

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE, LLC,
Petitioner,

v.

CELLULAR SOUTH INC.,
Patent Owner.

Case IPR2025-00877
Patent 11,126,853 B2

DECLARATION OF INGRID HSIEH-YEE, PH.D.

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I, Ingrid Hsieh-Yee, declare as follows:

I. Introduction and Qualifications

1. I am over the age of eighteen and otherwise competent to make this declaration.

2. I have been retained by counsel for Petitioner to provide my expert opinion in connection with the above-captioned proceeding (“IPR”) regarding the US Patent No. 11,126,853 (“Challenged Patent”).

3. I am being compensated for my time in connection with this IPR at my current consulting rate. I am also being reimbursed for any reasonable expenses associated with my work and testimony in this investigation. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

A. Qualifications and Professional Experience

4. My complete qualifications and professional experience are described in my academic curriculum vitae (**Appendix A**). The following is a brief summary of my relevant qualifications and professional experience.

5. I was a professor in the Department of Library and Information Science at the Catholic University of America for 32 years and was conferred the title of Professor Emerita in December 2022. I have experience working in an academic library, a medical library, and a legislative library. I hold a Ph.D. and a Masters in

Library and Information Studies from the University of Wisconsin-Madison.

6. I am an expert on library cataloging and classification and have published two editions on this subject, *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide* (2000 and 2006). I taught a variety of courses, including Cataloging and Classification, Advanced Cataloging and Classification, Organization of Internet Resources, Organization of Information, Metadata, Digital Content Creation and Management, Internet Searches and Web Design, Information Literacy Instruction, Advanced Information Retrieval and Analysis Strategies, and The Information Professions in Society. I am familiar with metadata schema design and implementation. In my teaching, I covered the design and implementation of metadata in databases, search engines, digital repositories, digital libraries, and digital archives. I also covered how information organization affects the discovery and access to digital resources on the Internet. My research interests cover cataloging and classification, information organization, metadata, information retrieval, information architecture, digital collections, scholarly communication, social media, user interaction with information systems, and others

II. Background of Library Cataloging

A. Machine-Readable Cataloging (“MARC”)

7. I am very familiar with a library cataloging encoding standard known as the “Machine-Readable Cataloging” standard, also known as “MARC,” which

became the national standard for sharing bibliographic data in the United States by 1971 and the international standard by 1973. MARC is the primary communications protocol for the transfer and storage of bibliographic metadata in libraries. Experts in my field reasonably rely upon MARC records when forming their opinions.

8. A MARC record consists of several fields, each of which contains specific data about the work. Each field is identified by a standardized, unique, three-digit code corresponding to the type of data that follows. **Appendix B** is a true and correct copy of Parts VII to X of “Understanding MARC Bibliographic: Machine-Readable Cataloging” (<https://www.loc.gov/marc/umb/um07to10.html>), a brief description and tutorial published by the Library of Congress in 2009 that explains commonly used MARC fields. For example, the personal author of a work is recorded in Field 100, the title is recorded in Field 245, publisher information is recorded in Field 260, the physical volume and characteristics of a publication are recorded in Field 300, and topical subjects are recorded in Fields 650. More details of MARC21 format for Bibliographic Data are available on the Library of Congress website at <https://www.loc.gov/marc/bibliographic/>.

9. I am very familiar with library cataloging and processing practices and the relationships between OCLC (Online Computer Library Center) and library catalogs, and how libraries create and share their records to help the public discover and access information.

10. OCLC is the largest bibliographic network of the world, and its WorldCat database contains more than 559 million records from thousands of member institutions (many of which are libraries of some type) in more than 100 countries. OCLC was founded in 1967 to promote and support library cooperation. According to the third article of the “Amended Articles of Incorporation of OCLC [Online Computer Library Center], Inc.,” OCLC was created “to establish, maintain, and operate a computerized library network and to promote the evolution of library use, of libraries themselves, and of librarianship, and to provide processes and products for the benefit of library users and libraries, including such objectives as increasing availability of library resources to individual library patrons and reducing the rate of rise of library per-unit costs, all for the fundamental public purpose of furthering ease of access to and use of the ever-expanding body of worldwide scientific, literary, and educational knowledge and information” (source: <https://www.oclc.org/content/dam/oclc/membership/articles-of-incorporation.pdf>).

11. OCLC members can contribute original cataloging records in MARC to the system or derive cataloging records from existing records, an activity referred to as “copy cataloging.” When an OCLC participating institution acquires a work, it can create an original MARC record for the work in OCLC’s WorldShare system (a system for catalogers to create and share MARC records), and the system will automatically generate a code for the date of record creation in the yymmdd format,

and the creating library's OCLC symbol is recorded in subfield "a" of the 040 field. Once the MARC record is in WorldShare, the record is stored in the OCLC WorldCat database and becomes available to other OCLC members for adoption to their local online catalogs (*i.e.*, copy cataloging). "WorldCat is the world's most comprehensive database of information about library collections" (source: WorldCat, <https://www.oclc.org/en/worldcat.html>).

12. After a MARC record is created in Connexion, it also becomes searchable and viewable on WorldCat.org, which is a free web portal for users to explore more than 10,000 libraries worldwide. Records in WorldCat.org, however, are not presented in MARC fields. Instead, the data elements are labeled to help users interpret the records. Thus, the information stored in MARC records in Connexion is available to the interested public through the user-friendly WorldCat web portal.

B. Library Online Catalogs

13. Library online catalogs gained acceptance in the early 1980s and many libraries migrated their systems to the World Wide Web in the mid-1990s. Library online catalogs are based on MARC records that represent their collections in order to help the public understand what materials are publicly accessible in those libraries. Most libraries with online catalogs have made their catalogs freely available on the Web. These online catalogs offer user-friendly search interfaces. Strong user interest in keyword searches and the popularity of Google have led to the "googlization" of

library search systems. As a result, many library catalogs nowadays provide a single search box for users to conduct keyword searches, with additional support for searches by author, title, subject terms, and other data elements such as ISBN (International Standard Book Number). Library catalogs these days also offer features for users to narrow their search results by language, year, format, and other elements. Many libraries display MARC records on their online catalogs with labels for the data elements to help the public interpret MARC records. Many libraries also offer the option to display MARC records in MARC fields.

14. Libraries create MARC records for works they acquire, including books, serials, motion pictures, and publications in other formats. Monograph cataloging is fairly common in libraries, and most libraries make a newly cataloged monograph available to the public soon after the cataloging work is completed, usually within a week. Libraries can create original cataloging records or use an existing record in the OCLC WorldCat database to create a copy cataloging record. As soon as the cataloging record is completed, it is added to the library's online catalog for users. If the record is an original record, it is also entered into the OCLC system. If it is a copy cataloging record, the library's holding symbol is attached to the existing original record in the OCLC system to facilitate searching and interlibrary loan.

15. The cataloging of serials and the serial check-in process are discussed

here to show how libraries usually provide access to newly received serial issues. According to the glossary of the *RDA: Resource Description and Access* cataloging standard, a serial is “a mode of issuance of a manifestation issued in successive parts, usually bearing numbering, that has no predetermined conclusion. A serial includes a periodical, monographic series, newspaper, etc.” (RDA Glossary at https://original.rdatoolkit.org/rdagloss_rdaregistry.info-termList-ModelIssue-1003_1.html (subscription required for access); cited in <https://www.ccslib.org/Catalogers/index.php/Category:Serials>). Because the publisher of a serial makes new issues of the serial available successively, a customary cataloging practice is to create one bibliographic record for the entire serial, and the serial record (encoded in MARC) typically provides information on the beginning date and frequency of the serial, not the dates of individual issues. In other words, libraries typically do not create MARC records for individual issues of a serial. Instead, they rely on a serial check-in system to track the receipt of new issues. A common check-in practice is to date stamp a new issue when it arrives. This practice has become automated since the late 1990s, and libraries now vary in how they share the receipt date of a new serial issue with the public. Some libraries use a date stamp, some affix a label to indicate the receipt date, some pencil in the receipt date, and some do not provide the information to the public.

16. The serial check-in process usually takes less than an hour, and one of

the steps involves placing a date stamp on the new issue to document the date the issue is checked in. After that, the holdings information of the serial is updated in the library's catalog so that users know which issues are available for request or access. After serial check-in is completed, the new issue is placed on the shelf with the previous issues of the serial. Libraries with a public periodical room typically place new issues in the periodical room for easy user access. Because information presented in serials often reflects latest discovery, a general practice of libraries is to make new issues of serials available for user access soon after they are checked in, usually within a week.

17. I am personally familiar with many online catalogs, databases, and search engines. In preparing for this declaration, I used the following authoritative information systems to search for records:

- Google Scholar (<https://scholar.google.com/>)
- IEEE Xplore (<https://ieeexplore.ieee.org/Xplore/home.jsp>)
- Internet Archive (<https://archive.org/>)
- Libraries.org, a directory of libraries throughout the world (<https://librarytechnology.org/libraries/>)
- Online catalog of the Library of Congress (<https://catalog.loc.gov/>)
- Online catalog of the Linda Hall Library (https://catalog.lindahall.org/discovery/search?vid=01LINDAHALL_I

[NST:LHL](#))

- Online catalog of the University of New Orleans Library
(https://uno.ent.sirsi.net/client/en_US/uno)
- Public catalog of the US Copyright Office
(<https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=First>)
- WorldCat.org (<https://search.worldcat.org/>)

C. Scope of this Declaration

18. I have been asked to offer an opinion on the public availability date of the following documents:

- (1) Kouzani, A. Z., He, F., & Sammut, K. (1997, October). Fractal face representation and recognition, in *1997 IEEE International Conference on Systems, Man, and Cybernetics. Computational Cybernetics and Simulation* (Vol. 2, pp. 1609-1613), **EX1006** (“Kouzani”);
- (2) Yang, M. H., Kriegman, D. J., & Ahuja, N. (2002, January). Detecting faces in images: A survey. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 24(1), 34-58, **EX1007** (“Yang”);
- (3) Romdhani, S., Blanz, V., & Vetter, T. (2002, May). Face identification by fitting a 3d morphable model using linear shape and texture error functions, in *Computer Vision—ECCV 2002: 7th European Conference*

on Computer Vision Copenhagen, Denmark, May 28–31, 2002 Proceedings, Part IV, pp. 3-19. Springer Berlin Heidelberg, **EX1008** (“Romdhani”);

(4) Lubbers, P., Albers, B., & Salim, F. (2010). *Pro HTML5 Programming: Powerful APIs for Richer Internet Application Development*. New York: Apress ; Springer, **EX1011** (“Lubbers”);

(5) Van Vliet, J., & Paganelli, F. (2011). *Programming Amazon EC2*. 1st ed. Sebastopol, Calif. : O'Reilly, **EX1013** (“Van Vliet”)

(6) Tang, X., & Qu, C. (2010). Facial image recognition based on fractal image encoding. *Bell Labs Technical Journal*, 15(1), 209-214, **EX1014** (“Tang”).

19. I am informed by counsel and. Understand that a given reference is “published” upon a satisfactory showing that such a document has been disseminated or otherwise made publicly available to the extent that persons interested and ordinarily skilled in the subject matter or art could locate it exercising reasonable diligence and obtain the document. I have also been informed by counsel and understand that materials available in a library constitute “printed publications” if they are catalogued and indexed according to general library practices and protocols that make the references available and accessible to members of the interested public.

20. I have been informed by counsel that the Challenged Patent claims June

29, 2016, as its earliest priority date. I have assessed public accessibility of the documents referenced below as of this claimed priority date.

21. I have been informed by counsel that the subject matter of this proceeding generally relates to processing and/or analyzing multimedia content, such as audio, video, or image data.

22. I have been informed by counsel that a “person of ordinary skill in the art at the time of the invention” (POSA) is a hypothetical person who is presumed to be familiar with the relevant field and its literature at the time of the inventions. I have been informed by counsel that this hypothetical person is also a person of ordinary creativity, capable of understanding the scientific principles and literature applicable to the pertinent field.

23. I have been informed by counsel that a person of ordinary skill in the art as of June 29, 2016, would have knowledge of the scientific literature and have skills relating to processing and/or analyzing multimedia content, such as audio, video, or image data. A person of ordinary skill would have possessed a bachelor’s degree in electrical engineering, computer science, or similar field, with at least two years of experience in developing and implementing computer software for processing and/or analyzing multimedia content, such as audio, video, or image data. A person could also have qualified as a person of ordinary skill in the art with some combination of (1) more formal education (such as a master’s of science degree) and

less technical experience, or (2) less formal education and more technical or professional experience.

24. It is my opinion that such a person would have been actively engaged in learning about the field, possibly through formal instruction and through bibliographic resources. By at least June 29, 2016, such a person would have had access to a vast array of print and electronic resources, including at least the documents referenced below.

D. Evidence Considered in Forming My Opinions

25. In the preparation of this declaration, I have reviewed **EX1006-EX1008, EX1011, EX1013, and EX1014** referenced in paragraph 18 above, and any other documents I reference herein. Each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions. I provided a further description of materials I considered in **Appendix C**.

III. Authenticity and Public Availability of *Kouzani* (EX1006)

A. Authentication

26. **EX1006** is a true and correct copy of “Fractal face representation and recognition,” (“*Kouzani*”), by A. Z. Kouzani, F. He, K. Sammut, in *1997 IEEE International Conference on Systems, Man, and Cybernetics. Computational Cybernetics and Simulation*, vol. 2, pp. 1609-1613, that I obtained from the Library of Congress (“LC”). When I began researching *Kouzani*, I searched WorldCat for

records and found a record for this article at <https://search.worldcat.org/title/202959300> that showed LC was one of the holding libraries. After verifying the holdings information in the online catalog of LC, I obtained a copy of *Kouzani* through a document vendor. This copy is presented as **EX1006** in this declaration.

27. Page 1 of **EX1006** is a bound volume identified as “IEEE International Conference on Systems, Man, and Cybernetics Proceedings” that has a call number of “Q300 .I485a Vol. 2 1997.” Page 2 is the title page that shows this publication has a title of “SMC ’97 Conference Proceedings” and is the *1997 IEEE International Conference on Systems, Man, and Cybernetics* that has a conference theme of “Computational Cybernetics and Simulation.” This page shows the conference dates, location, and sponsor, and also shows this work is “Volume 2 of 5” and has a number of “97CH36088-5.” Page 3 is conference organization page that shows a library stamp of “Copyright Office JUN2 1997 Library of Congress.” Page 4 is the copyright page that shows this work has a 1997 copyright date and the Institute of Electrical and Electronics Engineers, Inc. holds the copyright. This page shows the IEEE catalog number, ISBNs (International Standard Book Numbers) for the softbound, casebound, and microfiche versions of this work, and an ISSN (International Standard Serial Number) of “1062-922X” for the conference series. The top of the page shows a hand-written call number of “Q300 .I485a vol. 2, 1997.” Pages 5 and 6

are selected pages from the table of content that show *Kouzani* is included in the session entitled “TA6: Gestures, Speech, and Face Processing II” and begins on internal page 1609. Page 7 to 11 (internal pages 1609 to 1613) are the full text of *Kouzani*. Internal page 1609 shows the title, authors, abstract, and “0-7803-4053-1” as the ISBN of the volume that contains *Kouzani*. **EX1006** shows *Kouzani* has a total of five pages, including one equation, seven figures and 13 references.

28. To authenticate **EX1006**, I obtained a copy of *Kouzani* from the publisher. **EX1006A** is a true and correct copy from IEEE. I have closely compared **EX1006** with this IEEE copy and found them to contain the same content for *Kouzani*.

29. **EX1006** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. Furthermore, **EX1006** is scanned from a copy held by the Library of Congress and has the same content as the publisher copy (**EX1006A**). Based on my review and analysis, it is my opinion that **EX1006** is authentic.

B. Records of Library of Congress

30. Libraries can choose to catalog conference proceedings as books or series. The benefit of a serial treatment is that the newly received conference proceedings will go through the serial check-in process and usually become publicly

accessible within a week after serial check-in. To determine the public availability date of *Kouzani*, I searched the online catalog of LC and discovered the library catalogs conference proceedings of IEEE International Conference on Systems, Man, and Cybernetics (“ICSMC”) as a serial. **EX1006B** is a true and correct copy of the bibliographic and MARC records for the serial containing *Kouzani*. I personally located, identified, and obtained these records. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

31. Pages 1 to 3 of **EX1006B** are the bibliographic record that shows the conference name as the corporate author, and “Conference proceedings” as the main title. It includes publisher and the serial starting date (“1989”), current frequency, and ISSN (“1062-922X”). The record also includes a note that proceedings for “1989, 1991-1992, 1995, are cataloged as monographs in LC,” subject headings, classification , and other details.

32. Pages 4 to 6 are the MARC record. The first six digits of Field 008 show the MARC record was created on “900504” (*i.e.*, May 4, 1990), and the code of “d198919uu” following the record creation date indicates the serial began publication in 1989 and has concluded. Subfield ”a” of Field 040 shows IWA created the original record, and subject “d” shows DLC modified the original record later. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), IWA is the OCLC library symbol for Iowa State University, and DLC is the OCLC

library symbol for the Library of Congress. Field 008 and 040 inform my opinion that the Library of Congress used an original record created by the Iowa State University Library in 1990 to create their copy cataloging record. Since **EX1006** shows a date stamp of “JUN 2 1997,” it is my opinion that this serial became discoverable at the online catalog of the Library of Congress by at least June 2 1997. After processing, the 1997 conference proceedings that contains *Kouzani* would become publicly available by June 9, 1997, at this library.

