

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

_____)
SKYLINE SOFTWARE SYSTEMS, INC.,)
)
Plaintiff,)
)
v.)
)
KEYHOLE, INC. and GOOGLE INC.,)
)
Defendants.)
_____)

CIVIL ACTION NO. 06-CV-10980 DPW

**PLAINTIFF SKYLINE SOFTWARE SYSTEMS, INC.'S REPLY
MEMORANDUM IN SUPPORT OF ITS MOTION FOR
SUMMARY JUDGMENT OF VALIDITY OF THE PATENT-IN-SUIT**

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INTRODUCTION

The preamble of Claim 1 of Plaintiff Skyline Software Systems, Inc.'s '189 Patent reads: "A method of providing data blocks describing three-dimensional terrain to a renderer[.]" In opposition to Skyline's Motion for Summary Judgment of Validity of the Patent-In-Suit, Defendants Keyhole, Inc. and Google Inc. (collectively, "Google") ask the Court to give no meaning to the language requiring "*three-dimensional terrain*" found in what Google has referred to in its summary judgment of noninfringement brief as "a very specific way" of "providing data blocks describing three-dimensional terrain to a renderer" claimed in the '189 Patent.¹

Google knows that reading claim language out of a patent claim is rarely, if ever, correct.² Indeed, it relied on case law supporting this very point in its briefing on the claim construction briefing. Yet, it attempts to rationalize this distorted reading of the claim language by misrepresenting the arguments made by Skyline and its technical expert, Dinesh Manocha, and by semantically twisting the Court's claim constructions.

With respect to the TerraVision art cited by Google, even Google acknowledges that the TerraVision software application did not download elevation data according to the "downloading ... if" claim limitation recited Claims 1 and 12 of the '189 Patent. Not letting this undisputed facts -- which dooms Google's argument -- get in its way, Google argues that the interactive streaming of *two-dimensional* image data alone satisfies the claim limitation because the Court defined "data blocks describing three-dimensional terrain" to mean a "section" of three-dimensional terrain. Two-dimensional image data, Google reasons, is a "section" of three-

¹ Google's Mem. In Supp. of Non-infringement Motion (filed on Jan. 19, 2007), p. 2; *see also* Exh. D (Google's Sept. 29, 2006 *Markman* Br., p. 2) (describing the claimed method as a "particular way").

² Exh. D (Google's Sept. 29, 2006 Br. at 16) (citing *Exxon Chem. Patents, Inc. v. Lubrizol*, 64 F.3d 1553, 1557 (Fed. Cir. 1995) (recognizing that meaning must be given to all the words in the claims) and *Playtex Prods., Inc. v. Proctor & Gamble Co.*, 400 F.3d 901, 909-10 (Fed. Cir. 2005) (finding claim construction flawed because it read "substantially flat" as "flat," effectively ignoring the "substantially" claim language)).

dimensional terrain, so TerraVision's streaming only of OI (imagery) files on an as-needed basis meets Skyline's claimed method. It does not. The claim language, and overall context of the '189 Patent, compels the conclusion that *both* elevation and imagery data (which even Google admits), must be downloaded in an interactive manner, whether together or separately, to meet the "three-dimensional terrain" claim limitation. TerraVision does not meet the "a very specific way" of streaming three-dimensional data claimed in the '189 Patent.

With respect to T_Vision, Google raises no real new issues that Skyline did not previously address in its Opening Brief. The T_Vision references and "public use," neither individually nor jointly, disclose the elements of Skyline's invention. As discussed below, these references and application lack, at least, the "renderer," "downloading ... if," "communication link" and "remote server" required by the claims of the '189 Patent.

Nor has Google managed to drum up any disputed issue of material fact with respect to its obviousness claim based on the Migdal and Cosman references. Google attempts to avoid the seemingly insurmountable burden it faces by relying solely on a reference that was both considered and rejected by the examiner in issuing the '189 Patent by piling on an additional reference that merely adds to the disclosures that Google contends are already found in the reference considered by the Patent Office. To convert its thinly veiled anticipation argument based on the Migdal patent alone into an obviousness argument, Google suggests that the examiner's characterization of the Migdal patent (even though the examiner then issued the '189 Patent) is binding on Skyline. The Federal Circuit has already rejected this very argument. *Eolas Tech. Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1338 (Fed. Cir. 2005).

ARGUMENT

A. TerraVision³

1. Google's Attempts to Blur the Boundaries of 2D and 3D Remote Streaming and Rendering.

There is no dispute about how TerraVision worked (or purported to work). At some point after July 1995, it stored both elevation and image data remotely. When a user selected a data set (*i.e.*, a geographic area, such as Fort Irwin), the system downloaded all of the elevation data for that area to the remote server before any visualization could occur. Then, as the user selected a particular area for viewing, the TerraVision system downloaded imagery data as needed. It did not, as even Google agrees, download elevation data interactively or as-needed "if the provided block from local memory is not at the indicated resolution level." Exh. 1, col. 16:43-44.⁴ Simply put, it was a method for *local* rendering of *three-dimensional* data.

