

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE BOEING COMPANY
Petitioner,

v.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
Patent Owner.

Case: IPR2024-00761
U.S. Patent No. 7,487,684

SUPPLEMENTAL DECLARATION OF INGRID HSIEH-YEE, PH.D.

Table of Contents

I.	Library Access to the Wang Dissertation	1
A.	MARC, OCLC and Library Cataloging Practices	1
B.	Library Records for the Wang Dissertation	3
II.	Online Access to ProQuest Theses	6
A.	ProQuest Dissertation Full Text Policy	6
B.	Institutional Subscribers Online Access	7
C.	Amended Morris Declaration.....	8
D.	Discovery and Access to ProQuest Theses in 2003	9
E.	DAI Index Record in 2003	10
F.	ProQuest Policy on Dissertation Abstracts	12
III.	Conclusion.....	12

LIST OF EXHIBITS

Exhibit	Document
1042	Bibliographic and MARC records for the Wang dissertation, available at https://i-share-uiu.primo.exlibrisgroup.com/permalink/01CARLI_UIU/gpjosq/alma99456086412205899 from the online catalog of the University of Illinois at Urbana-Champaign Library.
1043	OCLC FirstSearch record for the Wang dissertation, available at https://firstsearch.oclc.org/ (subscription required for access).
1044	“ProQuest Digital Dissertations” archived by Internet Archive on August 16, 2000, available at https://web.archive.org/web/20000816032510/http://wwwlib.umi.com/dissertations .
1045	“About ProQuest Digital Dissertations” archived by Internet Archive on August 15, 2000, available at https://web.archive.org/web/20000815205122/http://wwwlib.umi.com/dissertations/about_pqdd ; and a copy archived on April 16, 2003, available at https://web.archive.org/web/20030416192529/http://wwwlib.umi.com/dissertations/about_pqdd .
1046	Steps for accessing the ProQuest metadata record for the Wang dissertation, previewing 24 pages of a dissertation, and viewing the full dissertation, available at https://www.proquest.com/pqdtglobal/docview/305620511/CD27EC C3A2CD4045PQ/1?accountid=9940&sourcetype=Dissertations%20&%20Theses .
1047	“Online Dissertation Services” archived by Internet Archive on February 10, 2003, available at https://web.archive.org/web/20030210075358/http://proquest.com/hp/Products/Dissertations.htm .
1048	Copyright registration record for v. 63, no. 11 of <i>Dissertation Abstracts International</i> that contains the index record for the Wang dissertation, obtained from the public catalog of the US Copyright Registration Office, available at https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=378&ti=376,378&Search%5FArg=Dissertation%20Abstracts%20International&Search%5FCode=TALL&CNT=25&PID=GB1a0plr8k613JUEDqWur55UnOuUD&SEQ=20250421172

	133&SID=1 (record URL is dynamic and specific to each search session).
1049	Copy of the front matter of v. 63, no. 11 of <i>Dissertation Abstracts International</i> and the index record for the Wang dissertation, obtained from the Library of Congress.
1050	Comparison file of the original Wang abstract and the abstract in the ProQuest metadata record.
1051	Library system of the University of Illinois at Urbana-Champagin archived by Internet Archive on February 11, 2003, available at https://web.archive.org/web/20030211035642/http://www.library.uiuc.edu/catalog/ .

I. Library Access to the Wang Dissertation

A. MARC, OCLC and Library Cataloging Practices

1. Libraries create records for works they acquire, including books, serials, motion pictures, and publications in other formats to help the public discover and access these materials. A standard practice is to encode library records according to 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.

2. 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. “Understanding MARC Bibliographic: Machine-Readable Cataloging” (<https://www.loc.gov/marc/umb/um07to10.html>) is 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/>.

3. Another common library practice is to enter their MARC records into the OCLC WorldCat database. 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.

4. When an OCLC participating institution acquires a work, it can create an original MARC record for the work in OCLC's Connexion 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 Connexion, it becomes available to other OCLC members for adoption to their local online catalogs (*i.e.*, copy cataloging).