33. Field 022 shows the ISSN of this serial. Field 111 shows “IEEE International Conference on Systems, Man, and Cybernetics” as the author of this serial. Field 245 shows the title, and Field 246 shows a variant title. Field 260 shows IEEE of New York, NY has published this journal since 1989. Field 362 shows the serial began publication in 1989, and Field 310 shows the publication frequency is annual. Field 550 shows the conference sponsor. Field 710 shows the sponsor is included in the MARC record to help users discover this serial.

34. The subjects of this journal are represented in Field 050 by a Library of Congress Classification (LCC) number of “Q300” that represents periodicals on “Cybernetics” (source: Library of Congress Classification, Schedule Q, at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2020TEXT.pdf); in Fields 650 by four Library of Congress subject headings with “Cybernetics,” “Systems engineering,” “Human-machine systems,” and “Technology and state” as the main

topics, each followed by “Congresses” as a form subheading encoded in subfield “v” (“|v”) to indicate the main topics are treated in at a conference. These subject representations enable users to conduct subject searches to discover the serial that contains *Kouzani*.

35. This MARC record (**EX1006B**) shows that *Conference Proceedings / IEEE International Conference on Systems, Man, and Cybernetics* is a long-running serial and the MARC record makes it discoverable. The date stamp of “JUN 2 1997” on **EX1006** informs my opinion that this serial was discoverable in the online catalog of the Library of Congress by at least by that date. By June 2, 1997, interested users would be able to discover this serial by its ISSN, title, variant title, and conference sponsor. They would also be able to conduct subject searches to discover this journal. As discussed above, a customary library practice is to place a newly received journal issue through the serial check-in process to document its receipt, and the new issue is usually processed promptly to make it publicly accessible, usually within a week after serial check-in is completed. It is therefore my opinion that the issue containing *Kouzani* became publicly accessible at the Library of Congress by June 9, 1997.

36. As evidence that the Library of Congress had an online catalog in operation in 1997 when the journal issue containing *Kouzani* was received, I obtained a copy of “LOCIS: Library of Congress Information System” archived by Internet Archive. I personally located, identified, and obtained this profile. This is the type of

record experts in my field would reasonably rely upon when forming their opinions. This archived copy is presented as **EX1006C** in this declaration.

37. Page 1 is a screen capture of a Wayback Machine calendar that shows this webpage was archived 75 times between 1997 and 2021, and this particular copy was archived on “May 24 1997” and available at <https://web.archive.org/web/19970524160715/http://library.usask.ca/hytelnet/us3/us373.html>. Page 2 is a PDF of the archived webpage that shows that by May 1997 interested users would be able to telnet into the Library of Congress Information System. Telnet is a network protocol that supports users to access remote systems on the Internet or other local area networks (source: Telnet at <https://en.wikipedia.org/wiki/Telnet>). **EX1006C** confirms that by May 1997 interested users were able to log into the Library of Congress online catalog on the Internet.

C. Records of Princeton University Library

38. My research on WorldCat.org discovered that some libraries cataloged the proceedings of the 1997 IEEE International Conference on Systems, Man and Cybernetics as a book. **EX1006D** is a true and correct copy of the bibliographic and MARC records for 1997 IEEE International Conference on Systems, Man and Cybernetics that I obtained from the library online catalog of the Princeton University. I personally located, identified, and obtained these records. They are the

type of record experts in my field would reasonably rely upon when forming their opinions.

39. Page 1 and 2 are the bibliographic record that shows the title, the name of the 1997 conference, the format (“Book”), publisher and publication date, a note on the IEEE catalog number, and ISBNs. These details match the information presented in **EX1006**, confirming this record is for the conference proceedings that contains *Kouzani*.

40. Page 3 is the MARC record. The first six digits of Field 008 shows the record was created on “971125” (*i.e.*, November 25, 1997) and subfields “a” and “c” of Field 040 show “NjP” created the original record and entered it into the OCLC WorldCat database. According to MARC Code List for Organizations (<https://www.loc.gov/marc/organizations/org-search.php>), “NjP” is the MARC code for Princeton University. Fields 008 and 040 inform my opinion that the Princeton University Library cataloged “1997 IEEE International Conference on Systems, Man and Cybernetics” as a book and created an original record for this work on November 25, 1997, making this work discoverable in their online catalog from that date on. As discussed above, a customary library practice is to process a newly cataloged monograph promptly for public access, usually within a week after the cataloging work is completed. It is therefore my opinion that, after process, the work would become publicly available at this library by December 2, 1997.

41. Fields 020 show the ISBNs, Field 111 shows the conference as the author of this work, Fields 246 show two variant titles, Field 260 shows IEEE published this work with a 1997 copyright date, and Field 300 shows this work has five volumes. Field 500 shows the IEEE catalog number for this work.

42. The subjects of this work are represented in Field 050 by “TA168” that represents “Systems engineering” (source: Library of Congress Classification Schedule T at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf); and in Fields 650 by three Library of Congress subject headings, with “System engineering,” “Cybernetics,” and “Technology and state” as the main topics, each followed by “Congresses” as a form heading encoded in subfield “v” to show the main topics are treated at a conference. These subject representations enable users to conduct subject searches to find this work that contains *Kouzani*.

43. The Princeton MARC record (**EX1006D**) cataloged *1997 IEEE International Conference on Systems, Man and Cybernetics* that contains *Kouzani* as a book and completed their MARC record on November 25, 1997, making this work discoverable in their online catalog from that date on. As of November 25, 1997, interested users could discover this work by the ISBNs, conference name, title, and variant titles. They could also conduct subject searches to discover this work.

44. As evidence that the Princeton University Library had an online catalog

in operation in 1997 when the conference proceedings containing *Kouzani* became discoverable, I obtained a profile of this library system from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this record from <https://librarytechnology.org/library/2168>. This is the type of record experts in my field would reasonably rely upon when forming their opinions. This library profile is presented as **EX1006E** in this declaration.

45. The Technology Profile on page 2 shows that this library began using NOTIS as their online catalog in 1991 and migrated to Voyager in 2000. These dates mean that in 1997 interested users could be able to use NOTIS to search for the conference proceedings containing *Kouzani*.

D. IEEE Record

46. **EX1006F** is a true and correct copy of a metadata record for *Kouzani*. I personally located, identified, and obtained this record from IEEE Xplore. This is the type of record experts in my field would reasonably rely upon when forming their opinions. I used screen captures to produce this exhibit.

47. Page 1 shows the title, authors, publisher, and abstract of this article. It also shows that *Kouzani* was published in *1997 IEEE International Conference on Systems, Man, and Cybernetics*, whose ISBN is “0-7803-4053-1.” The “Date Added to IEEE Xplore” field shows this metadata record was added to IEEE Xplore on “06 August 2002.” Since IEEE Xplore is freely available to the public for searching, this

date means that as of August 6, 2002, interested users would be able to discover the metadata record for *Kouzani* on IEEE Xplore. Interested users affiliated with institutional subscribers to IEEE Xplore would be able to access the full text of this paper free of charge, and those without such affiliations could purchase the article from IEEE.

E. Usage Records

48. Usage of a publication is shown by other publications that made reference to it. I have reviewed citations to *Kouzani* on Google Scholar to compile a list of citations. **EX1006G** is a list of citations from 1999 to 2007, and it shows the earliest citation appeared in March 1999.

F. Summary of My Opinion on *Kouzani*

49. **EX1006** is authentic because it contains no signs to raise suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. In addition, this copy is held by LC and has the same content for *Kouzani* as the IEEE copy (**EX1006A**).

50. LC cataloged “IEEE International Conference on Systems, Man, and Cybernetics” as a serial, and their MARC record (**EX1006B**) has made this serial discoverable in the library’s catalog. The date stamp on the Library of Congress copy of *Kouzani* (**EX1006**) shows the library received the 1997 proceedings containing *Kouzani* on June 2, 1997. It is therefore my opinion that this serial became

discoverable at LC by at least that date, and the physical copy of this work, after processing, would become publicly accessible at the Library of Congress by June 9, 1997.

51. Princeton University Library cataloged “1997 IEEE International Conference on Systems, Man, and Cybernetics” as a book (**EX1006D**) and completed their original MARC record on November 25, 1997, making this work discoverable at their online catalog from that date on. The physical copy, after processing, would become publicly available by December 2, 1997.

52. Citation history shows the earliest citation to *Kouzani* appeared in March 1999 (**EX1006G**). IEEE Xplore shows *Kouzani* was indexed and became discoverable in this system on August 6, 2002 (**EX1006F**), making the metadata record for *Kouzani* discoverable by the interested public. Interested users could use the record to access the full article free of charge or purchase the article from IEEE.

53. Based on the records and documents I have reviewed, it is my opinion that the conference proceedings that contains *Kouzani* became publicly accessible at LC by June 9, 1997. This work became publicly discoverable in the online catalog of the Princeton University Library on November 25, 1997, and the physical copy, after processing, became publicly available by December 2, 1997. *Kouzani* became discoverable and accessible on IEEE Xplore on August 6, 2002.

IV. Authenticity and Public Availability of *Yang* (EX1007)

A. Authentication

54. **EX1007** is a true and correct copy of “Detecting faces in images: A survey,” (“*Yang*”), by M. H. Yang, D. J. Kriegman, and N. Ahuja, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 24(1), 34-58, that I obtained from the Library of Congress. When I began researching *Yang*, I searched WorldCat for records and found a record for this article at <https://search.worldcat.org/title/4798836917> that showed the Library of Congress was one of the holding libraries. After verifying the holdings information in the online catalog of the Library of Congress, I obtained a copy of *Yang* through a document vendor. This copy is presented as **EX1007** in this declaration.

55. Page 1 of **EX1007** is a bound volume identified as “IEEE Transactions on Pattern Analysis and Machine Intelligence, 24 JAN-JUNE 2002,” that has a call number of “Q327 .I19.” Page 2 is the issue cover that shows this copy is from vol. 24, no. 1 of *IEEE Transactions on Pattern Analysis and Machine Intelligence*, which is a publication of the IEEE Computer Society, whose ISSN is 0162-8828 and CODEN (a six-character alphanumeric code that uniquely identifies a journal and other serial publications) is “ITPIDJ.” The cover shows this issue has a “January 2002” issue date. It also displays a table of contents that shows *Yang* begins on page 34. Page 3 is the copyright page that shows this journal is published monthly the

Institute of Electrical and Electronics Engineers, Inc. (“IEEE”) and this issue has a 2002 copyright date and IEEE holds the copyright date. This page carries a library date stamp of “Library of Congress MAR 04 2002 Copyright Office.” Page 4 to 28 (internal pages 34 to 58) is the full article of *Yang*. Internal page 34 shows the title, authors, abstract, index terms, and “0162-8828” as the journal that publishes *Yang*. This page also shows the manuscript was received on May 5, 2000 and accepted on March 7, 2001, and the article has a 2002 copyright date with IEEE as the copyright holder. **EX1007** shows *Yang* has a total of 25 pages, including four tables, 16 figures, and 181 references.

56. To authenticate **EX1007**, I obtained a copy of *Yang* from the publisher. **EX1007A** is a true and correct copy from IEEE. I have closely compared **EX1007** with this IEEE copy and found them to contain the same content for *Yang*.

57. **EX1007** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. Furthermore, **EX1007** is scanned from a copy held by the Library of Congress and has the same content as the IEEE copy (**EX1007A**). Based on my review and analysis, it is my opinion that **EX1007** is authentic.

B. Records of Library of Congress

58. To determine the public availability date of *Yang*, I obtained records for

the journal containing *Yang* from the online catalog of the Library of Congress. **EX1007B** is a true and correct copy of the bibliographic and MARC serial records for *IEEE Transactions on Pattern Analysis and Machine Intelligence*. I personally located, identified, and obtained these records. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

59. Pages 1 to 4 of **EX1007B** are the bibliographic record that shows the journal title, publisher, current publication frequency, and ISSN. These details match the information presented in **EX1007**, confirming this serial record represents the journal containing *Yang*. The bibliographic record also includes variant titles, subject headings, classification numbers, and Library of Congress catalog number.

60. The Item Availability area on pages 3 and 4 shows Library of Congress has two copies of this journal, the journal call number is “Q327 .I19,” users can request access at the Jefferson or Adams Building Reading Rooms, and the status of the issues is “Not Charged” (meaning available for user request).

61. Pages 5 to 8 are the MARC record. The first six digits of Field 008 show the MARC serial record was created on “780926” (*i.e.*, September 26, 1978), and the code of “c19799999” following the record creation date indicates the journal is a continuing resource that began publication in 1979 and has no predetermined conclusion date. Subfields “a” and “c” of Field 040 shows NSD (the National Serial Data Program) created the original serial record, and subfield “d” shows “DLC”

(Library of Congress) modified the original record later.

62. Field 022 shows the ISSN and Field 030 shows the CODEN of this journal. Field 245 shows the title, and Fields 246 show three variant titles are included to help users discover this journal. Field 260 shows the publisher information. Field 362 shows the journal began in January 1979, and Field 310 shows the publication frequency since 1989 has been “Monthly.” Fields 710 show IEEE and the IEEE Computer Society are included to help users discover this journal.

63. The subjects of this journal are represented in Field 050 by a Library of Congress Classification (LCC) number of “Q327” that represents “Perception theory” (source: Library of Congress Classification, Schedule Q at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2020TEXT.pdf). Subjects are also represented in Fields 650 by three Library of Congress subject headings with “Pattern perception,” “Pattern recognition systems,” and “Artificial intelligence” as the main topics, each followed by “Periodicals” as a form subheading encoded in subfield “v” (“|v”) to indicate the main topics are treated in a journal. These subject representations enable users to conduct subject searches to discover the journal that contains *Yang*.

64. This MARC record (**EX1007B**) shows that *IEEE Transactions on Pattern Analysis and Machine Intelligence* is a long-running journal and the MARC record makes this journal discoverable. The date stamp of “MAR 04 2002” on

EX1007 informs my opinion that this journal was discoverable in the online catalog of the Library of Congress by at least by that date. By March 4, 2002, interested users would be able to discover this journal by its ISSN, CODEN, title, variant titles, and publishers. They would also be able to conduct subject searches to discover this journal.

65. The “Mar 04 2002” date stamp on **EX1007** shows the Library of Congress received the issue containing *Yang* on March 4, 2002. As discussed above, a customary library practice is to place a newly received journal issue through the serial check-in process to document its receipt, and the new issue is usually processed promptly to make it publicly accessible, usually within a week after serial check-in is completed. It is therefore my opinion that the issue containing *Yang* became publicly accessible at the Library of Congress by March 11, 2002.

66. As evidence that the Library of Congress had an online catalog in operation in 2002 when the library received the journal issue containing *Yang*, I obtained a profile of the library at <https://librarytechnology.org/library/2263> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of record experts in my field would reasonably rely upon when forming their opinions. This profile is presented as **EX1007C** in this declaration.

67. The Technology Profile on page 2 of **EX1007C** shows the Library of

Congress began using Voyager as their online catalog in 1998, and changed to Folio – EBSCO Information in 2023. These dates mean that in 2002 interested users were able to use the Voyager system to search for the journal containing *Yang* and access this article at the Library of Congress.

C. Internet Archive Record

68. To determine when *Yang* became publicly available on the Internet, I obtained a record of the journal issue containing *Yang* from the Internet Archive. **EX1007D** is a true and correct copy of the webpage of *IEEE Transactions on Pattern Analysis and Machine Intelligence*, January 2002 (Vol. 24, No. 1). I personally located, identified, and obtained this record. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

69. Page 1 of **EX1007D** is a screen capture of a Wayback Machine calendar that shows this webpage was archived 12 times between 2002 and 2004, and this particular copy was archived on “MAR 02 2002” and available at <https://web.archive.org/web/20020302204214/http://computer.org/tpami/tp2002/iltoc.htm>. Page 2 is a PDF of this archived copy that shows “Detecting Faces in Images: A Survey” was published in vol. 24, no. 1 (January 2002), and by the March 2, 2002 archive date, interested users could view the abstract free of charge or purchase the article online. A note at the bottom explains that “[t]he full text of IEEE Transactions on Pattern Analysis and Machine Intelligence is available to members of the IEEE

Computer Society who have an online subscription and a web-account” and a note below the issue number states that members can download the complete issue.

D. Copyright Record

70. **EX1007E** is a true and correct copy of the copyright registration record for *IEEE Transactions on Pattern Analysis and Machine Intelligence* that contains *Yang*. I personally located, identified, and obtained this record from the public catalog of the US Copyright Office. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

71. The title, imprint, ISSN, and copyright claimant match the information presented in **EX1007** and **EX1007B**, confirming this record represents the journal that contains *Yang*. The “Issues Registered” field shows vol. 24, no. 1 has a publication date of “2001-12-20” (*i.e.*, December 20, 2001). This date aligns well with the date stamp date in **EX1007** that shows the Library of Congress received the journal issue containing *Yang* on March 4, 2002. It also aligns well with **EX1007D** that shows the webpage for vol. 24, no. 1 was archived on March 2, 2002.

E. Usage Record

72. Usage of a publication is reflected by other publications that make reference to it. I have reviewed citation history of *Yang* on Google Scholar. **EX1007F** is a list of five 2002 citations I compiled to show early usage. The list shows the earliest citation to *Yang*.

F. Summary of My Opinion on *Yang*

73. **EX1007** is authentic because it contains no signs to raise suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. In addition, this copy is from an issue held by the Library of Congress, and has the same content as the publisher copy (**EX1007A**).

