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10   **UNITED STATES DISTRICT COURT**
11   **NORTHERN DISTRICT OF CALIFORNIA**

12

13 LOOKSMART GROUP, INC.,   Case No. 3:17-cv-4709

14   Plaintiff,   **ORIGINAL COMPLAINT**
                                              FOR PATENT INFRINGEMENT
15 vs.
                                              DEMAND FOR JURY TRIAL
16 MICROSOFT CORPORATION,

17   Defendant.

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ORIGINAL COMPLAINT FOR PATENT   Case No. 3:17-cv-4709
INFRINGEMENT

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San Francisco, CA 94111

LOOKSMART'S COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Looksmart Group, Inc. ("Looksmart" or "Plaintiff") hereby submits this Complaint for patent infringement against Defendant Microsoft Corporation ("Microsoft" or "Defendant").

I.   THE PARTIES

1.   Plaintiff Looksmart is a corporation organized under the laws of Nevada and licensed to do business in New York, with its principal place of business at 588 Broadway, Suite 503, New York, NY 10012.

2.   Looksmart is informed and believes, and on that basis alleges, that Defendant Microsoft Corporation is a corporation organized under the laws of Washington with its principal place of business at One Microsoft Way, Redmond, WA 98052. Upon information and belief, Microsoft has offices located at 1065 La Avenida, Mountain View, California 94043 and 555 California, Suite 200, San Francisco, California 94104. Additionally, upon information and belief, Microsoft has a data center located in Santa Clara, California. Microsoft may be served with process through its registered agent, Corporation Service Company, 2710 Gateway Oaks Dr. Ste. 150N, Sacramento, California 95833.

II.   JURISDICTION

3.   This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 101 *et seq.*

4.   This Court has personal jurisdiction over Microsoft. Microsoft has regular and established places of business in this district and regularly sells (either directly or indirectly), markets, and supports its products and services within this judicial district. Microsoft is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the California Long Arm Statute, due at least to its substantial and pervasive business in this State and judicial district, including: (i) at least part of its infringing activities alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from goods sold and services provided to California residents.

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ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT   - 1 -   Case No. 3:17-cv-4709

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III. VENUE

5.   Venue is proper in this federal district pursuant to 28 U.S.C. § 1400(b). Microsoft has regular and established places of business in this District, has committed acts of infringement in this District, and continues to commit acts of infringement in this District, entitling Looksmart to relief. For example, on information and belief, Microsoft commits acts of infringement through its data center located in Santa Clara, California.

IV.   INTRADISTRICT ASSIGNMENT

6.   Pursuant to Civil LR 3-2(c), this case should be subject to district-wide assignment because it is an Intellectual Property Action.

V.   BACKGROUND

7.   The World Wide Web ("Web") "provide[s] a universal accessible hypertext medium for sharing information on the Internet." U.S. Patent No. 7,356,530 (the "'530 Patent) at 1:37-40 (attached hereto as Ex. A). Thus, the World Wide Web is specific to the Internet because it only exists within the Internet. The Web is comprised of numerous web servers that host information that is accessible to the public via Uniform Resource Locators ("URLs"), or web addresses. *See id.* at 1:46-2:5. Each address correlates to a particular web page that can be viewed in a conventional web browser such as Internet Explorer, Google Chrome, or Microsoft Edge. *See id.* at 2:22-24. Additionally, each web page may contain links (also referred to as hyperlinks or hypertext links) to other web pages. *See id.* at 2:26-29. Users can activate (*e.g.*, click) a link to view the web page located at the URL pointed to by the link. *See id.* at 2:29-31.

8.   As of 2001, it was estimated that the Web included more than two billion publicly available web pages. *Id.* at 1:14-16. At that time, the Web was growing by an estimated seven million pages per day. *Id.* at 1:12-14. Since 2001, the Web has grown exponentially. Internet Live Stats, which is part of the Real Time Statistics Project, indicates that there are approximately 1.2 billion web sites as of June 2017. *See* http://www.internetlivestats.com/; *see also* http://www.internetlivestats.com/about/. Google, a popular search engine for the Web, indicates that the Web includes more than 130 trillion individual web pages. *See*

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT   - 2 -   Case No. 3:17-cv-4709

1   https://www.google.com/insidesearch/howsearchworks/thestory/index.html.