5. 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. WorldCat records can also be searched on OCLC FirstSearch, a subscription-based search system that provides access to many proprietary databases, including the WorldCat database.

B. Library Records for the Wang Dissertation

6. Exhibit 1042 is a true and correct copy of the bibliographic and MARC records for the Wang dissertation that I obtained from the online catalog of the University of Illinois, Urbana-Champaign (“UIUC”) library system. Pages 1 to 3 are the bibliographic record that shows the title, author, and date (“2002”) of this dissertation, and indicates this record’s OCLC number is “51821449.” The “Locations” area on page 2 shows the dissertation is available at the OAK Street Library (“On Shelf, Vaults Request Online; Q. 620.1 Tb02w”) and also available at the University Archives (“On Shelf, University Archives Reading Room Use Only – Request Online; FILM 2002 W184”). The bibliographic record includes the title, creator, language, dissertation degree granting institution and the year the degree was granted, a variant title, creation date, identifier (“OCLC: (OCoLC)ocm51821449”), format, source of the record (“Library Catalog”), and notes. The record also includes “Theses UIUC 2002 Theoretical and Applied Mechanics” as a local subject entry-topical term.

7. Page 4 is the MARC record. The first six digits of Field 008 show the record was created on “030310” (*i.e.*, March 10, 2003), and the code of “s2002” following the record creation date indicates this work has a single publication date of 2002. Subfields “a” and “c” of Field 040 show “UIU” created the record and entered it into the OCLC WorldCat database. According to the *Directory of OCLC Members* (<https://www.oclc.org/en/contacts/libraries.html>), “UIU” is the OCLC library symbol for the library system of the University of Illinois, Urbana-Champaign. Fields 008 and 040 inform my opinion that the library system of the University of Illinois, Urbana-Champaign created an original record for the Wang dissertation on March 10, 2003, making it discoverable in their online catalog from that date on.

8. The MARC record supports interested users to search for this dissertation by author (Field 100), title (Field 245), and variant title (Field 246). Interested users can also conduct subject searches to discover this work, because the “620.1” Dewey Decimal Classification number in Field 092 represents “Engineering mechanics and materials” and the local subject-topical term in Field 690 indicates this work is a thesis about “Theoretical and Applied Mechanics” completed at the university.

9. The bibliographic and MARC records show the Wang dissertation became discoverable at the University of Illinois, Urbana-Champaign on March 10,

2003. As of that date, interested users could discover this work by the author, title, variant title, and subjects. The physical copy of the dissertation is available at the Oak Street Library with a call number of “Q 6201. Tb02w” and another copy is available and can be accessed at the University Archives Reading Room only.

10. As evidence that the library of UIUC had an online catalog in operation in 2003, I have obtained a copy of the library’s online catalog archived by Internet Archive on February 11, 2003. This copy is presented as **Exhibit 1051**. Page 1 shows the archiving history of this website, and page 2 shows that as of February 11, 2003, interested users could use the “Quick Search” and the “Guided Keyword Search” to explore the collections at the library of UIUC. A “Library Catalog Help” is also available to help searchers to use the catalog effectively and efficiently.

11. **Exhibit 1043** is a true and correct copy of the OCLC FirstSearch record for the Wang dissertation. The top of the record shows “51821449” as the Accession Number, and the University of Illinois and ProQuest are the two holding libraries of this work. The Access field includes a link to the metadata record for the Wang dissertation in ProQuest’s dissertation database, and the title, author, year, description, dissertation, class descriptor (“Dewey: 620.1”), responsibility, material type, and document type match the information presented in **Exhibit 1042**. The “Date of Entry” field shows a record creation date of “20030310,” the Database field

shows the record is in “WorldCat,” and the “Access No” field shows an OCLC number of 51821449 that is the same as the OCLC number in **Exhibit 1042**.