74. The copyright registration record for the journal containing *Yang* shows vol. 24, no. 1 was published on December 20, 2001 (**EX1007E**). The MARC serial record of the Library of Congress (**EX1007B**) the journal containing *Yang* became discoverable at the Library of Congress by at least March 4, 2002, and the physical copy of the issue containing *Yang*, after processing, would become publicly accessible at the Library of Congress by March 11, 2002.

75. **EX1007D** shows the webpage of vol. 24, no. 1 of *IEEE Transactions on Pattern Analysis and Machine Intelligence* was archived on March 2, 2002, making *Yang* publicly discoverable on the Internet by at least that day. Members of the IEEE Computer Society could access the articles free of charge, and interested users without the membership could purchase the article online. Citation records show the earliest citation to *Yang* appeared in May 2002 (**EX1007F**), supporting my opinion that *Yang* became publicly available at the Library of Congress by March 11, 2002, and that *Yang* was publicly discoverable and accessible on the Internet by

March 2, 2002.

V. Authenticity and Public Availability of *Romdhani* (EX1008)

A. Authentication

76. **EX1008** is a true and correct copy of “Face identification by fitting a 3d morphable model using linear shape and texture error functions,” (“*Romdhani*”), by S. Romdhani, V. Blanz, V. and T. Vetter, T., in *Computer Vision—ECCV 2002: 7th European Conference on Computer Vision Copenhagen, Denmark, May 28–31, 2002 Proceedings, Part IV*, pp. 3-19, that I obtained from the Library of Congress. When I began researching *Romdhani*, I searched WorldCat for records and found a record for this article at <https://search.worldcat.org/title/5861914344> that showed the Library of Congress (“LC”) was one of the holding libraries. After verifying the holdings information in the library’s online catalog, I obtained a copy of *Romdhani* from LC through a document vendor. This copy is presented as **EX1008** in this declaration.

77. Page 1 of **EX1008** is a bound volume identified as “European Conference on Computer Vision. Computer Vision-ECCV 2002” that has a call number of “TA1634.E97 2002, Pt 4, Copy 1.” Page 2 is the cover that shows the volume title, the conference information, four editors of this work, and publisher. It also shows this volume is Part IV of the proceedings and identifies it as “LNCS 2353.” Page 3 shows **EX1008** is number 2353 of the series *Lecture Notes in*

Computer Science. Page 4 is the title page that shows the same information as the cover, except for the part number and the series number. Page 5 is the copyright page that shows this work has a 2002 copyright date and Springer-Verlag Berlin Heidelberg holds the copyright. This page shows the ISBN of this book and a handwritten call number. It also carries a library date stamp of Library of Congress JUN 27 2002 CIP” and a hand-written number of “2002070542” that appears to be the Library of Congress Catalog number for this book. Pages 6 to 9 are the table of contents for Part IV that shows *Romdhani* is included in “Object Recognition / Vision Systems Engineering and Evaluation” and begins on page 3. Pages 10 to 23 are the table of contents for the first three parts of this work.

78. Pages 24 to 40 are the full text of *Romdhani*. Page 24 (internal page 3) shows the title, authors, abstracts, and a “2002” copyright for this article with the publisher as the copyright holder. It also shows this article is published in “A. Heyden et al. (Eds.): ECCV 2002, LNCS 2353, pp. 3-19, 2002.” **EX1008** shows this article has a total of 17 pages, including two tables, 25 equations, three figures, and 21 references.

79. To authenticate **EX1008**, I obtained a copy of *Romdhani* from the publisher at https://link.springer.com/content/pdf/10.1007/3-540-47979-1_1.pdf. This copy is presented as **EX1008A** in this declaration. I have closely compared **EX1008** with **EX1008A** and found them to contain the same content for *Romdhani*.

The only difference is that figure 1 and figure 3 in the publisher copy (**EX1008A**) are in color.

80. **EX1008** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. In addition, **EX1008** is scanned from a copy held by LC and has the same content as the publisher copy (**EX1008A**). Based on my review and analysis, it is my opinion that **EX1008** is authentic.

B. Records of the Library of Congress

81. To determine the public availability date of *Romdhani*, I obtained records for the book containing *Romdhani* from the online catalog of LC. **EX1008B** is a true and correct copy of the bibliographic and MARC records for *Computer Vision-ECCV 2002* (“*ECCV*”) that contains *Romdhani*. I personally located, identified, and obtained these records from the online catalog of LC. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

82. Pages 1 and 2 of **EX1003B** are the bibliographic record that shows the conference name, publication title, publisher, publication year, ISBNs, series, and LCCN. These details match the information presented in **EX1008**, confirming this record represents the work containing *Romdhani*.

83. The “Item Availability” area on page 2 shows LC has one copy of

ECCV. The call number of this work is “TA1634 .E97 2002,” the work is “Not Charged” (meaning available for user request), and users can request access at the Jefferson or Adams Building Reading Rooms.

84. Page 3 is the MARC record. The first six digits of Field 008 show the MARC record was created on “020501” (*i.e.*, May 1, 2002). Subfields “a” and “c” of Field 040 shows DLC (the Library of Congress) created the record and entered it into the OCLC WorldCat database. Field 955 records local cataloging activities, and shows parts 1-4 was received on “2002-07-05” (*i.e.*, July 5, 2002) and sent for “CIP ver.” (CIP record verification). This field also shows the parts were sent to the processing unit on “2002-07-17” (*i.e.*, July 17, 2002). Fields 008, 040, and 955 inform my opinion that LC created a Cataloging-in-Progress (CIP) MARC record for *ECCV* on May 1, 2002, before this work was published, received the published work on July 5, 2002, for verification of the CIP record, and completed the cataloging work and sent the work to the processing unit on July 17, 2002. A customary library practice is to process a newly cataloged work promptly for public access, usually within a week after the cataloging work is completed. My personal experience with the LC collections is that it can one to three months for a newly cataloged work to be ready for public access. It is therefore my opinion that the MARC record for *ECCV* that contains *Romdhani* became publicly discoverable by July 17, 2002, and the physical volumes, after processing, would become publicly available by October 17, 2002.

85. Field 010 shows the Library of Congress catalog number for *ECCV*. Fields 020 show the ISBNs, Field 111 shows the conference information, Field 245 shows the title, Field 260 shows the publisher and publication year, Field 300 shows *ECCV* includes four volumes, Field 440 shows the series title and numbering, and Field 700 shows the first editor is included in the record to help users discover this work.

86. The subjects of *ECCV* are represented in Field 050 by a Library of Congress Classification (LCC) number of “TA1634” that represents “Computer vision” (source: Library of Congress Classification Schedule T at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf); in Field 082 by a Dewey Decimal Classification (DDC) number of “006.3/7” that represents “Computer vision” (source: WebDewey at <https://dewey.org/webdewey/login/login.html>, subscription required for access); and in Field 650 by a Library of Congress subject heading, with “Computer vision” as the main topic, followed by “Congresses” as a form subheading encoded in subfield “v” to show the main topic is treated at a conference. The subject representations enable users to conduct subject searches to discover this journal that contains *Romdhani*.

87. This MARC record (**EX1008B**) shows LC completed their cataloging work for *ECCV* on July 17, 2002, making this work discoverable at the LC online catalog from that date on. As of July 17, 2002, users could discover *ECCV* by the

LCCN, ISBNs, conference name, title, series, and the first editor. They could also conduct subject searches to discover this work. The physical copy, after processing, would become publicly accessible at LC by October 17, 2002.

88. As evidence that the Library of Congress had an online catalog in operation in July 2002 when *ECCV* became discoverable, I obtained a profile of the library at <https://librarytechnology.org/library/2263> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of record experts in my field would reasonably rely upon when forming their opinions. This profile is presented as **EX1008C** in this declaration.

89. The Technology Profile on pages 1 and 2 of **EX1008C** shows LC began using Voyager as their online catalog in 1998 and migrated to Folio – EBSCO Information Services in 2023. These dates mean that in 2002 interested users were able to use the Voyager system to search for *ECCV* that contains *Romdhani* at LC.

C. Usage Records

90. Usage of a publication is shown by other publications that make reference to it. I used Google Scholar to review citations to *Romdhani*. **EX1008D** is a list of citations I compiled. This list includes five citations from 2003 and shows the earliest citation appeared in January 2003.

D. Summary of My Opinion on *Romdhani*

91. **EX1008** is authentic because it contains no signs to raise suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. In addition, this copy is from a national library, and has the same content as the publisher copy (**EX1008A**).

92. The MARC record of the Library of Congress (**EX1008B**) shows *ECCV* became discoverable at the LC online catalog on July 17, 2002, and the physical copy, after processing, would become publicly available by October 17, 2002. Citation history shows the first citation to *Romdhani* appeared in January 2003.

93. Based on the documents and records I have reviewed, it is my opinion that *ECCV* that contains *Romdhani* became publicly discoverable at the Library of Congress on July 17, 2002, and the physical copy, after processing, would become publicly accessible by October 17, 2002.

VI. Authenticity and Public Availability of *Lubbers* (EX1011)

A. Authentication

94. **EX1011** is a true and correct copy of excerpts of *Pro HTML5 Programming: Powerful APIs for Richer Internet Application Development*, (“*Lubbers*”), by Peter Lubbers, Brian Albers, and Frank Salim, that I obtained through a document vendor from the University of North Carolina at Asheville. This copy is presented as **EX1011** in this declaration.

95. Page 1 of **EX1011** is the cover that shows the title, subtitle, authors, and publisher. Page 2 is the title page that shows the same information as the cover. Page 3 is the copyright page that shows a “2010” copyright date with the authors as the copyright holders. This page shows the ISBNs (International Standard Book Numbers) of this book. It also shows a library stamp of “Library U.N.C. at Asheville.” Page 4 is the Contents at a Glance page that shows this book has 11 chapters and an index. Pages 5 to 12 show the detailed table of contents. Pages 13 to 16 are internal pages of 65 to 68 from Chapter 3 “Working with HTML5 Audio and Video.” Page 17 is the back cover.

96. To authenticate **EX1011**, I obtained a used copy of *Lubbers*. I have carefully compared **EX1011** with its corresponding pages in the used copy, and found them to be the same. As evidence, I have scanned the front matter, sample pages (pages 65 to 68 from Chapter 3), and the back cover. These scanned pages are presented as **EX1011A** in this declaration.

97. The excerpts of *Lubbers* (**EX1011**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the section included, and there are no visible alterations to the document. Furthermore, the pages in **EX1011** are the same as their corresponding pages in a used copy I obtained (sample pages in **EX1011A**). Based on my review, I see no reason to question the authenticity of **EX1011**.

B. Records of the University of New Orleans Library

98. To determine the public availability date of *Lubbers*, I obtained library records for this book from the University of New Orleans Library. **EX1011B** is a true and correct copy of the bibliographic and MARC records for *Lubbers*. I personally identified, located, and obtained these records. They are the type of records experts in my field would reasonably rely upon when forming their opinion.

99. Pages 1 and 2 of **EX1011B** are the bibliographic record that shows the authors, title, publisher, publication year, ISBN, index note, and contents. These details match the information presented in **EX1011** and **EX1011A**, confirming this record represents *Lubbers*. This record also the book's call number is "QA76.76 .H94 L83 2010."

100. Page 3 is the MARC record. The first six digits of Field 008 show the record was created on "090930" (*i.e.*, September 30, 2009). Subfield "a" of Field 040 shows that "BTCTA" created the original record. According to the *Directory of OCLC Members* (<https://www.oclc.org/en/contacts/libraries.html>), "BTCTA" is the OCLC symbol for Baker & Taylor Incorporated, which is a commercial partner of OCLC. Field 005 is a machine-generated field that automatically documents the date when the library last modified the MARC record, and it shows "20101124234726" (*i.e.*, November 24, 2010, at 11 p.m., 47 minutes and 26 seconds) as the last time this library modified the MARC record for *Lubbers*. Record modification can be made

for a number of reasons, such as correcting typos or revising the record to conform to changes in cataloging practice. Record modification means that a record will need to exist first, before it can be modified. For this reason, the date in Field 005 is usually later than the record creation date. Field 008, 040, and 005 inform my opinion that the University of New Orleans Library used an original MARC record created by Baker & Taylor, and last modified their copy cataloging record on November 24, 2010, meaning *Lubbers* would be discoverable in the online catalog of this library no later than November 24, 2010. A customary library practice is to process a newly cataloged book promptly for public access, usually within a week after the cataloging work is completed. The physical copy of *Lubbers*, after processing, would become publicly accessible by December 1, 2010, at this library.

101. Two 020 fields show the 13-digit and 10-digit ISBNs of this book. Field 100 shows the author, Field 245 shows the title and statement of responsibility, and Field 260 shows the publisher and publication year. Field 300 shows the book's pagination as "xviii, 284 p.", which matches the used copy of *Lubbers* I obtained. Field 490 and Field 830 show *Lubbers* belongs to a series. Field 500 shows an index note, and Field 505 shows the chapter headings, which matches the information presented in **EX1011** and **EX1011A**. Two 700 fields show the other two authors are included in the record to help users discover this book.

102. Subjects of *Lubbers* are represented in Field 050 by a Library of

Congress Classification (LCC) number of “QA76.76.H94” that represents “Hypertext systems” (source: Library of Congress Classification Schedule Q at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2020TEXT.pdf), and in Fields 650 by two Library of Congress subject headings, “HTML (Document markup language)” and “Web site development.” These subject representations enable users to conduct subject searches to discover *Lubbers*.

103. This MARC record (**EX1011B**) shows that the University of New Orleans Library last modified their copy cataloging record for *Lubbers* on November 24, 2010, making this book discoverable in the library’s online catalog from that date on. As of November 24, 2010, the interested public could conduct subject searches by the LCC number and the Library of Congress subject headings in the MARC record. They could also search for this book by the authors, ISBNs, title, and series title. The physical copies, after processing, would become publicly accessible by December 1, 2010.

104. As evidence that the University of New Orleans Library had an online catalog in operation in 2010 when *Lubbers* became discoverable at this library, I obtained a profile of the library at <https://librarytechnology.org/library/2240> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of record experts in my field would reasonably rely upon when forming their opinions. This profile is presented as

EX1011C in this declaration.

105. The Technology Profile on page 2 of **EX1011C** shows the University of New Orleans Library started using Symphony as their online catalog in 2001. This date means that in 2010 interested users were able to use the Symphony system to search for *Lubbers* and access it at this library.

C. Internet Archive Records

106. To determine when *Lubbers* became available on the Internet, I located three Internet Archive records on the public availability of this book. I personally located, identified, and obtained these records. They are the type of record experts in my field would reasonably rely upon when forming their opinions.

107. **EX1011D** is a true and correct copy of the Apress webpage for “Web Development titles.” Page 1 is a screen capture of a Wayback Machine calendar that shows this webpage was archived 61 times between 2007 and 2010, and this particular copy was archived on September 17, 2010, and available at <https://web.archive.org/web/20100917083011/http://apress.com/book/catalog?category=72>. Pages 2 to 7 are the PDF of this archived copy that shows the 13-digit ISBN, title, lead author, and publication date of each title on this list, and page 3 shows *Lubbers* was published in “Aug 2010” with a link is provided for interested users to learn more about this title. **EX1011E** informs my opinion that this webpage of Apress titles containing *Lubbers* became discoverable and accessible on the Internet by

September 17, 2010, and interested users could use this webpage to purchase their copy of this book.

108. **EX1011E** is a true and correct copy of the publisher's webpage for *Lubbers*. Page 1 of **EX1011E** is a screen shot of a Wayback Machine calendar to show this webpage for *Lubbers* was archived 57 times between 2010 and 2024, and this particular copy was archived on "SEP 17 2010" and available at <https://web.archive.org/web/20100917083959/http://apress.com/book/view/1430227907>. Page 2 is a screen shot of the webpage to show the book details with two links for users to "Buy eBook" and "By Print Book." The authors, title, publisher, and ISBNs match the information presented in **EX1011**. Pages 3 to 5 are the PDF of this archived copy. **EX1011E** informs my opinion that *Lubbers* became discoverable and accessible by September 17, 2010, and interested users could use this webpage to purchase their copy of this book.

109. **EX1011F** is a true and correct copy of Amazon's webpage for *Lubbers* archived by Internet Archive. Page 1 of **EX1011F** is a screen shot of a Wayback Machine calendar to show this webpage for *Lubbers* was archived 142 times between 2009 and 2022, and this particular copy was archived on "SEP 26 2010" and available at <https://web.archive.org/web/20100926221239/http://www.amazon.com/Pro-HTML5-Programming-Application-Development/dp/1430227907>. Pages 2 to 6 are the PDF of this archived copy that shows the authors, title, publisher, edition number,

and ISBNs match the information presented in **EX1011**. Page 4 shows reviews of this book posted on August 31 and September 11, 2010. **EX1011F** informs my opinion that *Lubbers* became available for purchase on Amazon by September 26, 2010, and reviews show that buyers already had access to this book before this date.

D. Usage Records

110. Actual usage of a publication is reflected by other publications that make reference to it. The citation history of *Lubbers* on Google Scholar. **EX1011G** is a list of early citations that I compiled. It presents six citations published in 2010 and 2011, and shows the earliest citation appeared in December 2010, supporting my opinion that *Lubbers* was publicly accessible on the Internet by September, 2011.