Google chides Skyline for characterizing the TerraVision system as providing only *local* 3D rendering after July 1995, when both elevation and image data were stored remotely. Google's Opp., pp. 6-7.⁵ Yet, this is plainly what it was. Like the prior art described in the '189 Patent, where data was inputted into and read from local memory, TerraVision loaded *all* elevation data from the remote server into local memory regardless of whether that data was needed or requested by the user. Exhs. 42 (Feiner Dep., p. 41), 25 (GOOG26843) & 26

³ Google makes a number of arguments regarding the TerraVision software application. Many of these arguments have been briefed in opposition to Google's co-pending Motion for Summary Judgment of Anticipation Based on The Public Use of TerraVision (filed on Feb. 2, 2007), and are incorporated by reference.

⁴ "Exh." references exhibits attached to the Declarations of Geri L. Haight, Esq. dated January 19, 2007, February 2, 2007, and February 9, 2007, unless otherwise noted.

⁵ Skyline disagrees with Google's characterization of the TerraVision system as being "always designed provide 3D visualization." Google's Opp., p. 6. This point is irrelevant, as there is no evidence of record that TerraVision did so in the manner claimed in the '189 Patent. Google misleadingly states that "[b]y April 1993 ... the TerraVision application provided both imagery data (OI tiles) and elevation data (DEM tiles) to a renderer for rendering three-dimensional terrain." *Id.* Yet all of the documents describing the TerraVision system from that time period confirm that elevation data was not downloaded from a remote server in an interactive manner, as claimed in the '189 Patent. Rather, it was loaded locally on a disk. Exhs. 14 at 2, 15 at 3, 16 at 3, 17 at 3, 18 at 3.

(GOOG26915-16). It then streamed, as needed, only two-dimensional image data. (Google's own employees recognize that elevation data is required to render a three-dimensional scene. Exhs. 47 (Dep. Tr. of Brian McClendon, p. 239), 44 (Jones. Dep., p. 288) & 43 (Dep. Tr. of John Hanke, pp. 112-113). In this sense, the TerraVision system operates in a manner akin to the prior art. What truly sets Skyline's invention apart from the prior art systems described in the '189 Patent and the TerraVision approach is that it provides a way to *stream* data blocks describing *three-dimensional* terrain, *i.e.*, both elevation and image data, from a *remote server* to a client on an *as-needed basis*. Exh. 1, col. 16, 28-44. Under the Skyline approach, neither elevation *nor* image data was downloaded *en masse* from a remote server to the client. Rather, both were downloaded only upon the determination that "the provided block from local memory is not at the indicated resolution level." *Id.*, col. 16:43-44. This limitation, which adds far greater complexity to the system, is wholly absent from all of the references and testimony dredged up by Google in an attempt to invalidate the '189 Patent.⁶

Undeterred by this reality, Google forges ahead, arguing that the mere streaming of image data (*i.e.*, two-dimensional data) *alone* from a remote server on an as-needed basis can somehow satisfy the "downloading ... if" claim limitation recited in Claims 1 and 12 of the '189 Patent. It does not. Rather than "completely ignore" this issue, as Google suggests (Google's Opp., p. 8), Skyline fully briefed this argument both in its memorandum in support of its Validity Motion (filed on January 19, 2007, pp. 23-27), and in opposition to Google's Invalidity Motion (filed on February 2, 2007, pp. 8-14).

⁶ The IEEE Article recognized this additional complexity. Although in the 2D mode "virtually no processing is required[.]" the IEEE Article describes 3D visualization as "computationally intense[.]" Exh. 11 (IEEE Article at 18). Consistently, the SRI Quarterly Reports admitted that "[h]aving all of the DEM tiles available in local cache at all times greatly simplifies the resolution determination algorithm at a comparatively small cost, since the number of DEM tiles is relatively small." Exh. 18, p. 4. It is the problems associated with this "computational[] intens[ity]" that Skyline's invention solved. *Id.*, p. 4; *see also* Exh. 39 (Dec. 29, 2006 Manocha Rpt., pp. 13-14, 21 & 26).

Google misunderstands (or intentionally distorts) Skyline's position on this issue. Skyline does not rely on "outdated documents" and "obsolete source code." Google Opp., pp. 6, 8. To the contrary, Skyline provides a historical context in order to understand -- and not misconstrue -- the scope and functionality of the TerraVision application. To that end, Skyline traced TerraVision's progress from purely a two-dimensional system (Exh. 13, p. 3) to a three-dimensional system where elevation data were input locally (Exhs. 14, p. 2 & 18, p. 3) to a system where both elevation and image data was stored remotely, but only image data was streamed in an interactive, as-needed manner (Exh. 24, p. 3). There is no dispute as to this progression, and no genuine dispute as to the fact that TerraVision never accomplished a manner in which *both* elevation and image data were downloaded in the interactive manner required by the '189 Patent.

As to Google's reliance on the *TsRequestDems()* portion of the source code, this code, as Google even recognizes, only functioned to "get the TSM to send us the DEMs." Google Opp., pp. 8-9. In other words, as discussed in the SRI Quarterly Reports and admitted by Google's own expert, the TerraVision application downloaded the *complete* elevation data for the *entire* area of interest first, and then later downloaded image data. Exhs. 24 (GOOG26612 at 3) & 42 (Feiner Dep., p. 41). The code relied upon by Google merely reflects this staged process, which fails to meet both the "downloading ... if" claim limitation found in Claims 1 and 12 (as well as, for example, Claims 2, 3, 7, 8, 18 & 22). *See, e.g., Exh. 1*, col. 16:42-44; Manocha Decl., ¶ 3,4.