12. The OCLC FirstSearch record for the Wang dissertation (**Exhibit 1043**) confirms that the record created by the library system of UIUC was entered into the WorldCat database on OCLC to share with the OCLC community on March 10, 2003. This means the Wang dissertation became publicly discoverable by the UIUC community, by subscribers of OCLC FirstSearch, and by the general public who have free access to WorldCat.org, the free web portal. As of March 10, 2003, interested users could reach out to the library system of UIUC or ProQuest to access the Wang dissertation.

II. Online Access to ProQuest Theses

A. ProQuest Dissertation Full Text Policy

13. ProQuest has offered the ProQuest Digital Dissertations since at least August 2000 for interested users to obtain works of interest quickly. **Exhibit 1044** is a true and correct copy of “ProQuest Digital Dissertations” archived by Internet Archive on “AUG 16 2000” (*i.e.*, August 16, 2000). Page 1 is a screen capture of a Wayback Machine calendar of the archiving history of this webpage. Page 2 is the PDF of the archived copy that shows visitors “will be able to freely access the most current two years of citations and abstracts in the Dissertation Abstracts database” and titles “published since 1997 are available in PDF digital format and have 24 page

previews available.” In addition, **Exhibit 1044** informed visitors to this webpage in August 2000 that if they were looking for a known item, they could try the ordering interface “Dissertation Express.”

14. Exhibit 1045 is a true and correct copy of “About ProQuest Digital Dissertations” archived by Internet Archive on August 15, 2000, that I obtained. The second paragraph in the PDF of this archived copy shows this database “includes bibliographic citations for materials ranging from the first U.S. dissertation, accepted in 1861, to those accepted as recently as last semester. Citations for dissertations published from 1980 forward also include 350-word abstracts written by the author.” In addition, the webpage states that “[t]he full text of more than one million of these titles is available in paper and microform formats. Institutional subscribers to ProQuest Digital Dissertations receive on-line access to the complete file of dissertations in digital format starting with titles published from 1997 forward.” The same messages about the bibliographic citations available for user access, the 350-word abstract, and the availability of full text to database subscribers for titles published since 1997 are included in the webpage archived by Internet Archive on April 16, 2003 (see pages 3 and 4).

B. Institutional Subscribers Online Access

15. It is my personal experience since 2000 that interested users can search the ProQuest dissertation database for works of interest, and after a metadata record

is located, users can preview the dissertation online. If users are affiliated with institutional subscribers to the ProQuest dissertation database, they will be able to view the full dissertation online right away. **Exhibit 1046** presents screenshots and file capture to show that interested users can view the entire dissertation online, preview 24 pages of the dissertation, and view the metadata record after they have identified a dissertation of interest to them.

16. The access steps illustrated by **Exhibit 1046** are consistent with the full text availability information in **Exhibit 1044** that states that “Title published since 1997 are available in PDF digital format and have 24 page previews available” and in **Exhibit 1045** that shows institutional subscribers to ProQuest Digital Dissertations “receive on-line access to the complete file of dissertations in digital format starting with titles published from 1997 forward.”

C. Amended Morris Declaration

17. The “Amended [2024-12-18] Morris Declaration” (**EX1037**) states in paragraph 8, under “Full Text Availability,” that the full text of the Wang dissertation was “First Made Available for Sale (print or electronic)” on “2003-03-04” (*i.e.*, March 4, 2003). Paragraphs 10 to 12 indicate that “[a]s of 03/04/2003, the title, author, granting institution, and degree date of the Dissertation, as shown in Paragraph 8 above” and “the Abstracts of the Dissertation” could be searched electronically on the ProQuest database. These statements indicate “March 4, 2003”

is the date when the metadata record for the Wang dissertation became discoverable on the ProQuest dissertation database. These statements, together with the full text availability information in **Exhibit 1044** and **Exhibit 1045**, show that as of March 4, 2003, interested users affiliated with institutional subscribers to the ProQuest dissertation database would be able to discover the metadata record for the Wang dissertation, then use it to preview 24 pages of this work and view the full dissertation online.

