration from Prof. José Moura ("Moura Dec."). Prof. Moura is the other named inventor of the '180 patent and is currently a professor at Carnegie Mellon University in Pittsburgh, Pennsylvania in the Department of Electrical and Computer Engineering.

Each of these experts filed declarations for the '839 patent reexamination. Given the similarity between claims 1-2 of the '180 patent and claim 4 of the '839 patent, and given that the prior art relied upon here (Zeng's and Lee's theses) were also relied upon for initial rejections

in the '839 patent reexamination, the declarations that are being filed concurrently with this response are mostly identical to the declarations filed for the '839 patent reexamination.

IV. SUBJECT MATTER OF THE '180 PATENT

The '180 patent is a continuation-in-part of the '839 patent. The subject matter of the two patents is very similar, except that the '180 patent includes new subject matter at col. 14:9 to col. 15:29 related to turbo decoders and soft-decision detectors. Claims 1-2 of the '180 patent are supported by the subject matter that is common to both patents. That subject matter is described in: CMU's '839 Patent Response (Ex. 63) at pp. 8-51; McLaughlin Dec. at ¶¶ 18-41; Bajorek Dec. at ¶¶ 30-73; and Moura Dec. at ¶¶ 12-51.

V. SUMMARY OF THE OFFICE ACTION

The Office Action rejected claims 1 and 2 on two grounds. First, claims 1-2 were rejected under 35 U.S.C. § 102(b) (pre-AIA) as being anticipated by Zeng's Thesis (Ex. D of the Request). Second, claims 1-2 were rejected under 35 U.S.C. § 103(a) (pre-AIA) as being obvious over Zeng's Thesis in view of Lee's Thesis (Ex. E of the Request). These two rejection grounds were proposed in the Request. The Office did *not* reject claims 1-2 under a third ground proposed in the Request, namely that claims 1-2 are obvious over Zeng's Thesis in view of the Coker Patent (U.S. Patent 5,104,766; Ex. F of the Request).

CMU traverses the rejections. The patentability of claims 1-2 should be confirmed for at least the reasons set forth below.

VI. THE PATENTABILITY OF CLAIMS 1-2 SHOULD BE CONFIRMED

A. Zeng's Thesis Does Not Anticipate Claim 2

Dependent claim 2 recites that the "branch metric function is selected from a set of signal-dependent branch metric functions." As the Examiner determined in connection with the '839 patent reexamination, Zeng's Thesis "does not disclose a set of signal-dependent branch metric functions…." Ex. 60 at pp. 2-3. The reasons that Zeng's Thesis does not disclose a set of signal-dependent branch metric functions are set forth in CMU's '839 Patent Response (Ex. 63)

at pp. 55-79; McLaughlin Dec. at ¶¶ 42-84; Bajorek Dec. at ¶¶ 75-110; Moura Dec. at¶¶ 52-58; and Kavcic Dec. at ¶¶ 42-46.

Because Zeng's Thesis does not disclose all of the elements of claim 2, Zeng's Thesis does not anticipate claim 2. *See* MPEP § 2131 ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.") (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

B. Zeng's Thesis is Not Enabling and Therefore Cannot Anticipate Claims 1-2

"Prior art under § 102(b) must sufficiently describe a claimed invention to have placed the public in possession of that invention. … In particular, one must be able to make the claimed invention without undue experimentation." *In re Elnser*, 381 F.3d 1125 (Fed. Cir. 2004); *see also Elan Pharma., Inc. v. Mayo Foundation*, 346 F.3d 1051 (Fed. Cir. 2003) ("The disclosure in an assertedly anticipating reference must be adequate to enable possession of the desired subject matter. It is insufficient to name or describe the desired subject matter, if it cannot be produced without undue experimentation."); MPEP § 2121.01 ("The disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation.").