2. The '189 Patent Does Not Require That *Each* Data Block Contains *Both* Elevation And Image Data, As Google Suggests.

Google argues that Skyline misreads the Court's claim construction of the claim phrase "data blocks describing three-dimensional terrain" by assuming that only a "data block with elevation data" can meet this definition. Google's Opp., pp. 9-10. What is beyond dispute is that

one cannot have three-dimensional data without an elevation dimension (or the “z” coordinate). The Court confirmed this fact in its claim construction ruling. Exh. 5, p. 20. Moreover, Google’s own employees, as well as the documents describing the TerraVision software application, confirm this point. Exhs. 47 (McClendon Dep., p. 239), 44 (Jones. Dep., p. 288), 43 (Hanke Dep., pp. 112-13), 46 (Lau Dep., pp. 32-33, 126 & 320) & 13 (GOOG26516).

Contrary to Google’s assertion, neither Skyline nor its technical expert has taken the position that both elevation and imagery data must be present in every data block in order to constitute “three-dimensional” terrain. Google Opp., pp. 12-13. Nor does the ‘189 Patent so require. To the contrary, the ‘189 Patent’s plain language, which refers to methods of constructing data blocks (as known in the art), is explicitly broad enough to cover situations where elevation and imagery data are downloaded together within the same data block, or separately. *Id.*, col. 8:32-37. It was known in the art in 1999 to provide data blocks in either manner. Manocha Decl., ¶ 11.

Google itself recognized during the claim construction phase that data blocks may (or may not) include elevation data. In so doing, it pointed to a portion of the specification that provides: “Preferably, transferring the data blocks includes transferring blocks which include altitude data of the terrain.” Exh. 56 (Google’s Mar. 24, 2005 Br., p. 12). Based on this disclosure, Google argued then that “*some blocks may include elevation data.*” *Id.* As even Google recognized, the ‘189 Patent provides that “*some*” blocks may include elevation, and conversely, others may not. Absent as-needed streaming of 3D data (*i.e.*, elevation data), however, data blocks describing three-dimensional terrain (whether the image and elevation data is combined or separate) are not downloaded from the server in the method of the ‘189 Patent.

4. Neither The MAGIC Final Report Nor The IEEE Article Anticipate Skyline's Invention.

Google also contends that the MAGIC Final Report and the IEEE Article, taken individually, anticipate Claims 1 and 12 of the '189 Patent, asserting that these references contain "broader disclosures that were not implemented in the TerraVision application[.]"⁷ Google Opp., p. 5; *see also id.*, pp. 14-18. They do not. The articles are intended to and do describe the TerraVision application. They are not prophetic disclosures, but are limited precisely to a description of the historical TerraVision application.^{8/}

As an initial matter, the IEEE Article constitutes no more than impermissible hearsay evidence that may not be considered on a motion for summary judgment. *Articulate Sys., Inc. v. Apple Computer, Inc.*, 53 F.Supp.2d 62, 75 (D. Mass. 1999) (holding articles appearing in trade press constitute inadmissible hearsay that may not be considered in support of summary judgment of invalidity motion); FED. R. CIV. P. 56(e). This article was not authored by any of the individuals who worked on the TerraVision software application. Exh. 11. Rather, it was authored by individuals involved in non-TerraVision aspects of the MAGIC Project. *Id.* This article is unreliable given the hearsay nature of its description of the TerraVision application. It should not be considered in deciding the Motion for Summary Judgment. *See, e.g., Scosche Indus., Inc. v. Visor Gear Inc.*, 121 F.3d 675, 680-81 (Fed. Cir. 1997) (affirming that hearsay evidence cannot be considered in deciding motions for summary judgment).

⁷ Google's assertion that Skyline "suspiciously" ignores the MAGIC Final Report and the IEEE Article (Google Opp., p. 14) is flatly wrong, as Skyline dedicates an entire section of its initial brief to a discussion of these references. *See Skyline's Mem. in Supp. of Validity Motion* (filed Jan. 19, 2007), pp. 20-22.

^{8/} Google miscasts TerraVision as a system that allows a user to roam over arbitrarily large terrain areas. Google's Opp., p. 4. This description is contradicted by the TerraVision references themselves, which provide that *all* of the elevation data for a particular area of interest had to fit in local memory. Exhs. 10, p. 18 ("it is assumed that *all of the elevation and the top few levels of the color data can fit in local memory.*"), 37 (Aug. 11, 2006 Manocha Rpt., ¶¶25-32), 39 (Dec. 22, 2006 Manocha Rpt., ¶19-20), 24, p. 3.