2   9.   The Web's growth stems, in part, from the fact that any user with access to a web

3   server can publish information on the Web. *See* '530 Patent at 1:46-50. Thus, the Web removed

4   many traditional barriers (*e.g.*, finding a publisher, printing costs) to publishing information for

5   worldwide access. The Web is also different from traditional information repositories (*e.g.*,

6   public libraries) because it lacks a central index. *See id.* at 2:15-17 ("The Web has no central

7   index to the pages, such as that contained in a public library."). Rather, the Web is a "loosely

8   linked set[ ] of pages . . . ." *Id.* at 2:4. Given the absence of a dictated structure or organization,

9   finding relevant information on the Web can be difficult. *See id.* at 2:18-20 ("Thus, the Web

10 provides little structure to support retrieval of specific information."). The explosive growth of

11 the Web only heightens this problem with information retrieval that is specific to the Web. *See*

12 *id.* at 1:17-19 ("However, because of the Web's rapid growth and lack of central organization,

13 millions of people cannot find specific information in an efficient manner.").

14 10.   In order to access information on the Web, users have several options. First, if the

15 user knows the URL of the desired page, he/she can navigate directly to the page. *See* '530

16 Patent at 2:34-35. Second, if the user knows the web site that includes the desired page, he/she

17 can navigate to the web site directly and then search the web site for the desired page. *See id.* at

18 2:35-37. Third, the user can navigate through a web directory that categorizes and subcategorizes

19 web sites. *See id.* at 2:39-60 (describing web directories); *e.g.*, http://www.dmoz.org/. Finally, a

20 user can use a search engine to search for relevant web sites based on a keyword query. *See* '530

21 Patent at 2:61-3:12 (describing web search engines). The third and fourth techniques—directory-

22 based and keyword-based search—present challenges regarding the ability of a user to find

23 information of interest in an efficient manner. *See id.* at 1:11-19.

24 11.   The vast size of the Web often means that there will be hundreds or thousands of

25 pages relevant to a user's search query. However, the average user conducting a search does not

26 have the time or willingness to review all documents matching the query. Rather, the average

27 user will typically only review one display of search results (*e.g.*, approximately ten to twenty

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ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 3 -   Case No. 3:17-cv-4709

web pages). *See id.* at 3:8-10. "Therefore it is important to present the most relevant pages to the searchers at the top of the list, say in the first twenty results." *Id.* at 3:10-12.

12.   To address the problem of overwhelming users with more search results than they can digest or review, search engines typically rank the results of a search query and present the results in order of rank, from most relevant to least relevant. *See id.* at 3:13-17. Thus, the user is able to view the most relevant results on the first page of the search results.

13.   Search engines rely on multiple factors to determine the rank of a given web page for a given query. Two factors include the content of the page and the location of that content within the page. *See id.* at 3:13-17. These factors, however, are susceptible to known spam techniques, such as repeating a keyword on a page in order to increase the rank of the page for that keyword. *See id.* at 3:17-26. Another factor that is typically considered is the number of links pointing to the web page. *See id.* at 3:27-45. More links suggest that the web page is more important than a similar page with less incoming links. Additionally, incoming links from important web pages further suggest that the linked page is also important. Thus, links—which are particular to the Web—provide additional information about a web page. *See id.* at 3:27-29 ("Unlike standard paper documents, the Web includes hypertext, which links one page to another and provides significant information through the link structure."). These content-based and link-based factors provide information about the importance of a web page. The content of a web page, which is controlled by the web page author, provides subjective information about the importance of the page. The incoming links provide a more objective indication of the importance of a web page. *See id.* at 3:31-34.

VI.   U.S. PATENT NO. 7,356,530

14.   The inventions disclosed in the '530 Patent provide "methods for retrieving relevant information from a large collection of information such as that on the Internet and in particular the World Wide Web." *Id.* at 1:4-7. These methods provide technological solutions to the Internet-centric problem of locating relevant web pages in the World Wide Web, improving the ranking and reducing the latency of results generated in response to an Internet user's query.

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See Ex. D, Declaration of Michael J. Pazzani, ¶¶ 31-44. The solutions provide improved methods for determining a given page's overall rank, *id.* ¶¶ 32-33 (combining an intrinsic "content score for the page at issue and the page weight of that page" with an extrinsic ranking); improved methods for ranking pages based on their linking pages, anchor text on the linking pages, and the page weights of the linking pages, *id.* ¶¶ 32, 34 (improving the extrinsic ranking by examining linking pages for specific content and adjusting the anchor weight by page weight); and improved methods that reduce the time required to rank results, *id.* ¶¶ 32, 35 (reducing "the time required to rank results by associating . . . ranking factors with keywords of each webpage indexed in a searchable data structure"). The claimed inventions were thoroughly examined by the United States Patent Office and found to capture multiple improvements over the examined prior art. *See id.* ¶¶ 36-44; *see also* Ex. B (prosecution history for the '530 Patent).