As explained in CMU's '839 Patent Response and in the Kavcic Dec., sections 4.4 and 5.2 of Zeng's Thesis are not enabling, and therefore do not qualify as prior art to claims 1-2. *See* Ex. 63 (CMU's '839 Patent Response) at pp. 80-88; Kavcic Dec. at ¶¶ 15-41. "An invention is not 'possessed' absent some known or obvious way to make it." *In re Payne*, 606 F.3d 303, 314 (CCPA 1979). Here, Prof. Kavcic's declaration explains in detail why a person skilled in the art could not use Zeng's "detectors" to detect data because (a) Zeng's models violate laws of physics; (b) Zeng's reported simulation results, which also violate laws of physics, confirm the existence of disabling flaws in his models and detectors; and (c) there are pervasive mathematical errors in Zeng's derived branch metric equations. *See* Kavcic Dec. at ¶¶ 15-41. Since Zeng's so-called "detectors" in Sections 4.4 and 5.2 are not enabled, they do not qualify as prior art under § 102 and, therefore, cannot anticipate claims 1-2.

Having submitted detailed affidavits in support of CMU's position from highly qualified experts in the field (e.g., Prof. Kavcic), CMU has carried its burden of proving that Zeng's thesis is not enabling and the burden of showing otherwise shifts to the Office. *See In re Sasse*, 629 F.2d 675, 681 (CCPA 1980) (burden shifts to the Office once patentee proffers rebuttal evidence that a reference is not enabling); *see also In re Hoeksema*, 399 F.2d 269, 275 (CCPA 1968) ("burden of going forward with proofs to support its position as to obviousness of the claimed invention shifted to the Patent Office upon appellant's filing" of a sufficient expert declaration). Nothing submitted by the Requester addresses whether the Zeng Thesis is enabling. Indeed, even if it had addressed enablement, Dr. Lee's declaration is so unreliable that the Office should not and cannot reasonably rely upon it or the Request. *See* McLaughlin Dec. at ¶¶ 119-133. Accordingly, CMU's evidence on this point stands uncontradicted.

C. There is Insufficient Evidence that Zeng's Thesis is a Printed Prior Art Publication

"[U]ncorroborated third party oral testimony … is entitled to little, if any weight." *Ex Parte Haydon*, 2013 WL 5397786 at *5 (PTAB January 25, 2013, Appeal 2010-011645). Here, Ms. Heather Milliken's declaration as to the alleged publication of the Zeng Thesis (Ex. H of the Request) should be given "little, if any weight" since her testimony is uncorroborated and without sufficient foundation. According to Ms. Milliken's declaration, she reviewed the "ProQuests's records regarding" Zeng's Thesis (Ex. H of Request at ¶ 6), but she did not include the records as part of her declaration. Therefore, her statements about what the records show (*see* Ex. H of Request at ¶ 6) are uncorroborated.

There are important policy reasons why uncorroborated testimony is given "little, if any weight" in patent cases. "The law has long looked with disfavor upon invalidating patents on the basis of mere testimonial evidence absent other evidence that corroborates that testimony." *Finnigan Corp. v. Int'l Trade Com'n*, 180 F.3d 1354, 1366 (Fed. Cir. 1999). This practice stems from a ruling by the United States Supreme Court that uncorroborated testimony alone is "unsatisfactory" to invalidate a patent. *The Barbed-Wire Patent*, 143 U.S. 275, 284 (1892) ("Witnesses whose memories are prodded by the eagerness of interested parties to elicit testimony favorable to themselves are not usually to be depended upon for accurate information."). The need for corroboration exists even when the testifying party is uninterested

but testifying on behalf of an interested party. *See Finnigan Corp.*, 180 F.3d at 1367. Thus, the necessity of corroboration is defined not with reference to the level of interest of the witness, but rather by the inherent inability of testimonial evidence to meet the standard necessary to invalidate a patent. *Id.* at 1368.