Despite its status as impermissible hearsay, Google relies on one sentence in the IEEE Article, taken out of context, to suggest that it discloses the interactive streaming of elevation data (as well as image data). Google Opp., p. 14. This article is simply an attempt to provide an overview of the entire MAGIC Project, of which TerraVision was a part. Exh. 11, p. 16 (“This article presents an overview of the MAGIC project...”). It discusses no more than the *image only* interactive streaming method used by the TerraVision application and discussed in the other references describing the TerraVision system. The sentence, located under the heading “The Image Server System,” states: “The ISS [remote server] stores, organizes, and retrieves the processed imagery and elevation data required by TerraVision for interactive rendering of the terrain.” Exh. 11, p. 18. The reference makes no mention of *how* the elevation data is “retrieve[d],” whether the entire data file was dumped into local memory when the user initiated a session (as described in all of the other TerraVision references at that time) or whether it was downloaded only *if* the necessary data was not at the chosen resolution level (as claimed in the ‘189 Patent). Inclusion of the word “interactive” is meaningless in this context. It describes only that the data is displayed interactively, from local memory, as the user moves about the terrain. Manocha Decl., ¶9. This does not establish, by the required clear and convincing evidence (or any standard of proof for that matter) that TerraVision streamed *both* elevation and image data in the “very specific” claimed in the ‘189 Patent (*i.e.*, wherein both elevation and image data are downloaded on an as-needed basis). See Google’s Br. in Supp. of Noninfringement Motion (filed January 19, 2007), p. 2.

This is particularly true because Google’s interpretation of this sentence is at odds both with other disclosures in the IEEE Article and with Technical Note 540 (Exh. 10), upon which the authors expressly rely in describing the TerraVision component of the MAGIC project. *Id.*,

pp. 17 n.7, 25. Indeed, the authors of the IEEE Article recognize, in a section entitled “The Terrain Visualization System,” that *only* imagery tiles are stored remotely and provided in an as-needed manner. Exh. 11, p. 17 (“TerraVision is designed to use imagery data that are located remotely and supplied to the application as needed by means of a high-speed network.”). There is no mention whatsoever of elevation tiles being supplied in this manner.

Technical Note 540, upon which the IEEE Article authors cite to for the broad assertion upon which Google relies to argue that *both* elevation and imagery tiles were stored remotely in the TerraVision application, compels the conclusion that Google’s broad assertion is wrong. Tellingly, Technical Note 540 provides that: “it is assumed that *all* of the elevation and the top few levels of the color data can fit in *local memory*. Consequently, these will be retrieved only once when the area of interest is chosen by the user.”⁹ Exh. 10, p. 18. This fact is further confirmed in the Quarterly Reports submitted to DARPA, which made expressly clear that *all* elevation data was loaded locally from a disk or downloaded from the server *en masse*, not interactively or as requested by the user. Exh. 24, p. 3 (“All the DEM tiles are requested from the ISS and kept within the local cache when a user selects a data set. The cache is cleaned when the user selects a new data set.”). This article, written by the TerraVision developers themselves, provides no support for Google’s urged interpretation of the IEEE Article to disclose the interactive streaming of *both* elevation *and* image data. The statement Google relies upon (which is no more than hearsay) is simply wrong and is belied by the contemporaneous documents describing the TerraVision system. *Articulate Sys., Inc.*, 53 F.Supp.2d at 75 (finding

⁹ Technical Note 540 further confirms that the TerraVision application also lacked the claim limitation that excess data blocks describing three-dimensional terrain are downloaded when the system is not downloading blocks required by the renderer (Claims 7 and 18). Exh. 10, p. 18 (“As indicated in the introduction, it is necessary to pre-fetch terrain data before it is actually required for rendering because of the inherent delays in retrieving the data from the database.”).

that article describing prior art system constituted hearsay and contained errors regarding the date of product was offered for sale for purposes of on sale bar).

Nor is each element of Claims 1 or 12 disclosed or described in the four corners of the MAGIC Final Report. Google Opp., p. 14-15. Again, this article, dated May 1996, contains a general description of the TerraVision software application. It states generally, in Section 3, that elevation data and aerial photographs are stored in a remote database that is accessed using a high-speed connection. Exh. 9, p. 5. The Report goes on to state, in Section 3.2.1, that the system exercises the coarse-to-fine approach *locally* in determining which tiles to use for the display. *Id.*, p. 6. Importantly for purposes of Google's failed anticipation argument, it never discusses or discloses that the tiles are ordered from the remote server in a coarse-to-fine manner. Nor does it discuss or disclose that both imagery *and* elevation tiles are ordered in this manner. Nor does it disclose the claimed "renderer" recited in the '189 Patent.¹⁰ And even Google admits that they were not (as Google argues that only image tiles were ordered in this manner). Google Opp., pp. 4-5. The '189 Patent, of course, claims *both* features as claim limitations. Exh. 1, col. 16:28-44 ("A method for providing data blocks describing three-dimensional terrain ... the method comprising ... downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block corresponding to one or more coordinates if the provided block from local memory is not at the indicated resolution level.").

Google cites, as if it is determinative, a sentence in the MAGIC Final Report that TerraVision "combines elevation data, aerial photographs, models of buildings and models of

¹⁰ Google's assertion that Skyline "fails to cite to anything" in the TerraVision references to establish that they did not disclose the interactive streaming of elevation data is absurd. Google Opp., pp. 15-16. How is Skyline supposed to cite to a disclosure that is not there? That is the whole point: There is no such disclosure in the IEEE Article or the MAGIC Final Report. There is an abundance of such disclosure in the SRI Quarterly Reports to DARPA. Skyline has, both in the briefing on the summary judgment issues and in its expert reports, discussed in detail why the portions of the references relied upon by Google are inadequate as a matter of law to prove anticipation.

vehicles ... stored in a remote terrain database (ISS) accessed via a high-speed network.”