15.   Figure 1 of the '530 Patent (shown below) illustrates one embodiment of a search engine architecture implementing methods of the '530 Patent. The search engine includes a crawler for discovering web pages, a link extractor for identifying additional web pages to be crawled, an indexer for indexing the content of crawled web pages, an anchor text and link extractor for identifying the anchor text corresponding to extracted links, and a ranker for ranking the web pages for particular keywords. *See* Ex. D ¶ 21.

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Fig. 1

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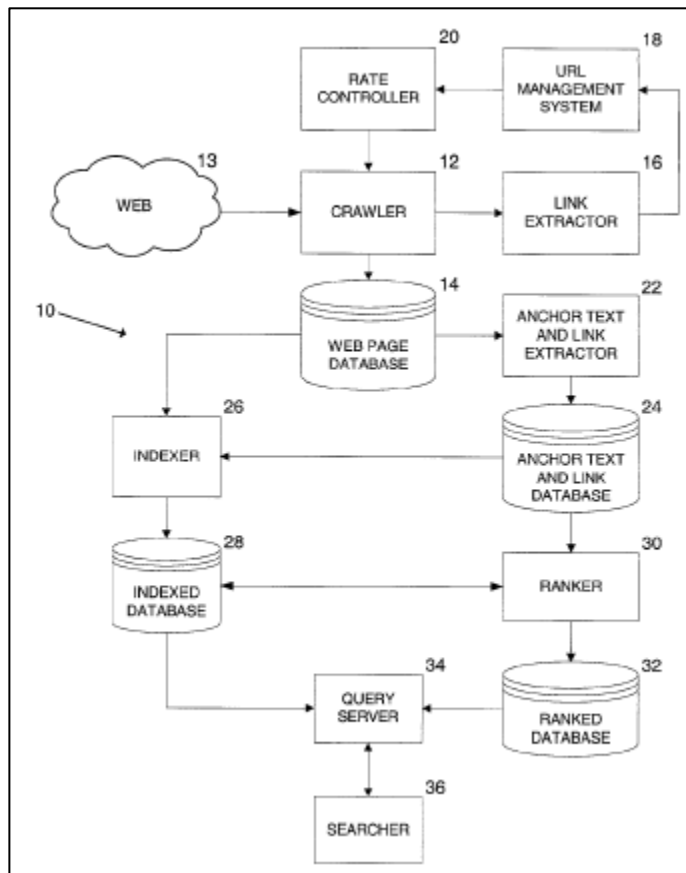
16.   For a preferred embodiment, in order to build an index of available web pages, the search engine first discovers various pages that are currently available on the Web. The crawler 12 accomplishes this by "crawling" the Web and reading the content of discovered web pages. *See* Ex. D ¶¶ 21-22. The link extractor 16 then extracts any links on those pages. *See id.* ¶¶ 22-23. The extracted links are then submitted to the crawler 12 for further discovery. *See* '530 Patent at 4:30-31, 4:45-48. The crawler stores a copy of reviewed web pages in a database 14 for further processing. *See id.* at 4:41-44; Ex. D ¶¶ 21, 23. The crawler may also periodically revisit a previously visited page to determine whether the content of that page has been updated, and if so, update its index records accordingly. *See* '530 Patent at 4:38-41, Claim 3, Claim 6.

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17.   As pages are stored in the web page database in a preferred embodiment, the anchor text and link extractor component 22 stores information about links included on a web page, such as the source web page URL, the destination web page URL, and the anchor text

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ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 6 -   Case No. 3:17-cv-4709

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(*e.g.*, "a section of text, an icon, or other element in a page that links to another page," '530 Patent at 4:63-65). *See* Ex. D ¶ 23. This information is then used by the ranker component 30 to determine the rank, or scores, for a given web page and corresponding keyword. *See id.* ¶¶ 24-28.

18.   The indexer component 26 of a preferred embodiment also processes the pages stored in the web page database by parsing the keywords of a given web page and storing that information in the indexed database 28. *See* '530 Patent at 4:65-5:1. Each keyword stored in the indexed database has a corresponding list of URLs for web pages that contain the keyword. *See id.* at 5:1-3. Thus, when search queries including a given keyword are submitted to the search engine, it can rapidly fetch the list of URLs for web pages that are relevant to that keyword. *See* Ex. D ¶¶ 28, 35.

19.   A preferred embodiment of the '530 Patent determines the rank of a given web page for a given keyword based on three different factors: (1) page weight, (2) intrinsic rank, and (3) extrinsic rank. *See* '530 Patent at 6:3-38; Ex. D ¶¶ 24, 26-28.

20.   The "[p]age weight of a page is defined as the probability for a user—who travels on the Web endlessly in a random but well-defined manner—to visit the page." '530 Patent at 7:13-15. Thus, the page weight provides a keyword-independent measure of the importance of a web page. *See id.* at 8:15-16 ("Since the page weight is the probability for a user to visit a page, it can also represent the importance of each page."); Ex. D ¶ 24.

