

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TREND MICRO, INC.

v.

WEBROOT, INC.

Petition for *Inter Partes* Review of

U.S. Patent No. **8,856,505**

DECLARATION OF INGRID HSIEH-YEE, PH.D.

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I. Introduction

I, Ingrid Hsieh-Yee, Ph.D., do hereby declare as follows:

1. I have personal knowledge of all of the matters about which I testify in this declaration.

2. I have been retained as an independent expert witness on behalf of Trend Micro, Inc. (“TREND”) for proceedings before the United States Patent and Trademark Office (“PTO”) regarding the authenticity and public availability of certain prior art references in relation to US Patent No. 8,856,505 (“the ‘505 patent”).

3. I am being compensated for my work in this matter at my customary hourly 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 of the Department of Library and Information Science of the Catholic University of America for 32 years and retired in August 2022. In December 2022 I was conferred the title of Professor Emerita. I have experience working in an academic library, a medical library, and a legislative library. I hold a

Ph.D. in Library and Information Studies from the University of Wisconsin-Madison 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, Digital Content Creation and Management, Metadata, 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 libraries, 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.

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” (<http://www.loc.gov/marc/umb/um07to10.html>) from Library of Congress. *Understanding MARC Bibliographic* was originally published by the Follett Software Co. and copyrighted in 1988. Editions in 1989, 1990, 1994, 1998, 2000, 2003 and 2009 include changes. The latest edition was copyrighted in 2009. This document 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.

9. The Online Computer Library Center (OCLC) is the largest bibliographic network of the world, with more than 548 million records and 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, 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>).

10. 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 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).

11. After a MARC record is created in Connexion, it also becomes searchable and viewable on WorldCat, which is a free web portal for users to explore more than 10,000 libraries worldwide. Records in WorldCat, 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.

12. WorldCat (<http://www.worldcat.org>) is "the world's largest network of library content and services" and its features are summarized in "What is WorldCat" (<https://www.worldcat.org/about>). WorldCat began operation in January 1998 as a free web portal to more than 10,000 libraries worldwide. Through WorldCat, users can search for information resources in their local libraries and libraries around the world. WorldCat allows users to search for books, CDs, videos, and many new types of digital content, such as audiobooks, in many languages. Users can also retrieve research materials and article citations with links to their full text. After an item is retrieved, WorldCat helps users identify a library nearby that holds the item or all the libraries that hold the item. WorldCat is an efficient way to explore the content

held by more than 10,000 libraries around the world. WorldCat is publicly accessible, and there is no fee to perform a search on WorldCat.

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 now 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 OCLC 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. 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>)
- Internet Archive (<https://archive.org/>)
- Online catalog of the Library of Congress (<https://catalog.loc.gov>)
- Online catalog of the Federal Science Libraries Network of Canada (<https://science-libraries.canada.ca/eng/home/>)
- Public catalog of the US Copyright Office (<https://cocatalog.loc.gov>)
- WorldCat (<https://www.worldcat.org>)

B. Scope of This Declaration

16. I have been asked to offer opinions on the authenticity and public availability date of the following documents:

- Garfinkel, T., & Rosenblum, M., (2003, February), “A virtual machine introspection based architecture for intrusion detection,” in *Network and Distributed System Security Symposium conference proceedings--2003 : NDSS '03 Symposium*, vol. 3, pp. 191-206, **Ex. 1006** (“*Garfinkel*”);
- Hoglund, G., & Butler, J. (2006). *Rootkits: subverting the Windows kernel*. Addison-Wesley Professional, **Ex. 1007** (“*Hoglund*”).

17. I am rendering my expert opinion on the authenticity of the documents referenced herein and on whether they were published. I will provide my opinion on when and how these documents were publicly disseminated or otherwise made publicly available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, could have located and retrieved these documents.

18. I am informed by counsel that an item is considered authentic if there is sufficient evidence to support a finding that the item is what it is claimed to be. I am also informed that authenticity can be established based on the contents of the documents themselves, such as the appearance, content, substance, internal patterns, protocols followed or other distinctive characteristics of the item.

19. I am informed by counsel that a given reference is “published” if it is publicly accessible 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 that materials available in a library constitute “printed publications” if they are cataloged 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 ’505 patent was filed in the United States on April 30, 2012, and that it claims priority to a continuation application filed on August 7, 2006. I have assessed public accessibility of the documents referenced below as of this claimed priority date.