Google Opp., p. 14 (*citing* Exh. 11, at GOOG362). Again, this sentence merely discloses that such data is stored remotely and accessed over a network. It does not provide, as Google later claims, that the elevation data is streamed in the interactive, as-needed manner claimed in the ‘189 Patent. Google Opp., p. 14 (*citing* Exh. 11, at GOOG363-64). Indeed, such a disclosure is found nowhere in the MAGIC Final Report.

Furthermore, Google’s position on the purported “renderer” disclosed in the MAGIC Final Report and the IEEE Article is directly contrary to its position in its Non-Infringement Motion. Google Opp., p. 17. Google asserts, for purposes of invalidity, that the disclosure of a “search algorithm” is sufficient to disclose the “renderer” claimed in the ‘189 Patent, as that term has been construed by the Court. *Id.* In sharp contrast, for purposes of non-infringement, Google asserts the opposite -- that Google Earth cannot be found to infringe the ‘189 Patent because its “renderer:” (1) is not one distinct, logical entity or module that performs the three functions of the “renderer” and (2) does not provide data/information to and receive data/information from other discrete things. *See* Google’s Br. in Supp. of Non-Infringement Motion., pp. 6-10. Google cannot, for non-infringement purposes, characterize Skyline’s “renderer” as a very specific set of functions while, at the same time, for purposes of invalidity, describe it in a generalized way. *Compare* Google’s Br. in Supp. of Non-Infringement Motion., pp. 6-10 *with* Google’s Opp. to Skyline’s Validity Motion, pp. 17 & 27. Google cannot have it both ways.

Because Google asks the Court to interpret documents intended as descriptions of a software system in a manner that is at odds with the admitted operation of that system, its

anticipation argument must fail. Neither the IEEE Article nor the MAGIC Final Report makes mention of all of the elements claimed in Claims 1 and 12 of the '189 Patent.

5. Google's Relies On No More Than Impermissible Hindsight In An Attempt To Drum Up A Genuine Dispute As To Non-Obviousness Of TerraVision References.

Using the lens of 2007, Google and its expert assert that it would have been obvious to one of ordinary skill in the art in the mid-1990s to combine the TerraVision references to meet Skyline's invention. Google Opp., pp. 18-20; Feiner Decl., ¶¶34-35. In so doing, Google and its expert raise *for the first time* that the asserted patent claims "either ... fail to satisfy the written description and enablement requirements of 35 U.S.C. §112, or the prior art is sufficiently enabled." *Id.*, p. 19. As an initial matter, neither Google nor its technical expert ever disclosed any invalidity argument based on §112 in any discovery responses or expert reports, and should not be permitted to argue these undisclosed defenses now. *See, e.g., Raymond v. The Raymond Corp.*, 938 F.2d 1518, 1525-26 (1st Cir. 1991) (holding that district court erred in allowing defendant's expert testimony about theories that were not disclosed during discovery). Second, Google cites to *Motorola, Inc. v. Interdigital Tech. Corp.* ("ITC"), 121 F.3d 1461, 1471 (Fed. Cir. 1997) for the proposition that the TerraVision references are enabling because they are "at a level of detail similar to [that] contained in the patent." Google Opp., p. 16. But the Federal Circuit in the Motorola case noted that, because ITC did not raise an issue before the district court as to whether the reference was too vague to be enabling (instead, raising it for the first time on appeal), its review was "severely restricted." *Id.* Its comments on this issue, therefore, are limited given the context. Moreover, as described above, the disclosures in the MAGIC Final Report and IEEE Article are not only vague, but certain claim elements are entirely missing.

On the merits, Google's obviousness arguments miss the mark. Google asserts that it relies on the "explicit teaching or suggestion" found in the MAGIC Final Report and the IEEE Article, as well as its expert's assertions as to what would have been obvious to one of ordinary skill in the art. As discussed above, however, there are no "explicit teachings" in any of the TerraVision references as to a method for downloading elevation data only when needed. See Section A.4., *infra*. As set forth in the Manocha Affidavit, such a step would have not been devices to one of the ordinary still in the art. Manocha Aff. ¶ . To the contrary, the references teach a contrary method: that of downloading all elevation data at once to local memory. Exhs. 24 (GOOG26612 at 3) & 42 (Feiner Dep., p. 41). Moreover, as discussed above, none of the TerraVision references disclose the particular "renderer" claimed in the '189 Patent, as construed by the Court. Exh. 5 (Mar. 24, 2006 Order, p. 32). Google relies on no more than impermissible hindsight, provided by its technical expert, to fill in the missing elements. *Crown Operations Int'l, Ltd. v. Solutia, Inc.*, 289 F.3d 1367, 1379 (Fed. Cir. 2002).

Finally, Google asserts that the undisputed evidence that the developers of the TerraVision application failed to ever achieve the ability to stream, interactively, elevation data from a remote server does not weigh in favor of a finding of non-obviousness. Google Opp., p. 20. Just because the TerraVision developer never wrote source code to perform this function, Google claims, does not mean that the "were incapable of writing" it. *Id.*, p. 21. Yet, this is exactly what it means. If they had the ability, and Google asserts that they were motivated to do so, they would have written code to stream both elevation and image data in an interactive manner. But as recognized at the time, this additional step added "computationally intens[ity]" to the project, which was beyond the grasp of the TerraVision developers. Exh. 11 (IEEE Article, p. 18).