E. Summary of My Opinion on *Lubbers*

111. The excerpts of *Lubbers* obtained from the University of North Carolina at Asheville (**EX1011**) is authentic because it contains no signs to raise suspicion about its authenticity, and the pages in **EX1011** are the same as the corresponding pages in a used copy that I obtained (sample pages in **EX1011A**). The MARC record for *Lubbers* from the University of New Orleans Library (**EX1011B**) shows this book became publicly discoverable by November 24, 2010. Archived copies of the publisher's webpage of publications (**EX1011D**) and their webpage for *Lubbers* (**EX1011E**) show these webpages became publicly discoverable on the Internet by September 2010. Similarly, the archived copy of an Amazon webpage for

Lubbers (EX1011F) shows the webpage became publicly discoverable on the Internet by September 2010. Citation history (EX1011G) shows citations to *Lubbers* appeared in 2010 and 2011, and the earliest citation appeared in December 2010, supporting my opinion that this book became available for online purchase by September 2010, and became discoverable at the University of New Orleans Library by November 24, 2010.

112. Based on the documents and records I have reviewed, it is my opinion that *Lubbers* became publicly discoverable and accessible on the Internet by September 2010, and the book became publicly discoverable at an academic library by November 24, 2010.

VII. Authenticity and Public Availability of *Van Vliet* (EX1013)

A. Authentication

113. EX1013 is a true and correct copy of excerpts of *Programming Amazon EC2*, (“*Van Vliet*”), by Jurg van Vliet and Flavia Paganelli, that I obtained from Library of Congress (“LC”). To ascertain the availability of *Van Vliet* in libraries, I searched WorldCat.org (a free web portal) for libraries holding this work, and a WorldCat record at <https://search.worldcat.org/title/720025701> showed that LC was one of the holding libraries. After verifying the holdings information in the library’s online catalog, I obtained a copy of excerpts of this book from LC through a document vendor. This copy of *Van Vliet* is presented as EX1013 in this declaration.

114. Page 1 of **EX1013** shows a bound volume with a call number of “QA76.625 .V574 2011 Copy 1.” Page 2 is the inside cover that shows a barcode with a date of “1/3/2012” that appears to be a processing label. Page 3 is the cover that shows the title, authors, publisher, and a call number label. Page 5 is the title page. Page 6 is the copyright page that shows a “2011” copyright date and I-MO BV as the copyright holder, a “First Edition” statement, and “February 2011” as the publication date for the first edition. It also shows an ISBN (International Standard Book Number” of 978-1-449-39368-7. Pages 7 to 10 (internal pages v to viii) are the table of contents that shows *Van Vliet* includes eight chapters and an index. Pages 11 to 13 (internal pages ix to xi) are the Foreword, and pages 14 to 18 (internal pages xiii to xvii) are the Preface. Pages 19 to 54 are Chapters 1 and 3.

115. To authenticate **EX1013**, I obtained a used copy of *Van Vliet*. I have carefully compared **EX1013** with its corresponding pages in the used copy, and found them to be the same. As evidence, I have scanned the front matter, sample pages (pages 1 and 14 from Chapter 1, and pages 51 and 72 from Chapter 3), and the back cover. These scanned pages are presented as **EX1013A** in this declaration.

116. The excerpts of *Van Vliet* (**EX1013**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the section included, and there are no visible alterations to the document. In addition, this copy of *Van Vliet* is in the custody of a national library,

and the pages in **EX1013** are the same as their corresponding pages in a used copy I obtained (sample pages in **EX1013A**). Based on my review, I see no reason to question the authenticity of **EX1013**.

B. Library of Congress Records

117. To determine the public availability date of *Van Vliet*, I obtained Library of Congress records for this work. **EX1013B** is a true and correct copy of the bibliographic and MARC records for *Van Vliet*. I personally identified, located, and obtained these records from the online catalog of LC. They are the type of records experts in my field would reasonably rely upon when forming their opinion.

118. Pages 1 to 3 of **EX1013B** are the bibliographic record that shows the author, title, edition number, publisher, publication year, and ISBN. These details match the information presented in **EX1013**, confirming this record represents *Van Vliet*. The “Item Availability” area shows LC has two copies of this book, the call number is “QA76.625 .V574 2011,” and users can request access at the “Jefferson or Adams Building Reading Rooms.”

119. Pages 4 and 5 are the MARC record. The first six digits of Field 008 show the record was created on “110706” (*i.e.*, July 6, 2011). Subfield “a” of Field 040 shows that “PJW” created the original record, and subfield “d” shows “DLC” used the original record for copy cataloging. According to the *Directory of OCLC Members* (<https://www.oclc.org/en/contacts/libraries.html>), “PJW” is the OCLC

library symbol for Johnson & Wales University Library of Providence, Rhode Island, and “DLC” is the OCLC library symbol for the Library of Congress. Field 955 records local cataloging activities and shows two copies of this book were sent to processing unit on “2011-11-10” (*i.e.*, November 10, 2011). Fields 008, 040, and 955 inform my opinion that LC completed their cataloging work and sent their copies for processing on November 10, 2011. A customary library practice is to process a newly cataloged book promptly for public access, usually within a week after the cataloging work is completed. My personal experience with the Library of Congress collections is that it can take one to three months for a newly cataloged book to be ready for public access. It is therefore my opinion that *Van Vliet* became discoverable in the online catalog of LC by November 10, 2011, and the physical copy, after processing, would become publicly available by February 10, 2012.

120. Field 010 of the MARC record shows the Library of Congress Control Number and Field 020 show the 13-digit ISBN of this book. Field 100 shows the author, Field 245 shows the title and statement of responsibility, Field 250 shows the edition statement, and Field 260 shows the publisher and publication year. Field 300 shows the book’s front matter ends on page xii, the last numbered page is page 163, and the book includes illustrations. The record also shows *Van Vliet* includes an index. Field 700 shows the second author is included in the record.

121. The subjects of *Van Vliet* are represented in Field 050 by a Library of

Congress Classification (LCC) number of “QA76.625” that represents “Internet programming. Intranet programming” (source: Library of Congress Classification Schedule Q, online at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2020TEXT.pdf). The subjects are also represented in Field 610 and Field 650 by three Library of Congress subject headings: Internet programming, Amazon.com (Firm), and Web services. These subject representations enable users to conduct subject searches to discover *Van Vliet*.

122. This MARC record (**EX1013B**) shows that LC completed their cataloging record on November 10, 2011, making this book discoverable in the library’s online catalog from that date on. Interested public would have been able to conduct subject searches by the LCC number and the Library of Congress subject headings in the MARC record. They would also have been able to search for this book by the authors, title, ISBN, and LCCN. The physical copies, after processing, would become publicly accessible by February 10, 2011.

123. As evidence that LC had an online catalog in operation in 2011 when *Van Vliet* became discoverable at this library, I obtained a profile of the library at <https://librarytechnology.org/library/2263> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of record experts in my field would reasonably rely upon when forming

their opinions. This profile is presented as **EX1013C** in this declaration.

124. The Technology Profile on page 2 of **EX1013C** shows LC began using Voyager as their online catalog in 1998, and changed to Folio – EBSCO Information in 2023. These dates mean that in 2011 interested users were able to use the Voyager system to search for *Van Vliet* and access this article at LC.

C. Copyright Registration Record

125. **EX1013D** is a true and correct copy of the copyright registration record for *Van Vliet*. I personally located, identified, and obtained this record from the public catalog of the US Copyright Office. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

126. The title, authors, description, and copyright claimant match the information presented in **EX1013**, confirming this record represents *Van Vliet*. The Date of Publication field shows this book was published on “2011-03-07” (*i.e.*, March 7, 2011), and the “Registration Number / Date” field shows the book was registered with the US Copyright Office on “2011-05-02” (*i.e.*, May 2, 2011). These dates align well with the Library of Congress record completion date of November 10, 2011.

D. Internet Archive Record

127. **EX1013E** is a true and correct copy of the publisher’s webpage for *Van Vliet*. I personally located, identified, and obtained this record. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

128. Page 1 is a screen shot of a Wayback Machine calendar to show this webpage for *Van Vliet* was archived 30 times between “20 Jan 2011” and “3 Feb 2023” and this particular copy was archived on MAR 21 2011” and available at <https://web.archive.org/web/20110321181132/http://oreilly.com/catalog/9781449393687/#product-details>. Page 2 is another screen shot to show “Buying Options” for users in March 2011 included ebook, print+ebook, print, UK print, and Safari books online. Pages 3 to 7 are the PDF of the archived webpage that presents the title, authors, publisher, print publication date, ISBN, and table of contents that are the same as the information presented in **EX1013** and the used copy I obtained (**EX1013A**). **EX1013E** informs my opinion that by March 21, 2011, interested users could discover *Van Vliet* on the Internet and follow the buying options to access this book.

E. Citation Records

129. Actual usage of a publication is reflected by other publications that make reference to it. The citation history on Google Scholar shows that *Van Vliet* was cited 10 times. **EX1013F** presents five citations published in 2011 and 2012, and shows the earliest citation appeared in September 2011, supporting my opinion that *Van Vliet* was publicly accessible on the Internet by March 21, 2011.

F. Summary of My Opinion on *Van Vliet*

130. The excerpts of *Van Vliet* obtained from Library of Congress (**EX1013**)

is authentic because it contains no signs to raise suspicion about its authenticity. In addition, this copy of *Van Vliet* is in the custody of a national library, and the pages in this copy and the corresponding pages in a used copy that I obtained (sample pages in **EX1013A**) are the same. The copyright registration record for *Van Vliet* shows a publication date of March 7, 2011 (**EX1013D**). The publisher webpage for *Van Vliet* archived by Internet Archive on March 11, 2011 (**EX1013E**) shows several purchase options for users. The Library of Congress MARC record for *Van Vliet* (**EX1013B**) shows the library completed the cataloging record on November 10, 2011, making this book discoverable from that date on in the online catalog of the library. After processing, the physical copy of this book would become publicly accessible no later than February 10, 2012. Citation history shows the earliest citation appears in September 2011.

131. Based on the documents and records I have reviewed, it is my opinion that the webpage for *Van Vliet* was discoverable on the Internet by March 21, 2011, and interested users could use that webpage to purchase print or online version of this book. In addition, this book became discoverable in the online catalog of the Library of Congress on November 10, 2011, and the physical copies, after processing, would become publicly available by February 10, 2011.

VIII. Authenticity and Public Availability of *Tang* (EX1014)

A. Authentication

132. **EX1014** is a true and correct copy of “Facial image recognition based on fractal image encoding,” (“*Tang*”), by X. Tang, X. and C. Qu, *Bell Labs Technical Journal*, 15(1), 209-214, that I obtained from the Linda Hall Library. When I began researching *Tang*, I searched WorldCat for records and found a record for this article at <https://search.worldcat.org/title/5156766022> that showed the Linda Hall Library was one of the holding libraries. After verifying the holdings information in the library’s online catalog, I obtained a copy of *Tang* through the library’s document delivery service. This copy is presented as **EX1014** in this declaration.

133. Page 1 of **EX1014** is the cover that shows this copy is from *Bell Labs Technical Journal*, vol. 15, no. 1 that has a June 2010 issue date. The cover shows “Alcatel-Lucent” and “General Papers.” It carries a library date stamp of “Linda Hall Library JUN 2 2010” and shows Wiley as the publisher. Page 2 is the copyright page that shows this issue has a 2010 copyright date and Alcatel-Lucent holds the copyright. This page shows most members on the editorial board are from the Alcatel-Lucent community, and the “Manuscripts” area states that this journal “welcomes submissions by members of the Alcatel-Lucent technical community.” Pages 3 and 4 are the table of contents that shows this issue contains “General Papers” and *Tang* begins on page 209. Page 3 shows the same library date stamp as the cover.

134. Pages 5 to 10 (internal pages 209 to 214) are the full text of *Tang*. Internal page 209 shows the title, authors, and abstract, and indicates this article has a “2010” copyright and Alcatel-Lucent holds the copyright. It also shows this article was published in print by Wiley Periodicals, Inc., and published online in Wiley InterScience at www.interscience.wiley.com. The article DOI (digital object identifier) is 10.1002/bltj.20433. **EX1014** shows this article has a total of six pages, including one equation, four tables, two figures, and nine references.

135. To authenticate **EX1014**, I obtained a copy of *Tang* from IEEE. **EX1014A** is a true and correct copy from IEEE. I have closely compared **EX1014** with this IEEE copy and found them to contain the same content for *Tang*. The only difference is the IEEE copy does not include a note on page 209 about this article being published by Wiley Periodicals, Inc. and published online by www.interscience.wiley.com.

136. **EX1014** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. In addition, **EX1014** is scanned from a copy held by the Linda Hall Library, a well-known public research library. Furthermore, **EX1014** has the same content as the IEEE copy (**EX1014A**). Based on my review and analysis, it is my opinion that **EX1014** is authentic.

B. Records of Linda Hall Library

137. To determine the public availability date of *Tang*, I obtained records for the journal containing *Tang* from the online catalog of the Linda Hall Library. **EX1014B** is a true and correct copy of the bibliographic and MARC serial records for *Bell Labs Technical Journal*. I personally located, identified, and obtained these records. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

138. Pages 1 and 2 of **EX1014B** are the bibliographic record that shows the journal title, creator, ISSN, publication frequency, and ISSN. These details match the information presented in the library's copy of *Tang* (**EX1014**), confirming this serial record represents the journal containing *Tang*. The bibliographic record also includes subject headings, OCLC number, and history of this journal.

139. The Locations area on page 1 shows this journal is available at "Closed Stacks – Serials; Bell Labs technical journal," and Linda Hall Library holds vol. 1 no. ½ (Summer 1996) to v. 18, no. 4 (2014: Mar.).

140. Page 3 is the MARC record. The first six digits of Field 008 show the MARC serial record was created on "960722" (*i.e.*, July 22, 1996), and the code of "c19969999" following the record creation date indicates the journal is a continuing resource that began publication in 1996 and has no predetermined conclusion date. Subfields "a" and "c" of Field 040 shows NSD (the National Serial Data Program)

created the original serial record, and subfield “d” shows “LHL” modified the original record later. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), “LHL” is the OCLC library symbol for the Linda Hall Library. Fields 008 and 040 inform my opinion that the Linda Hall Library used an original record created by NSD in July 1996 to create their copy cataloging record later.

141. Field 022 shows the ISSN of this journal. Field 245 shows the title, and Field 260 shows Lucent Technologies has published the journal since 1996. Two 590 fields show this journal was transferred from the Engineering Societies Library to the Linda Hall Library in January 1995. Field 710 shows Lucent Technologies (Firm) is included to help users discover this journal. The subjects of this journal are represented in Fields 650 by two Library of Congress subject headings, with “Telecommunication” and “Electronics” as the main topics, each followed by “Periodicals” as a form subheading encoded in subfield “v” to show the main topics are treated in a journal. The subject representations enable users to conduct subject searches to discover this journal that contains *Tang*.

142. This MARC record (**EX1014B**) shows that *Bell Labs Technical Journal* is a long-running journal and the MARC record makes this journal discoverable. Since Field 590 shows the Linda Hall Library received the journal from the Engineering Societies Library in January 1995, it is my opinion that *Bell Labs*

Technical Journal would have been discoverable soon after the original MARC serial record created in July 1996 became available to OCLC members for copy cataloging purposes. The date stamp of “JUN 2 2010” on **EX1014** indicates Linda Hall Library received the issue containing *Tang* on June 2, 2010, it is therefore my opinion that this journal would have been discoverable at this library no later than June 2, 2010. By June 2, 2010, interested users would be able to discover this journal by its ISSN, title, and publisher. They would also be able to conduct subject searches to discover this journal.

143. The “JUN 2 2010” date stamp on **EX1014** shows the Linda Hall Library received the issue containing *Tang* on June 2, 2010. As discussed above, a customary library practice is to place a newly received journal issue through the serial check-in process to document its receipt, and the new issue is usually processed promptly to make it publicly accessible, usually within a week after serial check-in is completed. It is therefore my opinion that the issue containing *Tang* became publicly accessible at the Linda Hall Library by June 9, 2010.

144. As evidence that the Linda Hall Library had an online catalog in operation in 2010 when the library received the journal issue containing *Tang*, I obtained a profile of the library at <https://librarytechnology.org/library/2294> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of record experts in my field

would reasonably rely upon when forming their opinions. This profile is presented as **EX1014C** in this declaration.

145. The Technology Profile on pages 1 and 2 of **EX1014C** shows the Linda Hall Library began using Horizon in 1994 and migrated to Voyager in 2010, then migrated to Alma in 2018. These dates mean that in 2010 interested users were able to use the Voyager system to search for the journal containing *Tang* and access this article at the Linda Hall Library

C. Copyright Registration Record

146. **EX1014D** is a true and correct copy of the copyright registration record for *Bell Labs Technical Journal*, vol. 15, no. 1, that has an issue date of June 2010. The title, ISSN, and copyright claimant match the information presented in the Linda Hall Library copy (**EX1014**). The Title field shows this issue was published on “2010-05-24” (*i.e.*, May 24, 2010, and the “Issues Registered” field shows the same publication date for this issue. This publication date aligns well with the library copy that shows a library date stamp indicating the library received the issue on June 2, 2010.