Here, because Ms. Milliken's uncorroborated declaration testimony can be given "little, if any weight," there is insufficient evidence that Zeng's Thesis is a "printed publication" under 35 U.S.C. § 102(b) (pre-AIA). Therefore, Zeng's Thesis cannot qualify as prior art under § 102(b) (pre-AIA). This is yet another, independent reason that the patentability of claims 1-2 should be confirmed.

D. Claims 1-2 are Not Obvious over Zeng's Thesis in View of Lee's Thesis

Claims 1-2 are not obvious over Zeng's Thesis in view of Lee's Thesis for the reasons discussed in CMU's '839 Patent Response (Ex. 63) at 88-107 and as confirmed by the Office when it determined that claim 4 of the '839 patent is not obvious. *See* Ex. 3. The reasons include:

- Neither Zeng's Thesis nor Lee's Thesis teaches or suggests a set of signal-dependent branch metric functions that are applied to a plurality of time variant signal samples, as required by claim 2. *See* Ex. 60 (Notice of Intent to Issue *Ex Parte* Reexamination Certificate for '839 patent) at pp. 2-3; *see also* Ex. 63 at 88-89; McLaughlin Dec. at ¶¶ 86-87. So even if these references could be combined (and there would not have been a motivation to combine them, as described below), the combination still would not teach or suggest all of the elements of claim 2;

- A person skilled in the art could not make or use the nonenabled detectors described in Sections 4.4 and 5.2 of Zeng's Thesis (*see* Kavcic Dec. at ¶¶ 15-41), and Lee's Thesis does not remedy those flaws in Zeng's Thesis (*see* McLaughlin Dec. at ¶ 118);

- A person having ordinary skill in the art would not have been motivated (or even able) to modify the nonenabled detectors in Sections 4.4 and 5.2 of Zeng's Thesis

based on Lee's Thesis to arrive at the subject matter of claims 1 and 2. *See* Ex. 4 at 89-96; McLaughlin Dec. at ¶¶ 88-101; Bajorek Dec. at ¶¶ 111-113; and

- Overwhelming secondary considerations show that claim 2 would not have been obvious. *See* Ex. 4 at 96-107; McLaughlin's Dec. at ¶¶ 102-117.[6]

Therefore, claims 1-2 would not have been obvious over Zeng's Thesis in view of Lee's Thesis.

VII. DR. LEE'S DECLARATION SHOULD BE GIVEN LITTLE WEIGHT

Declarations that lack factual support offer "little probative value in a validity determination." *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985); *see also* MPEP § 716.01(c) ("to be of probative value, any objective evidence should be supported by actual proof"). Here, Dr. Lee's declaration is of "little probative value" and should be given little, if any, weight for the reasons set forth in CMU's '839 Patent Response (Ex. 4) at pp. 111-114 and in Prof. McLaughlin's Declaration at ¶¶ 119-133.

VIII. SERVICE ON REQUESTER

A certificate of service is submitted herewith showing proof of service of this response and all declarations (including their exhibits and appendices) on the Requester at the address set forth below in accordance with 37 C.F.R. §§ 1.248 and 1.550(f).

J. Steven Baughman
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[6] The evidence from the CMU case about Marvell's commercial success from its copying and practicing the CMU patents applies to both claim 2 of the '180 patent and claim 4 of the '839 patent given their similarity. *See e.g., Alcon Research Ltd. v. Apotex Inc.*, 687 F.3d 1362, 1371 (Fed. Cir. 2012) (commercial success can apply to multiple patent claims); *Dow Chem. Co. v. American Cyanamid Co.*, 816 F.2d 617 (Fed. Cir. 1987) (copying evidence of nonobvious for claims in multiple related patents).

IX. CONCLUSION

The patentability of claims 1-2 should be confirmed for the reasons stated above. A representative of the Central Reexamination Unit is invited to contact the undersigned with any questions regarding this reexamination.

Respectfully submitted,

Date: October 28, 2014

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