B. T_Vision

Google argues that three T_Vision references each anticipate Skyline's invention. Google Opp., pp. 21-28. Throughout its argument, however, Google weaves the three references together in such a manner that confirms that its argument is plainly based on obviousness, not anticipation. As even Google apparently recognizes, not a single T_Vision reference discloses each and every element of any claim of Skyline's patent. Moreover, much of Google's argument is based on implication and inferences that what T_Vision attempted to solve was analogous to Skyline's invention.

For example, Google equates, with no basis, "data sets" references in the T_Vision art with the "data blocks" claimed in the '189 Patent. Exh. 51, col. 2:1. It further equates, without basis, T_Vision's reference that access was a "supply network" with the '189 Patent element of "local memory." *Id.*, col. 6:58-60. Finally, Google asserts -- without basis -- that there is "nothing to indicate that elevation data was treated any differently than image data," even though the article states that geometry (*i.e.*, elevation) is stored *locally*. Google Opp., p. 32; Exh. 30 ("The Task," p. 1 & "Overview," p.1). Google also attempts to bootstrap an argument that there was "*nothing to indicate* that elevation was treated any differently than image data" (despite that there is actual evidence to the contrary) to meet the "clear and convincing" evidence standard to prove anticipation. The absence of an indication that the claim element of streaming three-dimensional data interactively from a remote server is *not* met (even ignoring the evidence compelling the contrary conclusion) clearly cannot satisfy Google's burden of proof on this issue. Moreover, there is evidence to the contrary.

1. The Mayer Patent Does Not Disclose, At Least, “First Data Block,” a “Hierarchical Structure,” “Local Memory” or “Renderer.”

The Mayer Patent does not disclose all elements of the '189 Patent. First, the patent makes no reference to the “data blocks” or, in particular, a “first data block” as set forth in each claim of the '189 Patent. *See, e.g., Exh. 1*, col. 16:36. At best, the Mayer Patent refers to something called “data sets,” which are not the same as the “data blocks” as that term has been defined by the Court, and no real explanation is given in the Mayer Patent or by Google as to how they are provided. *Exh. 51*, col. 2:14; *see also Exh. 5* (Mar. 24, 2006 Order, p. 11).

Second, the Mayer Patent does not disclose a “hierarchical[ly] structure[d]” database, as that term has been construed by the Court: “data blocks that are organized into multiple levels of resolution, whereby each level contains data blocks at the same resolution and each successive level contains data blocks of a higher resolution than those in the preceding level.” *Exh. 5* (Mar. 24, 2006 Order, p. 15). There is no disclosure of such a structure in the Mayer Patent, and Google does not even attempt to point to one.

Third, as discussed in Skyline’s Opening Brief, pp 31-33, there is no “local memory” disclosed or described in the Mayer Patent. *Exhs. 1*, col. 16:38 & *5* (Mar. 24, 2006 Order, p. 34). Google attempts to argue that a vague (at best) schematic drawing in Figure 2 of the Mayer Patent discloses a display device at the central memory node. Google Opp., p. 22-23. There is no discussion of such a display device in the '897 Patent, or anywhere else, and the sketch is neither clear, nor convincing, evidence that this claim element is disclosed in the '189 Patent. It is simply a wish by Google.

Finally, there is no disclosure in the Mayer Patent of a “renderer,” as defined by the Court. *Exh. 5* (Mar. 24, 2006 Order, p. 32). There is no discussion in the Mayer Patent of a system that provides coordinates in the terrain and resolution level to other code, which is used

to select a first data block and then downloaded additional data blocks if the data block is not at an indicated resolution level. *See also* Section A(4) at pages 12-13 above discussing Google's conflicting positions on this point.

2. The "Public Use" SIGGRAPH Demonstration Does Not Anticipate Any Claim of the '189 Patent.

The T_Vision application at the SIGGRAPH conference in August 1995 has not been discussed in any manner by the presenters of that application and is, therefore, wholly uncorroborated and cannot, as a matter of law, anticipate the claims of the '189 Patent. *Finnigan Corp. v. U.S. Int'l Trade Comm'n*, 180 F.3d 1354, 1367 (Fed. Cir. 1999); Google Opp., pp. 26-27. Simply put, there is *no* evidence whatsoever that T_Vision as demonstrated at SIGGRAPH was connected via a "communication link" to a "remote server" that streamed data (of any kind) to a local computer in an interactive manner or otherwise. These claim elements are required by at least Claim 12 of the '189 Patent and by the Court's claim construction of "downloading" in Claim 1. Exh. 1, col. 18:12-30. The utter absence of any proof on these issues clearly cannot meet the "clear and convincing" evidence standard. Moreover, there is no real description of what system was actually "used" at SIGGRAPH, and the little evidence there is on this point describes that the data was stored *locally*, as would be expected with a new unproven system at a major conference. Indeed, the articles vaguely describing T_Vision that were available at SIGGRAPH characterize it as a "concept" for a networked system -- not a fully conceived or functional system with a remote server or communication link. Exh. 30, at GOOG29083. Therefore, the T_Vision application, as it was demonstrated at the SIGGRAPH conference, did not meet each and every claim element of the '189 Patent and cannot anticipate under §102(b). *Juicy Whip, Inc. v. Orange Bang, Inc.*, 292 F.3d 728, 737 (Fed. Cir. 2002) (reversing jury finding

of invalidity under 35 U.S.C. §102(b) for failure to prove “public use” by clear and convincing evidence).