D. Internet Archive Record

147. **EX1014** shows *Tang* was published online by Wiley InterScience. To determine when this article became publicly available on the Internet, I obtained a record of the journal issue containing *Tang* from the Internet Archive. **EX1014E** is a

true and correct copy of the webpage of *Bell Labs Technical Journal*, vol. 15, no. 1 (June 2010). I personally located, identified, and obtained this record. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

148. Page 1 of **EX1014E** is a screen capture of a Wayback Machine calendar that shows this webpage was archived six times between 2010 and 2017, and this particular copy was archived on “NOV 27 2010” and available at <https://web.archive.org/web/20101127224126/http://onlinelibrary.wiley.com/doi/10.1002/bltj.v15:1/issuetoc>. Page 2 is the PDF of this archived copy that shows this webpage is part of the Wiley Online Library. The webpage includes an image of the issue cover and indicates volume 15, Issue 1 (pages 1-258) of *Bell Labs Technical Journal* is a “Special Issue: General Papers” that has an issue date of “June 2010.” Pages 2 and 3 of **EX1014E** show the papers published in this issue, showing the title, pages, authors, abstract, PDF, and references for each article. Page 3 shows *Tang* is available for subscribers to the Wiley Online Library for download. The entry shows this article was “first published online: 17 May 2010” and its DOI is “10.1002/bltj.20433,” which is the same DOI on **EX1014** and the IEEE copy (**EX1014A**).

149. **EX1014E** shows *Tang* was first published online on May 17, 2010, and subscribers to the online journal would have been able to access it from that date on.

In addition, by November 27, 2010, interested users would have been able to discover the journal webpage for vol. 15, no. 1 of *Bell Labs Technical Journal* to learn that *Tang* could be downloaded from the Wiley Online Library.

E. Usage Records

150. Usage of a publication is shown by other publications that make reference to it. I used Google Scholar to review citations to *Tang*. **EX1014F** is a list of citations I compiled. This list includes five citations from 2013 and 2014, and shows the earliest citation appeared in June 2013.

F. Summary of My Opinion on *Tang*

151. **EX1014** is authentic because it contains no signs to raise suspicion about its authenticity. In addition, this copy is from a well-known public research library, and has the same content as the IEEE copy (**EX1014A**).

152. The copyright registration record for the journal containing *Tang* (**EX1014D**) shows vol. 15, no. 1 was published on May 24, 2010. The MARC serial record of the Linda Hall Library (**EX1014B**) shows *Bell Labs Technical Journal* is a long-running, and the MARC record has made this journal discoverable in the library's catalog. The date stamp on the library's copy of *Tang* (**EX1014**) shows the library received the journal issue containing *Tang* on June 2, 2010. It is therefore my opinion that the journal containing *Tang* became discoverable at the Linda Hall Library no later than that date, and the physical copy, after processing, would become

publicly accessible at the Linda Hall Library by June 9, 2010.

153. **EX1014E** shows the webpage for vol. 15, no. 1 of *Bell Labs Technical Journal* was archived on November 27, 2010, making *Tang* publicly discoverable and accessible on the Wiley Online Library platform on the Internet by at least that day. This article was in fact available even earlier than November 27, 2010, because the entry for *Tang* in **EX1014E** shows this article was first published on May 17, 2010, meaning subscribers to the online version of this journal would have been able to access it from May 17, 2010 on. Citation history shows the earliest citation appeared in June 2013.

154. Based on the documents and records I have reviewed, it is my opinion that *Bell Labs Technical Journal* containing *Tang* was publicly discoverable at the online catalog of the Linda Hall Library no later than June 2, 2010. The physical copy of the issue containing *Tang*, after processing, would become publicly accessible by June 9, 2010. This article was first published online on May 17, 2010, meaning subscribers to the online version of the journal containing *Tang* were able to access this article from May 17, 2010 on. The webpage of the journal issue containing *Tang* shows interested users would be able to discover this webpage by November 27, 2010, and use it to access the full paper.

IX. Conclusion

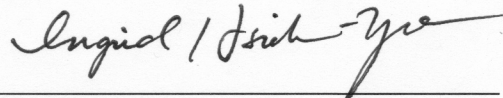
155. In signing this Declaration, I recognize that the Declaration will be filed

as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in this proceeding. If required, I will appear for cross-examination at the appropriate time.

156. I hereby declare that all statements made herein of my own knowledge are true and that all statements are made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001.

Dated: *May 8, 2025*

Respectfully submitted,

A handwritten signature in cursive script, reading "Ingrid / Hsieh-Yee", written over a horizontal line.

Ingrid Hsieh-Yee, Ph.D.
Annapolis, Maryland

APPENDIX A

Ingrid Hsieh-Yee
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Dept. of Library and Information Science
Catholic University of America
Washington, D.C. 20064
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Education

Ph.D. 1990. Library and Information Studies, University of Wisconsin-Madison
Minors: Sociology and Psychology

M.A. 1984. Library and Information Studies, University of Wisconsin-Madison.

M.A. 1983. Comparative Literature, University of Wisconsin-Madison.

B.A. 1980. Foreign Languages and Literature, National Taiwan University.

Work Experience

Professor, School/Dept. of Library and Information Science, Catholic University of America,
1990-2022 (Assistant Professor, 1990-1996; Associate Professor, 1997-2004; Professor
2004-2022; Professor Emerita 2022)

Co-Chair, Dept. of Library and Information Science, Catholic University of America, June 2015-
August 2016.

Acting Dean, School of Library and Information Science, Catholic University of America,
January 2010-June 2012.

Cataloger, Dept. of Legislative Reference Library, Annapolis, Maryland, 1989-1990.

Lecturer, School of Library and Information Studies, University of Wisconsin-Madison, 1988.

Teaching Assistant, School of Library and Information Studies, University of Wisconsin-
Madison, 1986-1988.

Cataloger, Health Sciences Library, University of Wisconsin-Madison, 1984-1986.

Areas of Teaching and Research Interests

Information Organization and Access; Metadata; Cataloging & Classification; Information
Architecture; Information Retrieval; Digital Collections; Social Media; Scholarly

Communication; Information Behavior; Health Informatics; Human Computer Interaction; Usability Studies

Grants & Honors

Cultural Heritage Information Management Project. IMLS grant. Amount: \$498,741. Period: Aug. 2012 to July 2015. Co-PI with Dr. Youngok Choi.

D.C. Health Information Technology (HIT4): Building Capacity & Providing Access in Our Nation's Capital. Dept. of Labor H2B Training Grant. Grant amount: \$4,175,500. Grant period: Nov. 2011 to Dec. 2015. Partner with the Metropolitan School of Professional Studies of the Catholic University of America, Children's National Medical Center, D.C. Department of Employment Services, Holy Cross Hospital, Howard University, Center for Urban Progress, Providence Hospital, and Sibley Memorial Hospital.

Capital Health Careers Project. Department of Labor Healthcare Sector and Other High Growth and Emerging Industries Grant. Grant amount: \$4,953,999. Grant period: March 2010 – February 2013. Awarded to a group of healthcare organizations and educational institutions in Washington, D.C. Providence Health Foundation of Providence Hospital (Lead institution). Part of the grant supported the development of a Master's degree program in Information Technology with a concentration in Health Information Technology offered by the School of Library and Information Science.

The Washington D.C. School Librarians Project. IMLS grant. Grant amount: \$412,660. Grant period: Aug. 2007 – June 2011. The School partnered with the District of Columbia Public Schools (DCPS) and the District of Columbia Library Association to educate and mentor school media specialists for the DCPS system. PI, Jan. 2010 to June 2011.

SIG Member of the Year, American Society for Information Science and Technology (2009).

Most Outstanding Paper of *OCLC Systems & Services* (2001).

ALISE Research Grant (2001).

Most Outstanding Paper of *OCLC Systems & Services* (2000).

Research Grant from ERIC (1999-2000).

Best Research Paper Award; Association for Library and Information Science Education (1998).

Research Grants, Catholic University of America. 1991, 1992, 1993, 1996, 1998, 1999, 2004, 2005, 2006, 2007, 2013-14.

Cooperative Faculty Research Grant, Consortium of Universities in the Washington Metropolitan Area (1993-1994).

Cooperative Research Grant, Council on Library Resources (1993-1994).

Journal of the American Society for Information Science Best Paper Award (1993).

ASIS/ISI Information Science Doctoral Dissertation Scholarship (1989).

HEA Title IIB Fellowship (Dept. of Education) (1989)

Chinese-American Librarians Association Scholarship (1987).

Beta Phi Mu (1985).

Vilas Fellowship, University of Wisconsin-Madison. 1984

Publications

Hsieh-Yee, I. (2021). Can We Trust Social Media? *Internet Reference Services Quarterly*, 1-15.
Published online: 28 July, 2021. 10.1080/10875301.2021.1947433.

Bailey, T., & Hsieh-Yee, I. (2020). Combating the Sharing of False Information: History, Framework & Literacy Strategies, *Internet Reference Services Quarterly*, 24 (1-2), 9-30.

Choi, Y., and Hsieh-Yee, I. (2010). Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes. *Canadian Journal of Information and Library Science*, 34(3): 271 – 295.

Hsieh-Yee, I. (2008). Educating Cataloging Professionals in a Changing Information Environment. *Journal of Education for Library and Information Science*, 46(2): 93-106.

Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007). The Metadata Education and Research Information Commons (MERIC): A Collaborative Teaching and Research Initiative. *Education for Information*, 25(3&4): 169-178.

NISO Framework for Guidelines for Building Good Digital Collections. 3rd ed. Baltimore, MD: National Information Standards Organization, 2007. Also available online: <http://www.niso.org/framework/framework3.pdf> (NISO Working Group members: Priscilla Caplan (chair), Grace Agnew, Murtha Baca, Tony Gill, Carl Fleischhauer, Ingrid Hsieh-Yee, Jill Koelling, and Christie Stephenson.)

Choi, Y., Hsieh-Yee, I., and Kules, B. (2007). Retrieval Effectiveness of TOC and LCSH. *Proceedings of the Joint Conference on Digital Libraries*, pp. 233-234.

Vellucci, S., and Hsieh-Yee, I. (2007). They Didn't Teach Me That in Library School! Building

a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research. *Proceedings of the National Conference of the Association of College and Research Libraries, Baltimore, MD*, pp. 26-31.

Mitchell, Vanessa, and Ingrid Hsieh-Yee. (2007). Converting Ulrich's Subject Headings to FAST Headings: A Feasibility Study. *Cataloging & Classification Quarterly*, 45(1): 59-85.

Hsieh-Yee, I., Tang, R., and Zhang, S. (2007). User Perceptions of a Federated Search System. *IEEE Technical Committee on Digital Libraries Bulletin*, Summer 3(2) (URL = <http://www.ieee-tcdl.org>).

Tang, R., Hsieh-Yee, I., and Zhang, S. (2007). User Perceptions of MetaLib Combined Search: An Investigation of How Users Make Sense of Federated Searching." *Internet Reference Services Quarterly*, 12(12): 211-236.

Hsieh-Yee, I., Tang, R., and Zhang, S. (2006). User Perceptions of a Federated Search System. *Proceedings of the Joint Conference on Digital Libraries, June 11-15, 2006, Chapel Hill*, p. 338.

Hsieh-Yee, I. (2006). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide*. 2nd ed. Westport, Conn.: Libraries Unlimited.

NISO A Framework of Guidance for Building Good Digital Collections. 2nd ed. Bethesda, MD: National Information Standards Organization, 2004. Framework Advisory Group: Grace Agnew, Liz Bishoff, Priscilla Caplan (Chair), Rebecca Gunther and Ingrid Hsieh-Yee.

Hsieh-Yee, I. (2004). Cataloging and Metadata Education in North American LIS Programs. *Library Resources & Technical Services*, 48(1): 59-68.

Hsieh-Yee, I. (2004). Cataloging and Metadata Education. In Gary E. Gorman (Ed.), *International Yearbook of Library and Information Management 2003: Metadata Applications and Management*, (pp.204-234). London: Facet Publishing.

Yee, P. L., Hsieh-Yee, I., Pierce, G.R., Grome, R., and Schantz, L. (2004). Self-Evaluative Intrusive Thoughts Impede Successful Searching on the Internet. *Computers in Human Behavior*, 20(1): 85-101.

Hsieh-Yee, I. (2003). Cataloging and Metadata Education: A Proposal for Preparing Cataloging Professionals of the 21st Century. A report submitted to the ALCTS-Education Task Force in response to Action Item 5.1 of the *Bibliographic control of Web Resources: A Library of Congress Action Plan*. Approved by the Association for Library Collections and Technical Services. Web version available since April 2003 at <http://lcweb.loc.gov/catdir/bibcontrol/CatalogingandMetadataEducation.pdf>.

- Hsieh-Yee, I. (2002). Cataloging and Metadata Education: Asserting a Central Role in Information Organization. *Cataloging & Classification Quarterly* 34(½): 203-222.
- Hsieh-Yee, I., and Smith, M. (2001). The CORC Experience: Survey of Founding Libraries, Part I. *OCLC Systems & Services*, 17: 133-140. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2001" award.)
- Hsieh-Yee, I., and Smith, M. (2001). The CORC Experience: Survey of Founding Libraries, Part II, Automated Tools and Usage. *OCLC Systems & Services*, 17: 166-177. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2001" award.)
- Hsieh-Yee, I. (2001). ERIC User Services: Changes and Evaluation for the Future. *Government Information Quarterly*, 18: 31-42.
- Hsieh-Yee, Ingrid. (2001). Research on Web Search Behavior. *Library and Information Science Research*, 23: 167-185.
- Logan, E., and Hsieh-Yee, I. (2001). Library and Information Science Education in the Nineties. *Annual Review of Information Science and Technology*, 35: 425-477.
- Hsieh-Yee, I. (Ed.) (2001). *Library and Information Science Research*, 23 (2). A special issue in honor of the retirement of Douglas L. Zweizig.
- Hsieh-Yee, I. (2000). *ERIC User Services: Evaluation in a Decentralized Environment*. Washington, D.C.: Dept. of Education.
- Hsieh-Yee, Ingrid. (2000). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide*. Littleton, CO: Libraries Unlimited.
- Hsieh-Yee, I. (2000). Organizing Internet Resources: Teaching Cataloging Standards and Beyond. *OCLC Systems & Services*, 16: 130-143. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2000" award.)
- Hsieh-Yee, I. (1998). The Retrieval Power of Selected Search Engines: How Well Do They Address General Reference Questions and Subject Questions? *Reference Librarian*, 60: 27-47.
- Hsieh-Yee, I. (1998). Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study. *Reference Librarian*, 60: 61-85. (Received the 1997 Best ALISE Research Paper Award.)
- Hsieh-Yee, I. (1997). Access to OCLC and Internet Resources: LIS Educators' Views and Teaching Practices. *RQ*, 36: 569-86.

- Hsieh-Yee, I. (1997). Teaching Online and CD-ROM Resources: LIS Educators' Views and Practices. *Journal of Education for Library and Information Science*, 38: 14-34.
- Hsieh-Yee, I. (1996). The Cataloging Practices of Special Libraries and Their Relationship with OCLC. *Special Libraries*, 87: 10-20.
- Hsieh-Yee, I. (1996). Modifying Cataloging Practice and OCLC Infrastructure for Effective Organization of Internet Resources. In *Proceedings of the OCLC Internet Cataloging Colloquium*. [Online]. Available: <http://www.oclc.org/oclc/man/colloq/hsieh.htm>
- Hsieh-Yee, I. (1996). Student Use of Online Catalogs and Other Information Channels. *College & Research Libraries*, 57: 161-175.
- Hsieh-Yee, I. (1995). Ten entries in James S. C. Hu (Ed.), *Encyclopedia of Library & Information Science*, 913, 1028-29, 1036, 1037, 1145-46, 1514, 1575, 1763-64, 2216-27, 2378-79. Taipei, Taiwan: Sino-American Publishing. (Topics include "Advanced Technology/Libraries," "Information Ethics," "Instruction on Cataloging and Classification," "Instruction on Reference Services.")
- Hsieh-Yee, I. (1993). Effects of Search Experience and Subject Knowledge on Online Search Behavior: Measuring the Search Tactics of Novice and Experienced Searchers. *Journal of the American Society for Information Science*, 44: 161-174. (Received the 1993 Best JASIS Paper Award.)

Works in Progress

- Hsieh-Yee, I. Actionable lessons for debunking false information: A comparative analysis of literacy lessons in communication and library and information science
- Hsieh-Yee, I. Representing diverse voices and communities in cataloging and indexing: The evolution of controlled vocabularies
- Hsieh-Yee, I. Information Organization and Retrieval in Practice (a monograph scheduled for completion and publication in 2023)

Presentations

- Bailey, T. & Hsieh-Yee, I. (February 2020). The Phenomena of Sharing Misinformation and the Need for Information Literacy. Presented at the 2020 Bridging the Spectrum Symposium, Washington, D.C., February 14, 2020.