21.   In a preferred embodiment, the intrinsic rank concerns a measure of the importance of a web page for a given keyword based, in part, on the content of the web page itself. *See* Ex. D ¶ 26. Stated differently, the intrinsic rank captures "the importance of a page for a given keyword *as claimed by the author of the page*." '530 Patent at 6:45-46 (emphasis added). In a preferred embodiment, the intrinsic rank is determined by adjusting the content score in accordance with the page weight of a given page for a given keyword or keyword combination. *See id.* at 6:55-57; *id.* at 9:24-39; Ex. D ¶¶ 24-26.

22.   In a preferred embodiment, the content score quantifies the relevance of a page's

content to a given keyword. *See* Ex. D ¶¶ 25-26. For instance, a keyword located in the title of a web page may yield a higher content score than if the keyword were only contained in the body text. *See* '530 Patent at 5:21-24. Additionally, the number of times a keyword is repeated in a given page may also impact the content score. *See id.* at 6:50-53. Finally, whether or not a keyword appears in the page's URL may also impact the content score. *See id.* at 6:63-7:10. While numerous factors can be considered in determining the content score for a page, the factors considered generally relate to the page itself rather than external commentary regarding the page (*e.g.*, links to the page). *See id.* at 6:64.

23.   In a preferred embodiment, the extrinsic rank concerns a measure of the importance of a web page for a given keyword "as indicated by other pages." '530 Patent at 8:54; *See* Ex. D ¶¶ 32-33. This ranking factor captures a more objective indication of the importance of a web page because, rather than being based on the content of the page itself, it is based on the importance and content of *other* pages that link to the given web page. *See, e.g.,* Ex. D ¶¶ 32-33 (noting that a combination of extrinsic and intrinsic rankings improves relevancy and reduces spam susceptibility over prior art techniques). The extrinsic rank is calculated in this embodiment by analyzing the anchor text for pages linking to the web page being ranked. *See id.* ¶ 27 (*e.g.*, the text, image, or other content associated with an anchor link); *see also* '530 Patent at 2:29. The anchor text for a linking page is given an anchor weight that indicates the relevance of the anchor text to the keyword. *See id.* at 8:65-9:16. In a preferred embodiment, the anchor weight is then adjusted by the page weight for the linking page, and this value is combined with the adjusted anchor weights for linking pages containing an outbound hypertext link to the selected page resulting in the extrinsic rank for the target web page for a given keyword or keyword combination. *See* '530 Patent at 8:62; *id.* at 9:40-10:25; Ex. D ¶ 34 (discussing the combination of page weight and anchor weight to improve rank relevance by adding "significant information concerning both the context of the links and the importance of the linking pages").

24.   The '530 Patent addresses problems related to web-based search that are specific to the Internet. Ex. D. ¶ 31. The Web, which is a massive body of networked linked information

ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 8 -   Case No. 3:17-cv-4709

from numerous authors and publishers, creates challenges that do not have a pre-Internet analogue. *Id.* The Web does not have a central index or card catalog for organizing information due, in part, to its fluid nature—the information available on the Web changes constantly. The '530 Patent addresses the Web-specific problem of locating relevant information in a massive, loosely linked network of information from various authors and publishers. *Id.*

25.   The '530 Patent addresses these problems and provides multiple improvements over prior systems, including providing improved relevancy rankings for web pages. *Id.* ¶ 32. These improved rankings without sacrificing speed are accomplished in ways not disclosed in the prior art. For example, the claimed inventions improve the extrinsic rankings by examining linking pages and considering both the anchor weights and page weights. Further, the anchor weight is adjusted by the page weight, providing further improvements to the extrinsic ranking. *Id.* The relevancy rankings are further improved by combining the improved extrinsic ranking with an intrinsic ranking that considers both a content score for a page and the page weight of that page, while also adjusting the content score by the page weight. The '530 Patent inventions provide these improved rankings quickly by associating the intrinsic and extrinsic ranking factors with keywords of each web page indexed in a searchable data structure. *Id.* This combination of ranking factors provides an unconventional improvement over prior systems.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 7,356,530

26.   Looksmart incorporates and re-alleges, as though fully set forth herein, the allegations contained in paragraphs 1-25 above.

27.   On April 8, 2008, United States Patent No. 7,356,530 (the '530 Patent") was duly and legally issued for inventions entitled "Systems and Methods of Retrieving Relevant Information." Looksmart was assigned the '530 Patent and continues to hold all rights and interest in the '530 Patent. Attached hereto as Exhibit A is a true and correct copy of the '530 Patent. Attached hereto as Exhibit B is a true and correct copy of the prosecution history of the '530 Patent. Attached hereto as Exhibit C is a true and correct copy of a Certificate of Correction

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1   that issued for the '530 Patent.