3. The “T_Vision Project Materials” Do Not Anticipate Any Claim Of The ‘189 Patent.

Google further argues that the “T_Vision Project Materials” disclose a “renderer,” a “communication link” and a “processor.” Google Opp., p. 28. As discussed above in Section A(4), Google seeks to apply a loose definition of the “renderer” claimed in the ‘189 Patent and twist the Court’s definition of that term so as to be meaningless. According to Google’s own standard of what is a “renderer” required by the ‘189 Patent urged in the context of its Non-Infringement Motion, there can be no genuine dispute that there is no “renderer” disclosed in any single T_Vision reference. This issue is discussed at length in Skyline’s Memorandum in Support of its Motion for Summary Judgment at pages 29-36. Google does not attempt to argue that these materials disclose the claimed “communication link” or “processor,” discussing these claim elements only in relation to the Mayer Patent. Google Opp., p.28.

4. Nor Is There Any Genuine Dispute That The T_Vision References And Public Use, Taken Collectively, Render Any Claim Of The ‘189 Patent Obvious.

Because none of the T_Vision references or purported “public use” contain each and every element of any claim of the ‘189 Patent, Google tries a different tact. It argues that, at a minimum, disputed issues of fact exist as to whether these references, taken as a whole, render the claims of the ‘189 Patent obvious.¹¹ Google Opp., pp. 29-33. However, if an element of the claimed invention, such as downloading of elevation data, first data block or communication

¹¹ Google contends that “[t]here can be no real dispute that a person of ordinary skill in the art would have been motivated to combine the T_Vision application with the SIGGRAPH ‘95 T_Vision Project materials with the *Migdal* patent.” Google Opp., p. 29 (emphasis added). Skyline assumes that this is a typo (and that Google intended to refer to the “Mayer” patent), as Google never previously disclosed an obviousness argument based on the combination of the T_Vision references with the Migdal patent.

link, are missing from all of the references being combined, then the combination of those references cannot render the claimed invention obvious. Furthermore, Google acknowledges its difficulty in bringing in the “knowledge of one skilled in the art.” Google Opp., p. 28. Its expert makes only the most conclusory statement on this subject, however (Feiner Decl., ¶107), and has not backed those statements up with corroboration as is legally required. *See, e.g., Upjohn Co. v. MOVA Pharmaceutical Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) (“[R]ecollections by an expert witness, when challenged, particularly of asserted general scientific knowledge, require support by documentary evidence in order to receive probative weight.”). In addition, any obviousness argument Google might try to make would be overwhelmed by the evidence of secondary considerations, such as commercial success and long-felt need. Google has therefore not established a triable issue of fact as to obviousness over the combination of T_Vision references.

C. Google’s Attempt to Create A Dispute Where No Genuinely Exists As To Its Obviousness Argument Based on Migdal and Cosman Must Fail.

Google argues that the Migdal and Cosman references, in combination, render the claims of the ‘189 Patent obvious. Its sole explanation for why there is a motivation to combine Migdal and Cosman is that the Cosman reference was cited in Migdal. Google Opp., p. 33. Google cites no case law for the proposition that citing a reference in a patent creates a motivation to combine that patent with the cited reference in the particular manner claimed in the patent-in-suit. A motivation to combine means that a person of skill in the art at the time of the invention would have a reason to combine the teachings of two references. The motivation is more often based on the teachings of the references, and must be clear and particular. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). In contrast, attorneys – who are not usually persons of skill in the art – apply a loosely-defined standard of “materiality” when selecting

references to cite to the PTO during patent prosecution. *Digital Control Inc. v. Charles Machine Works*, 437 F.3d 1309, 1316 (Fed. Cir. 2005) (setting out multiple tests for materiality that operate concurrently). They often cite large numbers of not-necessarily-material references out of fear that they might be accused of withholding something. *See, e.g., Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1257 (Fed. Cir. 1997) (quoting with approval PTO expression of hope that “applicants will continue to submit information for consideration by the Office in applications *rather than making and relying on their own determinations of materiality*”) (emphasis added). An attorney’s decision to cite is thus very different from, and does not imply, a person of skill in the art’s motivation to combine. Absent any motivation to combine, Google’s obviousness argument is doomed. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997) (“The absence of such a suggestion to combine is dispositive in an obviousness determination.”).

Google also mistakenly argues that the presumption of validity implies that every statement by the examiner about the disclosures of the prior art must be correct. Google Opp., pp. 34-35. The law is to the contrary. A patent applicant may leave some examiner misstatements unrebutted for reasons of advocacy or other reasons. Unrebutted examiner errors are not binding on applicants. *See, e.g., Eolas Technologies Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1338 (Fed. Cir. 2005) (applicants not bound by examiner’s misstatement). Thus, Google’s analysis, which assumes that everything the examiner stated binds Skyline, is without legal basis. Moreover, although Google tries to skirt the testimony of one of the Migdal inventors (and, coincidentally, its current C.T.O.) by asserting that he did not “perform an invalidity analysis or reach a definite opinion” regarding obviousness, it cannot avoid the impact of Mr. Jones’ unequivocal testimony that Migdal was an image-only system. Exh. 44, pp. 59-60 (testifying

that Migdal “describes a system for dealing with large images only, doesn't talk about anything other than images. It's an image system.”). As even Google's own C.T.O recognizes, Migdal does not disclose the three-dimensional system claimed in the '189 Patent, even when combined with Cosman.