D. Discovery and Access to ProQuest Theses in 2003

18. Exhibit 1047 is a true and correct copy of “ProQuest Online Dissertation Services” archived by Internet Archive on February 10, 2003, that informs visitors who are “looking for easy Web searching and ordering, check out Dissertation Express and ProQuest Digital Dissertations. Dissertation Express offers online ordering, and Digital Dissertations offers the search capabilities needed to locate citations and abstracts on nearly any research topic.” This exhibit shows that by February 10, 2003, ProQuest has provided online dissertation services for interested users to access dissertations of interest to them. This means that by February 2003 interested users not affiliated with institutional subscribers to the ProQuest dissertation database would be able to discover the metadata records for dissertations in the ProQuest system and use the Dissertation Express service to order their copy online.

E. DAI Index Record in 2003

19. The Amended Declaration from ProQuest (**EX1037**) states in paragraph 8 that the metadata record for the Wang dissertation was included in “DAI volume issue: B 63/11.” **Exhibit 1048** presents a true and correct copy of the copyright registration record for this issue of *Dissertation Abstracts International* that contains the metadata record for the Wang Dissertation. It shows v. 63, no. 11 has a “May03” issue date and a publication date of “2003-05-15” (*i.e.*, May 15, 2003) and a registration date of “2003-06-16” (*i.e.*, June 16, 2003).

20. **Exhibit 1049** is a true and correct copy of the front matter of vol. 63, no. 11 and the index record for the Wang dissertation that I obtained from the Library of Congress. Page 3 is the title page that shows a date stamp of “Library of Congress JUN 16 2003 Copyright Office.” Page 7 (internal page iii) states that “*Dissertation Abstracts International (DAI)* is published monthly by ProQuest Information and Learning and includes abstracts of doctoral dissertations submitted to UMI by 550 participating institutions in North American and throughout the world.” It also states that each “author-prepared abstract, up to 350 words in length, describes in detail the original research project on which the dissertation is based.” Pages 8 and 9 (internal page iv and v) explain that *Dissertation Abstracts International* can be accessed in print, online, and on CD-ROM, and is “the authoritative source for concise, author-written summaries of current doctoral dissertations” (internal page

v). Page 10 (internal page vi) informs readers how to order and pay for the order, and a toll-free number is included. Page 15 (internal page xi) shows the University of Illinois at Urbana-Champaign is one of the participating institutions of the UMI's publishing program. Pages 21 and 22 (internal pages 5486-B and 5487-B) show the index record for the Wang dissertation. Details of this record match the information in the ProQuest metadata record, and the order number ("DA3070468") is the same as the UMI number of "3070468" in the copy of the Wang Dissertation obtained from ProQuest.

21. Exhibit 1048 and Exhibit 1049 show the *Dissertation Abstract International* issue that contains the Wang dissertation was published on May 15, 2003, and received by the Library of Congress on June 16, 2003. A customary library practice in processing new journal issues is to place the new issue through the serial check-in process to document the receipt of the issue. After that step, the new issue is processed promptly for user access, usually within a week after serial check in because the check in process usually takes less than an hour. This means that by June 23, 2003, interested users would be able to discover the Wang dissertation from the print issue of *Dissertation Abstracts International* at the Library of Congress, and use the information to access the full dissertation online if they were affiliated with institutional subscribers or order the work online if they did not have such affiliations.

F. ProQuest Policy on Dissertation Abstracts

22. The Patent Owner's Response pointed out the abstract in the ProQuest metadata record and the abstract in the original dissertation are not the same. Archived documents from Internet Archive clarify that the company's abstracting policy is a 350-word limit on abstracts (see, for example, **Exhibit 1045**). To further clarify this point, I have used the file comparison feature of Microsoft Word to produce **Exhibit 1050** to show how the two versions are different. The shorter version reflects the ProQuest abstracting policy.

23. In my opinion, the changes made to the Wang Dissertation abstract were made to conform to ProQuest's word limit on abstracts and would not impact the indexing or searchability of the Wang Dissertation.

III. Conclusion

24. I hereby declare that all statements made herein on my own knowledge are true and that all statements 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 made under penalty of perjury.

Date: 4-21-2025

Executed: Ingrid Hsieh-Yee
Ingrid Hsieh-Yee, Ph.D.
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