2   28.   The '530 Patent is valid, enforceable, and was duly issued in full compliance with

3   Title 35 of the United States Code.

4   29.   On information and belief and pursuant to 35 U.S.C. § 271(a), Microsoft has

5   directly infringed and continues to directly infringe numerous claims of the '530 Patent,

6   including at least claims 1, 6, 10, and 12, by its manufacture, use, selling, importation, and/or

7   offer for sale of Microsoft Bing technology and services (*e.g.*, as provided at

8   http://www.bing.com and http://www.msn.com). For example, Microsoft directly infringes at

9   least claim 10 of the '530 Patent as discussed below:

10   10[A] A computer-implemented method of ranking the relevancy of pages in a collection of

11   pages including linking hypertext pages, comprising:

12   30.   Insofar as the preamble is limiting, Microsoft Bing is an online search engine that

13   provides search results from the World Wide Web, which is a collection of web pages that

14   include   links   that   reference   other   web   pages   and   web   content.   *See*

15   http://help.bing.microsoft.com/#apex/18/en-us/10016/0;   '530   Patent   at   1:46-2:5,   2:22-29.

16   Further, Bing is comprised of computer-implemented methods which Microsoft "continually

17   improve[s]   .   .   .   to   provide   the   most   relevant   and   useful   results."

18   http://help.bing.microsoft.com/#apex/18/en-us/10016/0.

19   10[B] crawling the Web to produce a collection of pages without limitation to topic;

20

21   31.   Microsoft Bing utilizes "Bingbots" to crawl the World Wide Web to build an

22   index   of   new   and   updated   web   pages.   *See*   http://help.bing.microsoft.com/#apex/18/en-

23   us/10016/0 ("As an online search engine, the primary objective of Bing is to connect users with

24   the most relevant search results from the Web—providing easy access to quality content

25   produced by web publishers. To do this, Bing automatically crawls the Web to build an index of

26   new and updated pages (or URLs) to display as a set of search results relevant to a user-initiated

27   search or action."); https://www.bing.com/webmaster/help/how-to-report-an-issue-with-bingbot-

28   25c19802. Bing does not limit the topics or "control the operation or design of the indexed

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1   websites," but rather collects the information "[a]s long as the website continues to make the

2   information available." http://help.bing.microsoft.com/#apex/18/en-us/10016/0.

3   10[C] selecting words from the pages of the collection of pages without a priori knowledge

4   of keywords in a query;

5   32.   Microsoft Bing collects the text from pages crawled by the "Bingbots" to build

6   the Bing indexes in order to "match the search terms" entered by a search user.

7   http://help.bing.microsoft.com/#apex/18/en-us/10016/0; *see id.* ("Bing automatically crawls the

8   web to build an index of new and updated pages"). Bing does not have a priori knowledge of the

9   keywords that will be used to search, but rather crawls and indexes each "[Web]site in an effort

10   to   help   classify   its   content   from   an   end   user   perspective."

11   https://blogs.bing.com/webmaster/2009/05/20/put-your-keywords-where-the-emphasis-is-sem-

12   101.

13   10[D] ranking the pages in the collection of pages for the selected words by, for each of the

14   selected words with regard to each of the selected pages;

15   33.   Microsoft Bing ranks the pages that it collects using a system called Maguro. *See*

16   https://www.microsoft.com/en-us/research/wp-content/uploads/2016/12/Maguro.pdf,   p.   1.

17   Maguro computes ranking scores for the selected pages, or "documents," for each selected word,

18   or "atom." *See id.* at 1-3 (discussing the use of a "pre-computed ranking score" to rank

19   documents based on a given atom).

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     10[E] determining an intrinsic ranking factor by examining content related to the selected

21   word on the selected page to determine a content score and adjusting the content score in

22   accordance with the page weight of the selected page;

23
24   34.   Microsoft Bing indexes, scores, and ranks pages based—in part—on factors

25   intrinsic to the page, including the Website's content and the "selective placement of certain

26   words." https://blogs.bing.com/webmaster/2009/07/10/architecting-content-for-seo-sem-101; *see*

27   https://blogs.bing.com/webmaster/2009/05/20/put-your-keywords-where-the-emphasis-is-sem-

28   101 ("Your body text content is indexed just like everything else, and in the effort to determine

ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 11 -   Case No. 3:17-cv-4709

the site's theme and the relevance of your content to keywords, your body text is definitely considered within that process."). Bing also considers page weight factors of a given page to determine its quality and importance. *See* https://www.stonetemple.com/duane-forresters-5-keys-to-improving-search-rankings/ ("It's the small things that can cause erosion of confidence by a visitor to your website. The next time, they don't click on your search result . . . ."); https://blogs.bing.com/search-quality-insights/2014/12/08/the-role-of-content-quality-in-bing-ranking; '530 Patent at 8:15-16 (noting the page weight "represent[s] the importance of each page"). These page weight factors "impact[] the ranking of [Bing's] results," adjusting the content score to account for the page's importance. https://blogs.bing.com/search-quality-insights/2014/12/08/the-role-of-content-quality-in-bing-ranking.