- Hsieh-Yee, I. and Fragan-Fly, J. (May 2018) *Trends, Design & Strategies for Digital Scholarship Services*. Presented at the 2018 Maryland/Delaware Library Association Conference, Cambridge, MD.
- Hsieh-Yee, I. (February, 2018) *Research Data Management: What It Takes to Succeed*. Presented at the 10th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (February, 2017) *Research Data Management: New Competencies and Opportunities for Information Professionals*. Presented at the 9th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. and Lawton, P. (February, 2017) *Enhancing Catholic Portal Searches with User Terms and LCSH*. Presented at the 9th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (2016, October) *Visualizing Data for Information*. Presented at the 2016 Virginia Library Association Conference, Hot Springs, VA.
- Hsieh-Yee, I. (2016, August) *Religious Materials Toolbox for Archivists: Solutions to Problems Facing the Profession*. Presented at Archives * Records 2016, Atlanta, GA.
- Hsieh-Yee, I. and Lawton, P. (2016, March) *Enhancing Retrieval of Catholic Materials with LCSH Knowledge Structure*. Presented at the 2016 Catholic Library Association Conference, San Diego, CA.
- Fagan-Fry, J. and Hsieh-Yee, I. (2016, February) *Approaches to Digital Scholarship at Top Universities around the World: Scholarly Publishing in the Digital Age*. Presented at the 8th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee and Fagan-Fry, J. (2016, January) *Innovative Services for Digital Scholarship at Top 100 Research Libraries of the World*. Poster presented at the 2016 Annual Conference of the Association for Library and Information Science Education, Boston, Mass.
- Hsieh-Yee, I. and Lawton, P. (2015, June). *Crowdsourcing terms for CRRA portal themes*. Poster presented at the third CRRA symposium and annual meeting, Bringing the created toward the Creator: Liturgical art and design since Vatican II. Catholic Theological Union, Chicago, Illinois.
- Hsieh-Yee, I. and Lawton, P. (2015, February). *Crowdsourcing terms for thematic exploration in the Catholic Portal*. Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I., James, R., and Fagan-Fry, J. (2015, February). *Support for digital scholarship at top university libraries of the world*. Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.

- Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2015, February). *Thus said the end users: Summon experience and support for research workflows*. Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.
- Yontz, E., Hsieh-Yee, I., & Houston, S. (2015, February). *Healthy Heroes Summer Reading Club: Developing healthy youth at public libraries*. 11th Annual Jean Mills Health Symposium, Greenville, North Carolina.
- Yontz, E., Hsieh-Yee, I., and Houston, S. (2015, January). *Healthy youth and libraries: A pilot study*. Association for Library & Information Science Education (ALISE) Annual Conference, Chicago, Illinois.
- Hsieh-Yee, I. (2014, May). *Linking CRRA resources to portal themes via authority files*. Presented at the Catholic Research Resources Alliance 2014 Membership Meeting, Marquette, WI.
- Hsieh-Yee, I. (2014, April). *Enhancing subject access to CRRA resources*. Presented at the 2014 Catholic Library Association Conference, Pittsburgh, PA.
- Hsieh-Yee, I. (2014, January). *Health Information Technology Program: Educational entrepreneurship in action*. Presented at the 2014 annual Conference of the Association for Library and Information Science Education, Philadelphia, PA.
- Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2014, January). *Discovering information through Summon: An analysis of user search strategies and search success*. Paper presented at the 6th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (2012, December). *National Digital Stewardship Alliance and SLIS at CUA: An Educational Partnership*. Paper presented at Best Practices Exchange: Acquiring, Preserving, and Providing Access to Government Information in the Digital Era, Annapolis, MD.
- Choi, Y. and Hsieh-Yee, I. (2010, January). *Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes*. Paper presented at 2nd Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. and Coogan, J. (2010, January). *Google Scholar vs. Academic Search Premier: What Libraries and Searchers Need to Know*. Paper presented at 2nd Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2009, November). *Information Science Education: An LIS School's Perspective*. Paper presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada.

- Hsieh-Yee, I., Menard, E., Ya-Ning Chen, A., Shu-Jiun Chen, S., Kalfatovic, M. R., Wisser, K. M. (2009, November). *Information Organization in Libraries, Archives and Museums: Converging Practices and Collaboration Opportunities*. Presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada. (Organizer and moderator of this panel.)
- Hsieh-Yee, I. and Coogan, J. (2009, July). *Catching up to Google Scholar: The Retrieval Power of Academic Search Premier and Google Scholar*. Poster presented at American Library Association Conference, Chicago, Illinois.
- Hsieh-Yee, I., with the CUA Scholarly Communications Project Team. (2009, January). *Digital Scholarship@CUA: Developing an Institutional Repository for CUA*. Poster presented at 1st Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Wise, M., Cylke, K., and Hsieh-Yee, I. (2009, January). *Digital Talking Books: Meeting the Needs of the Blind and the Handicapped*. Paper presented at the Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2009, January). *User Expectations of MERIC*. Presented at the Information Organization Competencies for the 21st Century Discussion Session of the 2009 Conference of the Association for Library and Information Science Education, Denver, Colorado.
- Choi, Y., and Hsieh-Yee, I. (2008, November). *Subject Access for Images in an OPAC*. Annual Meeting of the American Society for Information Science and Technology, Columbus, Ohio. (Also co-organized a panel on Retrieving and Using Visual Resources: Challenges and Opportunities for Research and Education.)
- Hsieh-Yee, I. (2008, June). *Educating Cataloging Professionals in a Changing Information Environment*. National Taiwan University, Taipei, Taiwan.
- Vellucci, S. L., Moen, W.E., Hsieh-Yee, I., Marson, B., and Wisser, K. (2008, January) *Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input*. A panel presented at the 2008 Conference of the Association for Library and Information Science Education, Philadelphia, Pennsylvania.
- Hsieh-Yee, I., Choi, Y. and Kules, B. (2007, October). *Searching for Books and Images in OPAC: Effects of LCSH, TOC and Subject Domains*. A poster presented at the American Society for Information Science and Technology Annual Meeting, Milwaukee, Wisconsin.
- Hsieh-Yee, I. and Coogan, J. (2007, August) *Google Scholar vs. Academic Search Premier: A Comparative Analysis*. Presented to the Faculty and Staff of the University of the District

of Columbia.

- Hsieh-Yee, I. and Coogan, J. (2007, June). *Google Scholar vs. Academic Search Premier: A Comparative Analysis*. Presented to the Washington Research Library Consortium Community, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I., Choi, Y., and Kules, B.. (2007, June). *What Users Need for Subject Access: Table of Contents or Subject Headings?* A poster presented at the 2007 American Library Association Annual Conference, Washington, D.C., June 2007.
- Choi, Y., Hsieh-Yee, I., and Kules, B. (2007, June). *Retrieval Effectiveness of TOC and LCSH*. A paper presented at the Joint Conference on Digital Libraries 2007, Vancouver, Canada.
- Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007, May). *If We Build It, Will They Come? Building a Community of Practice for Metadata Stakeholders*. A poster presented at the Rutgers University Research Day, Bridgeton, New Jersey.
- Hsieh-Yee, I. (2007, May). *Federated Searching: User Experience & Perceptions*. International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I. (2007, May). *Search Performance of Google Scholar and Academic Search Premier*. International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I. (2007, May) *MERIC: Building a Digital Commons for Metadata Education & Research*. International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I., and Coogan, J. (2007, March/April). *A Comparative Analysis of Google Scholar and Academic Search Premier*. Poster presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland.
- Vellucci, S. L. and Hsieh-Yee, I. (2007, March/April) *They Didn't Teach Me That in Library School! Building a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research*. On-site presentation and Webcast by Elluminate. A contributed paper presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland. The acceptance rate for contributed paper was 20%. This paper was one of 10 conference papers chosen for live webcast during the conference.
- Moen, W., Hsieh-Yee, I. and Vellucci, S.L. (2007, January) *A DSpace Foundation for a Teaching & Research Commons: The Metadata Education and Research Information Commons*. A poster session presented at the Open Repositories Conference 2007, San Antonio, Texas.

- Tang, R., Hsieh-Yee, I., and Zhang, S. (2006, November) *User Perception of MetaLib Combined Search*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas, Nov. 2006.
- Hsieh-Yee, I. (2006, November). *Federated Searching: User Perceptions, System Design, and Library Instructions*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter).
- Hsieh-Yee, I. (2006, November). *Building a Digital Teaching Commons to Enhance Teaching and Learning: The MERIC Experience and Challenges*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter)
- Hsieh-Yee, I. (2006, September). *Search Performance of Google Scholar and Academic Search Premier*. Paper presented at the ERIC Publishers Meeting, Washington, D.C.
- Hsieh-Yee, I., Zhang, S., and Rong Tang, R. (2006, June). *User Perceptions of a Federated Search System*. Poster presented at Joint Conference on Digital Libraries, Chapel Hill, North Carolina.
- Hsieh-Yee, I. and Zhang, S. (2006, June). *Preparing Users for Federated Search: Implications of a MetaLib User Perceptions Study*. Paper presented at the 2006 Ex Libris User Groups of North America Conference, Knoxville, Tennessee.
- Hsieh-Yee, I. (2006, January). *MERIC Organizations and Navigation*. Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.
- Hsieh-Yee, I. (2006, January). *Metadata and Cataloging Education: Recommended Competencies*. Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.
- Hsieh-Yee, I. (2005, November). *Digital Library Evaluation: Progress & Next Steps*. Presentation at the Annual Meeting of the American Society for Information Science & Technology, Charlotte, North Carolina.
- Hsieh-Yee, I. (2005, August). *Providing Access to Digital Content: Issues for DL Managers*. Presentation at MDK12 Digital Library Steering Committee Meeting, Columbia, Maryland.
- Hsieh-Yee, I. (2005, April). *Enhancing Teaching and Learning: The Role of School Library Media Specialists*. Presentation at Meeting of the Baltimore County Public School System School Media Specialists, Baltimore, Maryland.

- Hsieh-Yee, I. (2005, January). *Subject Access and Users: Insights & Inspirations from Marcia J. Bates*. Paper presented at the Historical Perspectives SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.
- Hsieh-Yee, I. (2005, January). *Electronic Resource Management: Practice, Employer Expectations, & CE Interests*. Paper presented at Technical Services Education SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.
- Hsieh-Yee, I. (2004, October). *Library Professionals for the Digital Age: Competencies & Preparation*. Paper presented at Bibliographic Access Management Team meeting, Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (2004, January). *Cataloging and metadata expertise for the digital era*. Presented at Preparing 21st Century Cataloging and Metadata Professionals: A Workshop for Educators and Trainers, San Diego and sponsored by ALCTS, ALISE, LC, and OCLC.
- Hsieh-Yee, I. (2004, January). *Educating catalogers for the digital era*. Paper presented at the Technical Services SIG, 2004 Conference of the Association for Library and Information Science Education, San Diego.
- Hsieh-Yee, I. (2003, July). *Cataloging Education for the 21st Century*. A presentation at the Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (2002, January) *Metadata Education and Research Priorities: A Delphi Study of Metadata Experts*. Presentation at the 2002 Conference of the Association for Library and Information Science Education, New Orleans.
- Hsieh-Yee, I. (2001, November). *A Delphi Study of Metadata: Preliminary Findings*. Poster session at the 2001 Annual Meeting of the American Society for Information Science & Technology, Washington, D.C.
- Hsieh-Yee, I. (2001, June). *Resources on Asian American Children: Analysis of Retrieval by Search Engines and WorldCat*. Presentation at the National Conference on Asian Pacific American Librarians, San Francisco.
- Hsieh-Yee, I. (2001, January). *Delphi Study on Metadata: Project Design*. Presentation at Research Awards Session, Association for Library & Information Science Education, Washington, D.C.
- Hsieh-Yee, I. (2000, May). *Web Search Behavior Research: Progress and Implications*. Presentation at the Symposium on Evaluating Library and Information Science Research, University of Wisconsin-Madison, Madison, Wisconsin.

- Hsieh-Yee, I. (2000, March). *ERIC User Services: Evaluation in a Decentralized Environment*. Presentation at the National ERIC Joint Directors/Technical Meeting, Arlington, Virginia.
- Hsieh-Yee, I. (2000, January). *Enhancing Learning with Web Technology*. Presentation at Faculty Conversations, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2000, January). *From Surrogates to Objects: CUA's Approaches to Organizing Electronic Resources*. Paper presentation at the Annual Conference of the Association for Library and Information Science Education, San Antonio, Texas.
- Yee, P., and Hsieh-Yee, I. (1997, November). *Individual Differences in Search Behavior on the WWW*. A poster session presented at the 38th Annual Meeting of the Psychonomic Society, Philadelphia, Pennsylvania.
- Hsieh-Yee, I. (1997, April). *Research + Marketing + Preparation = Job!* Presented at the "Workshop on Resume and Interview Techniques," Special Libraries Association, Student Chapter, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (1997, February). *Creating CyberCatalogers: Education and Training*. Presentation at ALA's Midwinter Meeting, Washington, D.C.
- Hsieh-Yee, I. (1997, February). *Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study*. Presented at the Conference of the Association for Library and Information Science Education, Washington, D.C.
- Hsieh-Yee, Ingrid. "Beginning Your Special Library/Information Center Career." Presented at SLA's "Career Day," Jan. 11, 1997, Catholic University of America.
- Hsieh-Yee, I. (1996, September). *The Roles of Library and Information Scientists in Managing Electronic Information*. Presentation at Hamilton College, Clinton, New York.
- Hsieh-Yee, I. (1996, May). *The Future of Cataloging as a Profession*. Presented at "The Cataloging Forum, Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (1994, October). *The Impact of the Internet on OPACs*. Presented at the Third Workshop on User Interfaces for OPACs, Library of Congress, Washington, D.C.

Reports

- Hsieh-Yee, I., with Knowledge Management Competencies and Performance Action Group of the Federal Knowledge Management Initiative. "From Knowledge Management Competencies to Improved Organizational Performance." April 9, 2009.

Hsieh-Yee, I., with Knowledge Practices Action Group of the Federal Knowledge Management Initiative. "KM Practice in Government Agencies: Findings and Recommendations." April 9, 2009.

Hsieh-Yee, I. "Delphi Study on Metadata." 2001. Three quarterly reports submitted to the Association for Library and Information Science Education.

Hsieh-Yee, I. "College Students' Information Channels: Patterns of Use and Possible Factors in Channel Selection." 1995. Submitted to the Catholic University of America.

Hsieh-Yee, I. "The Information-Seeking Patterns of Scholars and Their Use of an Online Information System." 1994. Submitted to the Council on Library Resources.

Book Reviews

Review of *The Measurement and Evaluation of Library Services*, by Sharon L. Baker and F. Wilfrid Lancaster. *Information Processing and Management* 30 (1994): 450-52.

Review of *Subject Access to Films and Videos*, by Sheila S. Intner and William E. Studwell; and *Cataloging Unpublished Nonprint Materials*, by Verna Urbanski with Bao Chu Chang and Bernard L. Karon. *Information Processing and Management* 30 (1994): 449-50.

Review of *Automated Information Retrieval in Libraries: A Management Handbook*, by Vicki Anders. *Journal of Library and Information Science* 19 (1993): 98-100.

Review of *Full Text Databases*, by Carol Tenopir and Jung Soon Ro. *Information Processing and Management* 28 (1992): 667-68.

Review of *Descriptive Cataloging for the AACR2R And USMARC: A How-to-Do It Workbook*, by Larry Millsap and Terry Ellen Ferl. *Information Processing and Management* 28 (1992): 809-11.

Review of *MARC Manual: Understanding and Using MARC Records*, by Deborah J. Byrne. *Information Processing and Management* 28 (1992): 537-38.

Service

Professional Associations and Societies

- Library of Congress. RDA Training Program for the Profession. Co-authored with Tim Carlton. 2013-2014.
- 2014 Digital Preservation Outreach & Education Survey. Contributed to the design of the survey, 2014.
- National Digital Stewardship Alliance. Outreach Committee. 2011-2014.
- National Digital Stewardship Residency Program. Advisory Group, 2012-2013.
- FEDLINK Health Information Technology Advisory Council, 2011-2015.