In addition, Google takes a mysterious passage in Migdal and tries to argue for a teaching of downloading that is not really there. Google Opp., pp. 36-37. Migdal says that “[u]nder conventional texture mapping techniques, even if texture data were to be accessed from a *remote*, large texture MIP-map, the rendering of a textured image for display in real-time would be impractical, if not impossible.” Exh. 52, col. 7:51-58 (emphasis added.) The single occurrence of the word “remote” here – in a statement of what the prior art *cannot* do, not in any statement of what the invention *can* do – appears to be the sole basis for Google's view that Migdal teaches downloading of texture. Migdal could just as easily be using “remote” to refer to the distance between a disk and the RAM in a single computer. Manocha Decl., ¶12. Migdal's figures and descriptions of computer components all show only a *local* system. Exh. 39 (Dec. 22, 2006 Manocha Rpt., p. 34). Invalidity must be proved by *clear and convincing* evidence, which the single, vague reference to “remote” in Migdal is not.¹² Migdal, quite plainly, does not teach downloading.

Finally, Google argues that Cosman provides a single missing link that the examiner found to be lacking in Migdal, and denies that Cosman is a “makeweight.” Google Opp., p. 37.

¹² Similarly mistaken is Google's view that the disclosure of three-dimensional *texture* meets the three-dimensional *terrain* limitation of the '189 Patent. The Court defined “terrain” to be “the surface features of an area of land, an object, or a material.” Exh. 5 (Mar. 24, 2006 Order, p. 38). Google's own expert could imagine only the most limited application of three-dimensional texture to describing the surface features of the earth. Exh. 57 (Feiner Dep., pp. 78-80 (“If you have naturally weathered stone, for example, in, say, something like the Grand Canyon, you might have a 3D map that was used to represent some portion of that naturally weathered or otherwise occurring terrain that would . . . look like . . . as it was being worn down over time, for example.”). Thus, even if the single word “remote” in Migdal were thought to teach downloading texture data blocks, Migdal does not meet the claim limitation of downloading data blocks pertaining to three-dimensional terrain.

Google's expert asserts in his expert report, however, that everything in Claim 1 is purportedly said to be found in Migdal alone. Exh. 34 (Dec. 8, 2006 Feiner Rpt., ¶¶174-80). Cosman is cited only at the very end of the discussion for ostensibly disclosing a feature found only in *dependent* claims and not in Claim 1 (bringing into memory lower-resolution data blocks before higher-resolution ones). *Id.*, ¶80. Google thus mentions Cosman only to give the illusion that it is not making a near-hopeless direct attack against the examiner's decision to allow the '189 Patent over Migdal. *See, e.g., McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1353 (Fed. Cir. 2001) (heightened burden applies when party seeking to invalidate patent relies on reference previously considered by examiner); *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1323 (Fed. Cir. 1999) (noting that "the challenger's 'burden is especially difficult when the prior art was before the Patent Office during prosecution of the application'"). Cosman does not really add anything to Migdal – in particular, Cosman like Migdal does not teach downloading from a remote server, Exh. 39 (Dec. 22, 2006 Manocha Rpt., p. 34), and so even the combination of both does not produce what the '189 Patent claims.

In connection with an obviousness combination like that of Migdal and Cosman, secondary considerations such as commercial success must also be considered.¹³ "[T]he success of an infringing product is considered to be evidence of the commercial success of the claimed invention." *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000). Given that Google claims to have at least 100 million users, Exh. 58 (Jones Dep., p. 25), and given that Skyline remains financially successful despite Google giving away a version of its competing client product, commercial success remains powerful evidence of non-

¹³ Google repeatedly asserts that the only secondary consideration relied upon by Skyline is the "failure of others." Google Opp., pp. 19 & 29. This is incorrect. For purposes of summary judgment, Skyline relied upon this secondary consideration because there is no dispute (genuine or otherwise) based on the documents alone that the developers of both the TerraVision and T_Vision applications failed to accomplish the streaming of three-dimensional data in an interactive, as needed, manner.

obviousness. For all of these reasons, Google will not be able to show at trial, by clear and convincing evidence, that Migdal in combination with Cosman renders any claim of the '189 Patent invalid.

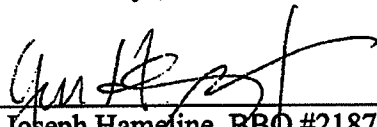
CONCLUSION

For all of the foregoing reasons, Skyline is entitled to summary judgment of no anticipation based on the TerraVision and T_Vision references, as no single piece of prior art or public use contains or discloses each and every claim element. Skyline is similarly entitled to summary judgment of non-obviousness based on the TerraVision references, T_Vision references and the Migdal Patent and Cosman Article because there is no material fact in dispute that these references lack multiple elements that lie at the heart of Skyline's invention. Consequently, the Court should grant Skyline summary judgment on the issue of validity of all asserted claims of the '189 Patent.

Respectfully submitted,

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