35.   Additionally, patents assigned to Microsoft relating to document search further describe the intrinsic ranking factors and page weight adjustment techniques used by Bing. For example, U.S. Patent No. 8,805,755 ("the '755 Patent") teaches the use of intrinsic factors such as the frequency and location of certain words used within a document. *See* '755 Patent at 7:35-47. The '755 Patent also suggests the use of a "page rank" to adjust the overall ranking in conjunction with the intrinsic factors. *Id.*

10[F] determining an extrinsic ranking factor for use of the selected word on the selected page by, for each linking page in the collection of pages containing an outbound hypertext link to the selected page, examining text associated with the outbound hypertext link related to the selected word to determine an anchor weight for the linking page, adjusting the anchor weight in accordance with the page weight of the linking page and combining the adjusted anchor weights for all linking pages containing an outbound hypertext link to the selected page; and

36.   In addition to intrinsic factors, Bing also considers extrinsic factors such as incoming links in determining the rank of a page for a given search query. *See, e.g.*, https://www.stonetemple.com/duane-forresters-5-keys-to-improving-search-rankings/   (Bing's former Senior Product Manager for Webmaster Outreach explaining the importance of incoming

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1   links in determining the rank of web pages). Bing examines the text associated with a link to

2   provide   an   anchor   weight   for   the   linking   page.   *See*

3   http://blogs.bing.com/webmaster/2010/05/14/is-your-site-ranking-rank-do-a-site-review-part-2-

4   sem-101 ("[A]nchor text helps define the theme of a linked page. When you are cross-linking to

5   other pages on your site, don't waste an opportunity to associate a keyword or two with an entire

6   page."). Bing also adjusts the anchor weight based on the page weight of the linking page. *See*

7   https://blogs.bing.com/webmaster/2009/11/20/link-building-for-smart-webmasters-no-dummies-

8   here-sem-101 (explaining that the "value of [an] inbound link is significantly diminished" if the

9   linking   page   is   unimportant);   https://www.stonetemple.com/duane-forresters-5-keys-to-

10   improving-search-rankings/ (noting that the quality of incoming links from important websites—

11   such as USA Today—may be more important to Bing than the volume of incoming links).

12   Finally, Bing combines the adjusted anchor weights for these linking pages to contribute to the

13   rank the of selected page. *See, e.g.,* https://blogs.bing.com/webmaster/2009/11/20/link-building-

14   for-smart-webmasters-no-dummies-here-sem-101 ("[W]e see what is being done, the

15   relationships between linked sites, the changes to links over time, which sites link to one another,

16   and so much more, we account for these cunning behaviors in our indexing values applied to

17   those   pages.");   https://blogs.bing.com/webmaster/2010/05/14/is-your-site-ranking-rank-do-a-

18   site-review-part-2-sem-101 (instructing website owners to "drive valuable inbound links to

19   [their] site[s], which in turn will contribute to improved site ranking").

20   10[G] ranking each selected page for each selected word by combining the intrinsic and

21   extrinsic ranking factors related thereto; and

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23   37.   Each of the intrinsic and extrinsic ranking factors discussed in 10[E] and 10[F]

24   above impact the rank of a given page for a given keyword. Accordingly, the ranking factors are

25   combined   to   rank   the   page   for   that   given   keyword. *See* 10[E] and 10[F]; *see also*

26   http://blogs.bing.com/search/2012/03/05/introducing-bing-search-quality-insights (discussing the

27   "thousands of signals" Bing considers to determine the best search results).

28   10[H] creating a searchable data structure related to the pages in the collection of pages

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indexed in accordance with the selected words, each indexed word associated with pages ranked for each such indexed word so that search results provided in response to the query are already ranked in accordance with relevance to the query.