- 2012 Joint Conference on Digital Libraries. Program Planning Committee, Pre-Conference Proposals Review Committee, 2012
- Catholic Research Resources Alliance. Five-Year Strategic Plan Task Force, 2011-2012
- Institute of Museum and Library Services. Grant reviewer. 2004, 2005, 2010.
- Association for Library and Information Science Education.
 - * ALISE Bodan Wynar Research Paper Award Committee, 2015, 2016, 2017
 - * ALISE Eugene Garfield Dissertation Award Competition, Jury, 2013, 2014
 - * ALISE Research Grant Competition Committee. Chair, 2012
 - * Pratt-Severn Faculty Innovation Award. Chair, 2009, 2010
 - * ALISE Doctoral Poster Jury, 2012
 - * “Information Organization Competencies for the 21st Century” Discussion session leader. 2009 Conference of the Association for Library and Information Science Education.
 - * Assisted Technical Services SIG Convener in organizing a program, “Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input” for the 2008 ALISE conference.
 - * Association for Library Collections and Technical Services/Association for Library and Information Science Education (ALCTS/ALISE) Metadata Education and Research Information Center (MERIC) Advisory Board, Co-Chair (with Sherry Vellucci), 2005-2007. Chair, 2008-2009 (leading the effort to build MERIC, a repository and collaborative space for metadata educators, practitioners, and researchers)
 - * Technical Services SIG, Convener, 2004-2005. Organized a program on “Electronic Resources Management: Current Practices, Employer Expectations, and Teaching Strategies” for the 2005 conference in Boston, Massachusetts.
 - * Technical Services SIG, Convener, 2003-2004. Organized a program on “Organizing Information with Metadata: Desired Competencies and Teaching Innovations” for the 2004 conference.
 - * Technical Services SIG, Convener, 1999-2000. Organized a program on "Teaching the Organization of Electronic Resources" for the 2000 conference.
 - * Curriculum SIG, Co-convener (with Sibyl Moses), 1996-97. Organized a program on “Government Information Policy” for the 1997 conference.
- American Society for Information Science & Technology.
 - * Reviewer, Conference program panel submissions and poster submissions, 2005, 2006, 2007, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017
 - * Nomination Committee, 2009-2011
 - * Information Science Education Special Interest Group. American Society for Information Science and Technology. Chair-Elect, 2007-2008. Chair 2008-2009.
 - * Committee on Information Science Education. 1999-2006.
 - * Committee on Information Science Education. Organizing Committee for an orientation program for students at ASIS annual meetings, 1999-2001
 - * Committee on Information Science Education. Sub-committee on Student Welfare (focusing on issues related to master's education), 1998-2001

- * SIG ED. Organizing Committee for the "Seminar on Research and Career Development" for junior researchers. 1995-96 (chair), 1997-2001
- * ISI Doctoral Dissertation Proposal Scholarship Jury, 1997; 2001, 2002
- * Pratt-Severn Best Student Research Paper Award Jury. Chair. 1997
- * 1998 Midyear Meeting (referee of contributed papers), 1997
- * Organizer and moderator of the ASIS Doctoral Forum and the Doctoral Research Seminar 1994-1995
- * SIG Human Computer Interaction. Chair-Elect, Chair, 1993-1995
- * Doctoral Forum Award Jury, 1995
- * Best Student Paper Award Jury, 1995
- American Library Association.
 - * Committee on Accreditation, External Review Panelist, 2009- (site visiting team 2013-2014; site visiting team 2016-2017)
 - * Association for Library Collections and Technical Services Task Force on Competencies and Education for a Career in Cataloging, member, 2008-2009
 - * Facilitator for "What They Don't Teach in Library School: Competencies, Education and Employer Expectations for a Career in Cataloging," an Association for Library Collections and Technical Services Preconference, June 22, 2007 in Washington, D.C. Also a local liaison for bringing this program to the Catholic University of America.
 - * Facilitator for a discussion on "Effect of Electronic Resources on Technical Services" at ALA's Midwinter Meeting held in Feb. 1997 in Washington, D.C.
 - * International Relations Committee, Subcommittee Task Force for IFLA and China, 1994-1997
- Virginia Association of School Librarians. Scholarships and Awards Committee. 2010-2012
- Federal Knowledge Management Initiative, Knowledge Management Practices Action Group. Member. 2009 (leading the effort to build a knowledge management repository)
- Federal Knowledge Management Initiative, Knowledge Management Competencies & Learning Action Group. Member. 2009 (developing an action plan for helping government knowledge workers and government agencies to develop knowledge management competencies)
- National Center for Education Statistics. Technical Review Panel. 2008.
- External evaluator for a case of promotion to full professorship. University of Tennessee. 2008.
- National Information Standards Organization (NISO). Advisory Board, Revision of "IMLS Framework of Guidance for Building Good Digital Collections," 2004, 2007.
- Library of Congress, Bibliographic Control of Web Resources: A Library of Congress Action Plan. Principal Investigator of Action Item 5.1, focusing on cataloging and metadata education for students and new librarians, 2002-2003. (worked with the Association for Library Collections and Technical Services, Education Task Force)

- Chinese American Librarians Association
 - * Chinese American Librarians Association Outstanding Library Leadership Award in Memory of Dr. Margaret Chang Fung, Award Committee, 2016-2017
 - * Achievement Award Jury, 2000-2001
 - * CALA Goal 2000 Task Force, 1997
 - * Scholarship Committee, 1995, 1996-1997 (chair)
 - * Board of Directors, 1994-1997
 - * Publication Committee, 1993-1995
 - * International Relations Committee, 1993-1996
- SailorSM Assessment Advisory Group (An impact study of Sailor, Maryland's Public Information Network), 1995
- Editorial boards
 - Journal of Library & Information Science. Editorial Board, 2012-
 - Chinese American Librarians Association, *Occasional Papers Series*. Editorial Board, 2009-2016.
 - Library Quarterly*. Editorial Board, 2003-2008
 - Bulletin of the Medical Library Association*, 1994-97
 - Newsletter editor for the Chinese American Librarians Association, 1989-92
- Referee for the following journals
 - Information Processing and Management*
 - Journal of Digital Information*
 - Journal of Education for Library and Information Science*
 - Journal of Information Science*
 - Journal of Library & Information Science*
 - Journal of Library Metadata*
 - Journal of the American Society for Information Science & Technology*
 - Library and Information Science Research*
 - Library Quarterly*
- Expert reviewer, “Digital Library” course, Evaluation module, University of North Carolina, Chapel Hill, 2007-2008.
- Expert reviewer, “Information Organization” course, University of Michigan, Ann Arbor. 2007.

Catholic University of America

- Academic Senate Committee on Appointments and Promotions, 2005-2008
- Academic Senate Committee on Committees and Rules, 2009-2012, 2019-2022
- Academic Senate representative (for School of Arts & Sciences), 2017-2020

- Academic Senate representative (for School of Library & Information Science) 2003-2012
- Academic Senate Library Committee, Interim Chair (2007), Member, 2008-2012
- Academic Senate Committee on Computing, 1995-2003
- President's Administrative Council, 2010-2012
- Deans' Council, 2010-2012
- Academic Leadership Group, 2010-2012
- Graduate Board, 2010-2012
- School of Arts & Sciences, Committee on Appointments and Promotions, 2015-2019
- School of Arts & Sciences, Academic Council, 2015-2016.
- School of Arts & Sciences, Ordinary Professor Group, 2013-
- Doctoral Dissertation Defense Committee, Chair, Dept. of Psychology, 2016, 2017, 2018, 2019, 2020, 2021, 2022
- Doctoral Dissertation Defense Committee, Chair, Dept. of Education, 2014, 2015, 2017, 2018, 2019
- Doctoral Dissertation Defense Committee, Chair, National Catholic School of Social Services, 2019, 2020, 2021
- Doctoral Dissertation Defense Committee, Chair, School of Nursing, 2006, 2008
- CUA Scholarly Communication Project Team, Member (2007), Chair, 2008-2009
- Dean Search Committee, 1992-1994, 1998-1999, 2002-2003, 2006-2007
- Fulbright Review Panel, 2006
- CUA Service Learning Advisory Board, 2001-2002
- CUA Faculty Conversations on Enhancing Teaching and Learning through Technology, Planning Group, 1999-2001
- CUA Initiative on Technology and Teaching, 1998-2001

Dept. of Library and Information Science

- Admissions Committee, 2007-2009, Chair 2010-2012, Member 2013-2015, Member 2018-2022
- Appointments and Promotions Committee, 1991-2022
- Student advisement, 1990-2022
- 4+1 Bachelor to Master program, Program Advisor, 2014-2022
- LIS Minor, Advisor, 2017-2022
- Curriculum Committee, 2020-21 (Member), 2021-2022 (Chair)
- Scholarship & Awards Committee, 2016-2018, 2020-21
- Comprehensive examination editor, 2020-21
- Symposium, Colloquium, Lecture Series Committee, May 2018-May 2020 (Chair)
- Symposium and Colloquium Committee, fall 2016-May 2018
- Bridging the Spectrum Symposium session moderator, 2018, 2019, 2020, 2021

- Organization of Information Core Course Outcomes Assessment, 2019, 2020
- The Information Professions in Society Core Course Outcomes Assessment, 2019, 2020
- Community Services Librarianship, Course of Study Review and Revision, 2020
- Organization of Information, Course of Study Review and Revision, 2019
- Organization of Information, Competency and Course Offerings Review, 2018-2019
- Accreditation presentation, Chair, June 2015-August 2016
- Interim Co-Chair, June 2015-August 2016.
- Blended/OWL Learning Committee, spring 2016-2018
- Technology Committee, fall 2016-2017
- Comprehensive examination editor, 2016-2017, reader (every year since 1990)
- LIS Advisory Board, 2015-2016 (chair); fall 2016- May 2018 (member)
- Committee on Planning and Assessment, 2015-2016 (chair)
- Senior Faculty Committee, 2014-2016.
- Accreditation Steering Committee, 2014-2016 (Chair, 2015-2016)
- Accreditation Students Standard Committee, co-chair, 2014-2016
- Accreditation Mission, Goals, and Objectives Standard Committee, co-chair, 2014-2016
- Accreditation Curriculum Standard, member 2014-2-16
- Accreditation Administration and Finance Standard, member 2014-2016
- Cultural Heritage Information Management Project (IMLS-funded), Co-PI, 2012-2015
- Cultural Heritage Information Management Forum (scheduled for June 2015), Co-Organizer, 2013-2015
- Health Information Technology Interim Review Committee, 2015 (chair)
- Health Sciences Librarianship Advisory Group, 2015- (chair)
- Comprehensive examination editors, 2013-2014, 2016-2017
- National Digital Stewardship Alliance liaison, 2011-2014
- Advisory Board, Chair 2010-2012
- Academic Honesty Committee, Chair, 2008-2012
- Blended Learning Committee, 2010-2012
- Colloquium Committee, 2010-2012
- Comprehensive Examination Administration, 2010-2012
- Cultural Heritage Information Management Advisory Committee, 2010-2012 (chair), 2013-
- Curriculum Committee, 1991-2003, 2007-2009, Chair 2010-2012, member 2013-
- Curriculum Subcommittee on Comprehensive Examination, Chair 2009-2012
- Health Information Technology Advisory Board, Chair 2010-2012. Member 2013-
- Health Sciences Advisory Committee, 2009, Chair 2010-2012. Member 2013-
- HIT Expert Forum, Chair 2012. Member 2013-2015
- Health Information Technology Student Group Advisor, 2011-2012
- State Council for Higher Education of Virginia, SLIS Representative, 2010-2012
- Symposium Planning Committee, 2010-2012
- Website Management Team, Chair, 2010-2012
- Urban School Librarianship Project (IMLS-Funded), PI, 2007-2011 (chair, 2010-11)

- Failing Grades Committee, 1995-1997 (chair), 2000-2001 (chair), 2004-2005 (chair), 2007 (chair)-2011
- Faculty Search Committee, 1994-1998, 2002-2004, 2006 (chair), Fall 2007-2009, Chair fall 2009-2012
- Recruitment Committee, Chair 2010-2012
- Strategic Planning Committee, Chair 2010-2012
- Technology Committee, 2010-2012
- Accreditation Advisory Committee, 2007-2009
- Accreditation Coordinating Committee, 2007-2009
- Accreditation Steering Committee, 2007-2009
- SLIS Advisory Group, 2007-2009
- Accreditation Curriculum Standard Committee, Co-chair, 2007-2009
- Accreditation Faculty Standard Committee, Co-chair, 2007-2009
- LSC 551 Information Organization Review Team, Co-chair, 2008-2009, 2015-2016.
- Curriculum Subcommittee on Portfolios, 2009
- LSC 555 Information Systems in Libraries and Information Centers Review Team, contributor, 2008-2009
- Redesign of LSC 730 Use and Users of Libraries and Information. 2009-
- Development of a metadata institute that was taught as LSC 715 Organization of Internet Resources in 2008. The institute is being revised and will be offered in 2010 under a new course title.
- Development of lesson plans, assignments, and evaluation rubrics for LSC 606, Cataloging and Classification, for the School's NCATE accreditation. 2008
- Howard and Mathilde Rovelstad Scholarship Committee, Chair, 2004-2007
- Assistant Dean Search Committee, Chair, Fall 2007
- Liaison to the Association for Library Collections and Technical Services to bring its preconference program, Cataloging Education and Employer Expectations, to CUA during the 2007 American Library Association Annual Meeting in Washington, D.C.
- Organizer of the colloquium presentation and reception for Tamar Sadeh of Ex Libris on PRIMO June 2007
- Practicum review and design (work with potential supervisors, such as the American Indian Museum internship description revision) 2006-
- Comprehensive examinations (edits, proctoring, and grading), 1990-
- SLIS Web site redesign: Comments and suggestions. Fall 2007
- Conducted surveys of current students and alumni in preparation for the 2005 re-accreditation, 2004-2005
- Technology Committee, 1992-1999 (chair, 1996-1998), 2002-2003 (member)
- Colloquia Committee 1997-1999, 2002-2003.
- Advisor of the CUA Student Chapter of the American Society for Information Science and Technology, 2002-2003
- Visiting Professor Search Committee, 1999, 2000, 2001
- Leader, Participation in the CORC experiment, 1999-2000
- Advisor of the Special Libraries Association Student Chapter, 1993-1999; the group was recognized for outstanding leadership by SLA in 1999.

- COA planning Committee, Task Force on Electronic Presentation of SLIS Reports (team leader) 1997-1998
- COA Planning Committee, Subcommittee on Technology 1996-1998
- NLM practicum coordinator, 1997-1998
- Computer Literacy Workshops: Assisted with the development and evaluation of the workshops, 1996-1998
- Leader, Participation in the InterCat project, 1995-1997

APPENDIX B

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MARC 21 Reference Materials

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Part VII:

A Summary of Commonly Used MARC 21 Fields

This is a summary of the MARC 21 tags used most frequently by libraries in entering their own bibliographic records. For full listings of all MARC 21 tags, indicators, and subfield codes, see *MARC 21 Format for Bibliographic Data*.

In the explanations on these pages:

Tags -- The tags (3-digit numbers) are followed by the names of the fields they represent. In this summary, and in the *MARC 21 Format for Bibliographic Data*, if a tag can appear more than once in one bibliographic record, it is labeled repeatable (R). If it can only be used once, it is labeled non-repeatable (NR). For example, a catalog record can have several subjects, so the tags for subject added entries (6XX) are labeled repeatable (R).

Indicators -- The use of indicators is explained in fields where they are used. Indicators are one-digit numbers. Beginning with the 010 field, in every field -- following the tag -- are two character positions, one for Indicator 1 and one for Indicator 2. The indicators are not actually defined in all fields, however. And it is possible that a 2nd indicator will be used, while the 1st indicator remains undefined (or vice versa). When an indicator is undefined, the character position will be represented by the character # (for blank space).

Subfield codes -- All the data in each field (beginning with the 010 field) is divided into subfields, each of which is preceded by a delimiter-subfield code combination. The most common subfield codes used with each tag are shown. Each subfield code is preceded by the character \$, signifying a delimiter. The name of the subfield follows the code.

In general, every field **MUST** have a subfield 'a' (**\$a**). One exception that is often seen is in Field 020 (ISBN), when the ISBN information (subfield **\$a**) is unavailable but the price (subfield **\$c**) is known. Some subfields are repeatable. In this summary, repeatability is noted for only the more common repeatable subfields.

Examples: Examples follow the explanation for each field. For clarity, one space has been placed between the tag and the first indicator, one space has been placed between the second indicator and the first delimiter- subfield code, and one space has been inserted between the delimiter-subfield code and the subfield data.

010 Library of Congress Control Number -- (LCCN)

(NR, or Not Repeatable)

*Indicators undefined.**Subfield used most often:***\$a** -- Library of Congress control number

Example: 010 ## \$a ###86000988#

020 International Standard Book Number -- (ISBN)

(R, or Repeatable)

*Indicators undefined.**Subfields used most often:***\$a** -- International Standard Book Number**\$c** -- Terms of availability (often a price)**\$z** -- Cancelled/invalid ISBN (R)

Example: 020 ## \$a 0877547637

040 Cataloging source -- (NR)*Indicators undefined.**Subfields used most often:***\$a** -- Original cataloging agency**\$c** -- Transcribing agency**\$d** -- Modifying agency (R)

Example: 040 ## \$a DLC
 \$c DLC
 \$d gwhs

100 Main entry -- Personal name -- (primary author)

(NR; there can be only one main entry)

Indicator 1: Type of personal name entry element

0 -- Forename

1 -- Surname (this is the most common form)

3 -- Family name

Indicator 2 undefined.

Indicator 2 became obsolete in 1990. Older records may display 0 or 1

*Subfields used most often:***\$a** -- Personal name**\$b** -- Numeration

- \$c** -- Titles and other words associated with a name (R)
\$q -- Fuller form of name
\$d -- Dates associated with a name (generally, year of birth)

Example: 100 1# \$a Gregory, Ruth W.
 \$q (Ruth Wilhelme),
 \$d 1910–

130 Main entry -- Uniform title -- (NR)

Indicator 1: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Indicator 2 undefined.

Indicator 2 became obsolete in 1990. (See 100 above.)

Subfields used most often:

- \$a** -- Uniform title
\$p -- Name of part/section of a work (R)
\$l -- Language of a work
\$s -- Version
\$f -- Date of a work

Example: 130 0# \$a Bible.
 \$p O.T.
 \$p Psalms.

240 Uniform title (NR)

Indicator 1: Uniform title printed or displayed

0 -- Not printed or displayed

1 -- Printed or displayed (most common)

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Subfields used most often:

- \$a** -- Uniform title
\$l -- Language of a work
\$f -- Date of a work

Example: 240 10 \$a Ile mystérieuse.
 \$l English.
 \$f 1978

245 Title Statement (NR)*Indicator 1:* Title added entry

(Should the title be indexed as a title added entry?)

0 -- No title added entry

(indicates a title main entry; i.e. no author is given)

1 -- Title added entry

(the proper indicator when an author given in 1XX; the most common situation)

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present, including spaces; usually set at zero, except when the title begins with an article; e.g., for *The robe*, the second indicator would be set to 4. The letters *T*, *h*, *e*, and the space following them are then ignored in alphabetizing titles. The record will be automatically filed under "r" -- for *Robe*.

*Subfields used most often:***\$a** -- Title proper**\$h** -- Medium (often used for non-book media)**\$p** -- Name of part/section of a work (R)**\$b** -- Reminder of title (subtitles, etc.)**\$c** -- Remainder of title page transcription/Statement of responsibility

Example: 245 14 \$a The DNA story :
 \$b a documentary history of gene
 cloning /
 \$c James D. Watson, John Tooze.