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38.   Microsoft Bing creates its own searchable data structures, indexing the collection of pages in accordance with the selected words (which it sometimes refers to as "atoms"). *See* https://blogs.bing.com/webmaster/2010/02/18/the-liability-of-loathsome-link-level-web-spam-sem-101 ("Services like Bing use their own resources to scan the Web for content and organize their findings into a useful index of the available content for users."); https://www.microsoft.com/en-us/research/wp-content/uploads/2016/12/Maguro.pdf, p. 3 ("The search index on each machine . . . is organized as a multi-level hash-based index . . . Maguro uses such a hash-based structure because efficient atom lookup is crucial to our phrase-based query formulation where a large candidate set of atoms are examined prior to selecting the subset of atoms whose posting lists need to be examined and intersected."). Microsoft Bing's "Maguro is designed to index any atom from a web page . . . to optimize the retrieval cost." https://www.microsoft.com/en-us/research/wp-content/uploads/2016/12/Maguro.pdf, p. 1. The Maguro indexing results in a "pre-computed ranking score," which Microsoft Bing then uses to provide ranked search results in accordance with the page's relevance to a query. *Id.* at 3.

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39.   Microsoft knew of the '530 Patent at least as of July 24, 2008, when it was cited in the prosecution history of a patent assigned to Microsoft. *See* File History of U.S. Patent No. 7,502,789 - 07/24/2008 Non-Final Rejection at 6 (making the '530 Patent prior art of record); *see also* File History of U.S. Patent No. 7,672,943 – 11/14/2008 Notice of References Cited. The '530 Patent has been cited in the prosecution history of at least fifteen Microsoft patents. In eleven of those cases, Microsoft identified the '530 Patent in an Information Disclosure Statement. *See* File History of U.S. Patent No. 7,792,833 – 12/12/2008 Information Disclosure Statement; File History of U.S. Patent No. 7,840,569 – 1/12/2009 Information Disclosure Statement; File History of U.S. Patent No. 9,348,912 – Information Disclosure Statement; File History of U.S. Patent No. 7,761,448 – 3/18/2009 Information Disclosure Statement; File

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History of U.S. Patent No. 7,599,917 – 3/26/2009 Information Disclosure Statement; File History of U.S. Patent No. 8,484,193 – 7/15/2009 Information Disclosure Statement; File History of U.S. Patent No. 8,082,246 – 2/4/2011 Information Disclosure Statement; File History of U.S. Patent No. 9,495,462 – 6/14/2012 Information Disclosure Statement; File History of U.S. Patent No. 8,812,493 – 6/20/2012 Information Disclosure Statement; File History of U.S. Patent No. 8,738,635 – 1/2/2014 Information Disclosure Statement; File History of U.S. Patent No. 8,843,486 – 6/3/2014 Information Disclosure Statement.

40.   During prosecution of U.S. Patent No. 7,580,945, the PTO rejected claims 12 through 20 as obvious over Dehlinger (U.S. Patent App. Pub. No. 2005/0198026) in view of the '530 Patent. *See* File History of U.S. Patent No. 7,580,945 – 3/13/2009 Non-Final Rejection at 5 (rejecting claims as obvious in view of the '530 Patent). The PTO explained that "Kim discloses the instructions for controlling a computing device to rank web pages with hyperlinks to other web pages . . . ." *Id.*

41.   During prosecution of U.S. Patent No. 8,484,193, the PTO rejected claims 12 through 20 as obvious over Dehlinger in view of the '530 Patent. *See* File History of U.S. Patent No. 8,484,193 – 5/10/2011 Non-Final Rejection at 5. The PTO relied on the '530 Patent as the basis for three additional rejections during prosecution of the patent application. *See* 11/30/2011 Final Rejection at 5; 4/24/2012 Non-Final Rejection at 5; 11/5/2012 Final Rejection at 5.

42.   During prosecution of U.S. Patent No. 8,244,737, the PTO rejected all pending claims as obvious over Preda (U.S. Patent No. 7,076,483) in view of the '530 Patent. *See* File History of U.S. Patent No. 8,244,737 – 1/22/2010 Non-Final Rejection at 2 (rejecting claims as obvious in view of the '530 Patent). In its Response, Microsoft explained the '530 Patent disclosure and the operation of the page weight reservoir discussed therein. *See* 5/19/2010 Amendment in Response to Non-Final Office Action at 8 ("Applicant respectfully disagrees that Kim suggests the use of a 'jumping vector' that is initialized based on a prior ranking of documents."); *id.* at 9 ("Kim's page weight reservoir does not represent a real page and does not have any physical characteristics."). Thus, at least as of May 19, 2010, Microsoft had studied the

ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 15 -   Case No. 3:17-cv-4709

1   '530 Patent in order to distinguish its pending claims from the material disclosed by the '530

2   Patent.

3   43.   The PTO maintained its rejection in light of the '530 Patent. *See* 7/27/2010 Final

4   Rejection at 2. On November 29, 2010, Microsoft requested continued examination of the

5   pending patent application and submitted a declaration from one of the inventors on the

6   application, Tie-Yan Liu. *See* 11/29/2010 Declaration of Tie-Yan Liu Under 37 C.F.R. § 1.132.

7   In his declaration, Dr. Liu explained that "I have thoroughly reviewed . . . U.S. Patent No.

8   7,356,530 . . . ." *Id.* ¶ 3. Dr. Liu further explained the operation of the page weight reservoir

9   described in the '530 Patent. *See id.* ¶¶5-18. Dr. Liu's declaration and analysis of the '530 Patent

10   confirms Microsoft's knowledge of the '530 Patent.

11   44.   Dr. Liu is a Principal Research Manager at Microsoft Research Asia. *See*

12   https://www.microsoft.com/en-us/research/people/tyliu/. Further, his work has been used in

13   Microsoft Bing. *See id.* ("On one hand, many of his technologies have been transferred to

14   Microsoft's products and online services, such as Bing, Microsoft Advertising, and Azure."). In

15   fact, Dr. Liu identified Harry Shum as one of three references in the resume he provided to the

16   PTO as an attachment to his declaration. *See* 11/29/2010 Declaration of Tie-Yan Liu Under 37

17   C.F.R. § 1.132 at 11. Dr. Shum "oversees AI-focused product groups—the Information Platform

18   Group, Bing, and Cortana product groups . . . ." https://news.microsoft.com/exec/harry-shum/.

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20   45.   In addition to Dr. Liu, other inventors of U.S. Patent No. 8,244,737 also have ties

21   to Microsoft Bing. For example, Hang Li worked on several Bing products. *See*

22   https://www.linkedin.com/in/hang-li-84aa6314/ ("Hang worked on the development of several

23   products such as Microsoft SQL Server 2005, Office 2007, Live Search 2008, Bing 2009, Office

24   2010, Bing 2010, Office 2012, Huawei Smartphones 2014."). Bin Gao, another inventor of the

25   '737 Patent, contributed work to Microsoft Bing. *See* https://www.linkedin.com/in/bin-gao-

26   2a27b224/ ("I contributed 10+ techniques to Microsoft Bing, BingAds, and XiaoIce.").

27   46.   Accordingly, Microsoft has had knowledge of the '530 Patent since at least July

28   24, 2008, and certainly by the filing of this complaint. Despite such knowledge, Microsoft has

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ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 16 -   Case No. 3:17-cv-4709

proceeded to infringe the '530 Patent with full and complete knowledge of its applicability to Microsoft Bing without taking a license and without a good faith belief that the '530 Patent is invalid and not infringed. Microsoft's infringement of the '530 Patent thus occurs with knowledge of the '530 Patent and has been and continues to be willful, egregious, reckless and deliberate. Thus, Microsoft's infringement of the '530 Patent is willful, entitling Looksmart to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

47.   The acts of infringement by Microsoft have caused damage to Looksmart, and Looksmart is entitled to recover from Microsoft the damages sustained by Looksmart as a result of Microsoft's wrongful acts in an amount subject to proof at trial. The infringement of Looksmart's exclusive rights under the '530 Patent by Microsoft has damaged and will continue to damage Looksmart, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, Looksmart prays for the following relief:

A.   A judgment in favor of Looksmart that Microsoft has infringed and is infringing, either literally and/or under the doctrine of equivalents, U.S. Patent No. 7,356,530;

B.   An Order permanently enjoining Microsoft, its respective officers, agents, employees, and those acting in privity with them, from further infringement of U.S. Patent No. 7,356,530;

C.   An award of damages to Looksmart arising out of Microsoft's infringement of U.S. Patent No. 7,356,530, including supplemental damages for any continuing post-verdict infringement up until entry of the final judgment, with an accounting, as needed, and enhanced damages pursuant to 35 U.S.C. § 284, together with prejudgment and post-judgment interest, in an amount according to proof;

D.   An award of an ongoing royalty for Microsoft's post-judgment infringement in an amount according to proof in the event that a permanent injunction preventing future acts of

1   infringement is not granted;

2   E.   Declaring that Microsoft's infringement is willful and that this is an exceptional

3   case under 35 U.S.C. § 285 and awarding attorneys' fees and costs in this action; and

4   F.   Granting Looksmart its costs and further relief as the Court may deem just and

5   proper.

6   Dated: August 15, 2017   Respectfully submitted,

7   */s/ Spencer Hosie*

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ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 18 -   Case No. 3:17-cv-4709

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DEMAND FOR JURY TRIAL

2   Looksmart demands a trial by jury of any and all issues triable of right before a jury.

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4   Dated: August 15, 2017   Respectfully submitted,

5   */s/ Spencer Hosie*

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14   *Attorneys for Plaintiff Looksmart Group, Inc.*

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ORIGINAL COMPLAINT FOR PATENT
INFRINGEMENT   - 19 -   Case No. 3:17-cv-4709