246 Varying form of title (R)*Indicator 1:* Note/title added entry controller

1 -- Note, title added entry

3 -- No note, title added entry

Indicator 2: Type of title

-- No information provided

0 -- Portion of title

1 -- Parallel title

4 -- Cover title

8 -- Spine title

*Subfield used most often:***\$a** -- Title proper

Example: 246 3# \$a Four corners power review

250 Edition statement (NR)

Indicators undefined.

Subfield used most often:

\$a -- Edition statement

Example: 250 ## \$a 6th ed.

260 Publication, distribution, etc. (Imprint) (R)

Indicator 1: Sequence of publishing statements

-- No information provided

Indicator 2: Undefined

Subfields used most often:

\$a -- Place of publication, distribution, etc. (R)

\$b -- Name of publisher, distributor, etc. (R)

\$c -- Date of publication, distribution, etc. (R)

Example: 260 ## \$a New York :
 \$b Chelsea House,
 \$c 1986.

300 Physical description (R)

Indicators undefined.

Subfields used most often:

\$a -- Extent (number of pages) (R)

\$b -- Other physical details (usually illustration information)

\$c -- Dimensions (cm.) (R)

\$e -- Accompanying material (for example, "teacher's guide" or "manual")

Example: 300 ## \$a 139 p. :
 \$b ill. ;
 \$c 24 cm.

440 Series statement / Added entry--Title

This field was made obsolete in 2008 to simplify the series statement. See 490 and 830.

490 Series statement (No added entry is traced from field) (R)

Indicator 1: Specifies whether series is traced (whether an 8XX tag is also present)

0 -- Series not traced

1 -- Series traced (8XX is in record)

Indicator 2 undefined.

Subfield used most often:

\$a -- Series statement (R)

\$v -- Volume number (R)

Example: 490 1# \$a Colonial American craftsmen

500 General note (R)

Indicators undefined.

Subfield used most often:

\$a -- General note (Used when no specialized note field has been defined for the information. Examples: Notes regarding the index; the source of the title; variations in title; descriptions of the nature, form, or scope of the item.)

Example: 500 ## \$a Includes index.

504 Bibliography, etc. note (R)

Indicators undefined.

Subfield used most often:

\$a -- Bibliography, etc. note

Example: 504 ## \$a Includes bibliographical references.

505 Formatted contents note (R)

Indicator 1: Type of contents note

0 -- Complete contents

1 -- Incomplete contents (used with multivolume set when some volumes are not yet published)

2 -- Partial contents

Indicator 2: Level of content designation

-- Basic

Subfield used most often:

\$a -- Formatted contents note

Example: 505 0# \$a Pride and prejudice -- Emma
-- Northanger Abbey.

520 Summary, etc. note (R)

Indicator 1: Display constant controller

-- Summary

- 1 -- Review
- 2 -- Scope and content
- 3 -- Abstract

Indicator 2 undefined

Subfields used most often

- \$a** -- Summary, abstract, or annotation
- \$b** -- Expansion of summary note

Example: 520 ## \$a This basic guide to parliamentary procedure tells how to conduct and participate in a meeting properly.

600 Subject added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

- 0 -- Forename
- 1 -- Surname (this is the most common form)
- 3 -- Family name

Indicator 2: Subject heading system/thesaurus (identifies the specific list or file which was used)

- 0 -- Library of Congress Subject Headings
- 1 -- LC subject headings for children's literature
- 2 -- Medical Subject Headings
- 3 -- National Agricultural Library subject authority file
- 4 -- Source not specified
- 5 -- Canadian Subject Headings
- 6 -- Répertoire de vedettes-matière
- 7 -- Source specified in subfield \$2

(Note regarding Sears subject headings: The MARC 21 format does not provide an assigned indicator for Sears subject headings. Therefore, an indicator of 7 is used, and the MARC defined code "sears" is placed in subfield \$2.)

Subfields used most often:

- \$a** -- Personal name (surname and forename)
- \$b** -- Numeration
- \$c** -- Titles and other words associated with a name (R)
- \$q** -- Fuller form of name
- \$d** -- Dates associated with a name (generally, year of birth)
- \$t** -- Title of a work
- \$v** -- Form subdivision (R)
- \$x** -- General subdivision (R)
- \$y** -- Chronological subdivision (R)
- \$z** -- Geographic subdivision (R)
- \$2** -- Source of heading or term (used with 2nd indicator of 7)

Example: 600 10 \$a Shakespeare, William,
 \$d 1564-1616
 \$x Comedies
 \$x Stage history.

Example: 600 10 \$a Shakespeare, William,
 \$d 1564-1616
 \$x Knowledge
 \$z Rome
 \$v Congresses.

Notice that subfields \$v, \$x, and \$z in the 600 field are repeatable. Subfields \$v, \$x, \$y, and \$z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

610 Subject added entry -- Corporate name (R)

Indicator 1: Type of corporate name entry element

0 -- Inverted name (not used with AACR2)

1 -- Jurisdiction name

2 -- Name in direct order

Indicator 2: Subject heading system/thesaurus.

See indicator 2 under 600

Subfields used most often:

\$a -- Corporate name or jurisdiction name as entry element

\$b -- Subordinate unit (R)

\$v -- Form subdivision (R)

\$x -- General subdivision (R)

\$y -- Chronological subdivision (R)

\$z -- Geographic subdivision (R)

\$2 -- Source of heading or term (used with 2nd indicator of 7)

Example: 610 10 \$a United States.
 \$b Army Air Forces
 \$v Biography.

650 Subject added entry -- Topical term (Most subject headings fit here.) (R)

Indicator 1: Level of subject

-- No information provided

Indicator 2: Subject heading system/thesaurus

(identifies the specific list or file which was used)

0 -- Library of Congress Subject Headings

1 -- LC subject headings for children's literature

- 2 -- Medical Subject Headings
- 3 -- National Agricultural Library subject authority file
- 4 -- Source not specified
- 5 -- Canadian Subject Headings
- 6 -- Répertoire de vedettes-matière
- 7 -- Source specified in subfield \$2

Note regarding Sears subject headings: The MARC 21 format does not provide an assigned indicator for Sears subject headings. Therefore, an indicator of 7 is used, and the MARC defined code "sears" is placed in subfield \$2.)

Subfields used most often:

- \$a** -- Topical term
- \$v** -- Form subdivision (R)
- \$x** -- General subdivision (R)
- \$y** -- Chronological subdivision (R)
- \$z** -- Geographic subdivision (R)
- \$2** -- Source of heading or term used with 2nd indicator of 7)

Example: 650 #0 \$a Theater
 \$z United States
 \$v Biography
 \$v Dictionaries.

Notice that subfields \$v, \$x, and \$z in the 650 field are repeatable. Subfields \$v, \$x, \$y, and \$z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

651 Subject added entry -- Geographic name (R)

Indicator 1: undefined.

Indicator 2: Subject heading system/thesaurus.

See indicator 2 under 600

Subfields used most often:

- \$a** -- Geographic name
- \$v** -- Form subdivision (R)
- \$x** -- General subdivision (R)
- \$y** -- Chronological subdivision (R)
- \$z** -- Geographic subdivision (R)
- \$2** -- Source of heading or term (used with 2nd indicator of 7)

Example: 651 #0 \$a United States
 \$x History
 \$v Chronology.

Notice that subfields \$v, \$x, and \$z in the 651 field are repeatable. Subfields \$v, \$x, \$y, and \$z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

700 Added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

- 0 -- Forename
- 1 -- Surname (this is the most common form)
- 3 -- Family name

Indicator 2: Type of added entry

- # -- No information provided (most common; co-authors, editors, etc.)
- 2 -- Analytical entry (The values for Indicator 2 changed in 1994 with Format Integration, and older records may display additional values. An analytical entry involves an author/title of an item contained in a work.)

Subfields used most often:

- \$a** -- Personal name
- \$b** -- Numeration
- \$c** -- Titles and other words associated with a name (R)
- \$q** -- Fuller form of name
- \$d** -- Dates associated with a name (generally, year of birth)
- \$e** -- Relator term (such as ill.) (R)
- \$4** -- Relator code (R)

Example: 700 1# \$a Baldrige, Letitia.

710 Added entry -- Corporate name (R)

Indicator 1: Type of corporate name entry element

- 0 -- Inverted name (not used with AACR2)
- 1 -- Jurisdiction name
- 2 -- Name in direct order

Indicator 2: Type of added entry.

See Indicator 2 under 700

- # -- No information provided
- 2 -- Analytical entry

Subfields used most often:

- \$a** -- Corporate name or jurisdiction name as entry element
- \$b** -- Subordinate unit (R)

Example: 710 2# \$a Sunburst Communications (Firm)

740 Added entry -- Uncontrolled related/analytical title (R)

Indicator 1: Nonfiling characters

- 0-9 -- Number of nonfiling characters present (for initial articles, including

spaces)

Indicator 2: Type of added entry. See Indicator 2 under 700

-- No information provided

2 -- Analytical entry

(This field was redefined in 1994 with Format Integration. Prior to 1994, the field was also used for variant titles, such as a different wording on a spine title. In records created since Format Integration, those variant titles appear in a 246 field.)

Subfield used most often:

\$a -- Title

Example: 740 02 \$a Uncle Vanya.

800 Series added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

0 -- Forename

1 -- Surname

3 -- Family name

Indicator 2 undefined.

Subfields used most often:

\$a -- Personal name

\$b -- Numeration

\$c -- Titles and other words associated with a name (R)

\$q -- Fuller form of name

\$d -- Dates associated with a name (generally, year of birth)

\$t -- Title of a work (the series)

\$v -- Volume number

Example: 800 1# \$a Fisher, Leonard Everett.
 \$t Colonial American craftsmen.

830 Series added entry -- Uniform title (R)

Indicator 1 undefined.

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Subfield used most often:

\$a -- Uniform title

\$v -- Volume number

Example: 830 #0 \$a Railroads of America (Macmillan)

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Part VIII:

A List of Other Fields Often Seen in MARC Records

001	Control number
003	Control number identifier
005	Date and time of latest transaction
006	Fixed-length data elements -- additional material characteristics
007	Physical description fixed field
008	Fixed length data elements (See Part X)
022	International Standard Serial Number (ISSN)
037	Source of acquisition
041	Language code
043	Geographic area code
050	Library of Congress call number
060	National Library of Medicine call number
082	Dewey Decimal classification number (the one recommended by the Library of Congress; locally-assigned call numbers may appear elsewhere)
110	Main entry -- Corporate name (less frequent under AACR2 rules)
256	Computer file characteristics
263	Projected publication date (indicates a CIP -- Cataloging in Publication -- record)
306	Playing time
508	Creation/production credits note
510	Citation/references note (review sources)
511	Participant or performer note
521	Target audience note (first indicator: 0 = reading grade level, 1 = interest age level, 2 = interest grade level, 3 = special audience characteristics, 4 = motivation interest level)
530	Additional physical form available note
538	System details note
586	Awards note
656	Index term -- Occupation
730	Added entry -- Uniform title
852	Location
856	Electronic location and access
9XX	Reserved for local use. (They are used by vendors, systems, or individual libraries to exchange additional data)

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Part IX:

The Leader

There are 24 positions in the Leader, numbered from 00 to 23. For fuller explanation, see the *MARC 21 Format for Bibliographic Data*.

- 00-04 Record length (calculated by the computer for each record)
- 05 Record status
 - a = increase in encoding level
 - c = corrected or revised
 - d = deleted
 - n = new
 - p = increase in encoding from prepublication (previous CIP)
- 06 Type of record
 - a = language material
 - c = printed music
 - d = manuscript music
 - e = cartographic material
 - f = manuscript cartographic material
 - g = projected medium
 - i = nonmusical sound recording
 - j = musical sound recording
 - k = 2-dimensional nonprojectable graphic
 - m = computer file
 - o = kit
 - p = mixed materials
 - r = 3-dimensional artifact or naturally occurring object
 - t = manuscript language material
- 07 Bibliographic level
 - a = monographic component part
 - b = serial component part
 - c = collection
 - d = subunit
 - i = integrating resource
 - m = monograph/item
 - s = serial
- 08 Type of control
 - # = no specified type
 - a = archival
- 09 Character coding scheme
 - # = MARC-8
 - a = UCS/Unicode
- 10 Indicator count (always "2")
- 11 Subfield code count (always "2")
- 12-16 Base address of data (calculated by the computer for each record)
- 17 Encoding level
 - # = full level

- 1 = full level, material not examined
- 2 = less-than-full level, material not examined
- 3 = abbreviated level
- 4 = core level
- 5 = partial (preliminary) level
- 7 = minimal level
- 8 = prepublication level (CIP)
- u = unknown
- z = not applicable
- 18 **Descriptive cataloging form**
 - # = non-ISBD
 - a = AACR2
 - i = ISBD
 - u = unknown
- 19 **Multipart resource record level**
 - # = Not specified or not applicable
 - a = Set
 - b = Part with independent title
 - c = Part with dependent title
- 20 **Length of the length-of-field portion** (always "4")
- 21 **Length of the starting-character-position portion** (always "5")
- 22 **Length of the implementation-defined portion** (always "0")
- 23 **Undefined** (always "0")

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Part X:

Field 008 for Books

Field 008 is used for Fixed Length Data Elements ("Fixed Field Codes"). There are 40 character positions in field 008, numbered from 00-39. Undefined positions must contain either a blank (#) or a fill character (|). Positions 00-17 and 35-39 are defined the same way for all media.

The information shown here for positions 18-34 applies only to books. For explanation of all the positions below and for positions 18-34 for other media, see the *MARC 21 Format for Bibliographic Data*.

Note that field 008 has no indicators or subfield codes.

- 00-05 **Date entered on file (YYMMDD)**,
where Y=year, M=month, and D=day
- 06 **Type of date/publication status:**
 - b = no dates given; B.C. date involved
 - e = detailed date
 - s = single known date/probable date
 - m = multiple dates
 - r = reprint/reissue date (Date 1) and original date (Date 2)

- n = dates unknown
- q = questionable date
- t = publication date and copyright date
- | = no attempt to code

07-10 Date 1/beginning date of publication

11-14 Date 2/ending date of publication

Date fields contain the year(s) of publication. The type of date(s) in these elements are specified in fixed field element 06: Type of date/publication status. (For further details, see the field 008 description in the *MARC 21 Format for Bibliographic Data*.)

15-17 Place of publication, production, or execution

For example:

pk# = Pakistan

cau = California (US)

(For a full list of codes used in these positions, see the *MARC Code List for Countries*.)

18-21 Illustrations (up to 4 codes):

- # = no illustrations
- a = illustrations
- b = maps
- c = portraits
- d = charts
- e = plans
- f = plates
- g = music
- h = facsimiles
- i = coats of arms
- j = genealogical tables
- k = forms
- l = samples
- m = phonodisc, phonowire, etc.
- o = photographs
- p = illuminations
- | = no attempt to code

22 Target audience:

- # = unknown or not specified
- a = preschool
- b = primary
- c = pre-adolescent
- d = adolescent
- e = adult
- f = specialized
- g = general
- j = juvenile
- | = no attempt to code

23 Form of item:

- # = none of the following
- a = microfilm

b = microfiche
c = microopaque
d = large print
f = braille
r = regular print reproduction
s = electronic
| = no attempt to code

24-27 Nature of contents (up to 4):

= no specified nature of contents
a = abstracts/summaries
b = bibliographies (is one or contains one)
c = catalogs
d = dictionaries
e = encyclopedias
f = handbooks
g = legal articles
i = indexes
j = patent document
k = discographies
l = legislation
m = theses
n = surveys of literature
o = reviews
p = programmed texts
q = filmographies
r = directories
s = statistics
t = technical reports
u = standards/specifications
v = legal cases and notes
w = law reports and digests
z = treaties
| = no attempt to code

28 Government publication:

= not a government publication
i = international intergovernmental
f = federal/national
a = autonomous or semi-autonomous component
s = state, provincial, territorial, dependent, etc.
m = multistate
c = multilocal
l = local
z = other type of government publication
o = government publication -- level undetermined
u = unknown if item is government publication
| = no attempt to code

29 Conference publication:

0 = not a conference publication
1 = conference publication

- | = no attempt to code
- 30 **Festschrift:**
0 = not a festschrift
1 = festschrift
| = no attempt to code
- 31 **Index:**
0 = no index
1 = index present
| = no attempt to code
- 32 **Undefined (since 1990)** (Earlier records may contain the values 0 or 1)
= Undefined
| = no attempt to code
- 33 **Literary form:**
0 = not fiction (not further specified)
1 = fiction (not further specified)
c = comic strips
d = dramas
e = essays
f = novels
h = humor, satires, etc.
i = letters
j = short stories
m = mixed forms
p = poetry
s = speeches
u = unknown
| = no attempt to code
- 34 **Biography:**
= no biographical material
a = autobiography
b = individual biography
c = collective biography
d = contains biographical information
| = no attempt to code
- 35-37 **Language:**
A three-letter code. For example: eng fre ger spa rus ita

(For a full list of codes used in these positions, see the [MARC Code List for Languages](#).)

- 38 **Modified record:**
= not modified
x = missing characters (because of characters unavailable in MARC character set)
s = shortened
d = "dashed-on" information omitted
r = completely romanized/printed cards in script
o = completely romanized/printed cards romanized
| = no attempt to code
- 39 **Cataloging source:**

= national bibliographic agency
c = cooperative cataloging program
d = other sources
u = unknown
| = no attempt to code

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