C. Person of Ordinary Skills in the Art

21. I am told by counsel that the subject matter of this article relates to computer security.

22. I have been informed by counsel that a “person having ordinary skill in the art at the time of the inventions” (PHOSITA) is a hypothetical person who is presumed to be familiar with the relevant field and its literature at the time of the inventions. 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 am told by counsel that persons of ordinary skill in this subject matter or art would have had a bachelor's degree in computer science, computer engineering, or a related field, or an equivalent technical degree or equivalent work experience, and an additional one to two years of education or experience in the field of network communications. More education can supplement practical experience and vice versa.

24. It is my opinion that such a person would have been actively engaged in learning about the field, possibly through formal instruction through the bibliographic resources. By at least August 7, 2006, 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 the documents referenced below and any other documents I reference herein, and each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions:

- (1) The document referenced above in Section I.B;
- (2) Copy of *Garfinkel*, available at <https://www.ndss-symposium.org/wp-content/uploads/2017/09/A-Virtual-Machine-Introspection-Based-Architecture-for-Intrusion-Detection-Tal-Garfinkel.pdf> from the NDSS Symposium 2003 website at

<https://www.ndss-symposium.org/ndss2003/> and webpage for *Garfinkel* at <https://www.ndss-symposium.org/ndss2003/virtual-machine-introspection-based-architecture-intrusion-detection/>, accessed and obtained on August 25, 2023, **Appendix 1006A**;

- (3) Bibliographic and MARC records for *Network and Distributed System Security Symposium conference proceedings--2003 : NDSS '03 Symposium* that contains *Garfinkel*, available at <https://science-catalogue.canada.ca/record=b2011094~S6> from the online catalog of the Federal Science Libraries Network of Canada, accessed and obtained on August 23, 2023, **Appendix 1006B**;
- (4) Citations to *Garfinkel*, obtained from Google Scholar, **Appendix 1006C**;
- (5) Portions of *Hoglund* obtained from the Library of Congress, **Appendix 1007A**;
- (6) Bibliographic and MARC records for *Hoglund*, available at <https://lcn.loc.gov/2005013061> from the online catalog of the Library of Congress, accessed and obtained on August 23, 2023, **Appendix 1007B**;
- (7) Copyright registration record for *Hoglund*, available at <https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=5&ti=1,5&Search%5FArg=Hoglund%2C%20G&Search%5FCode=NALL&CNT=25&PID=MYxs6ZOvgmcSQ9XruR2tWtjArefR-OL&SEQ=20230825123817&SID=1> from the public catalog of the US Copyright Office, accessed and obtained on August 23, 2023, **Appendix 1007C**;

- (8) Citations to *Hoglund*, obtained from Google Scholar, **Appendix 1007D**.

These records are identified and discussed in this declaration. Experts in the field would reasonably rely on the data described herein to form their opinions.

II. Authenticity and Public Availability of *Garfinkel* (Ex. 1006)

A. Authentication

26. **Ex. 1006** is a true and correct copy of “A virtual machine introspection based architecture for intrusion detection,” (“*Garfinkel*”), by Tal Garfinkel and Mendel Rosenblum, in *Network and Distributed System Security Symposium conference proceedings--2003 : NDSS '03 Symposium*, vol. 3, pp. 191-206, that I obtained from counsel. I understand from counsel that this document was previously submitted as “Trend Micro, Inc. EX1006.” Page 1 shows the title, authors and abstract of this article. **Ex. 1006** shows *Garfinkel* has 12 sections and a total of 16 pages, including one table, two figures and 54 references, followed by “A Sample Attacks” (on Trend Micro, Inc. EX1006-15 and EX1006-16).

27. To authenticate **Ex. 1006**, I located the website for NDSS Symposium 2003 to obtain a copy of *Garfinkel*. **Appendix 1006A** is a true and correct copy of *Garfinkel*. I personally located, identified, and obtained this copy. This is the type of material experts in my field would reasonably rely upon when forming their opinions.

28. Pages 1 to 3 of **Appendix 1006A** are the PDF version of the NDSS Symposium 2003 website that lists the conference proceedings (<https://www.ndss-symposium.org/ndss2003/>), and *Garfinkel* is listed on page 2. The article link led to the webpage for this article at <https://www.ndss-symposium.org/ndss2003/virtual-machine-introspection-based-architecture-intrusion-detection/> that shows a publication date of “6 Feb 2003” (see page 4 of **Appendix 1006A**). Pages 6 to 21 are the full text of *Garfinkel*. I have closely compared the counsel copy (**Ex. 1006**) with this copy from the conference (**Appendix 1006A**) and found them to be the same.

29. **Ex. 1006** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, the text on each page appears to flow seamlessly from one page to the next, and there are no visible alterations to the document. Moreover, **Ex. 1006** was found to be the same as the copy on the conference website, a place where, if authentic, it would likely be found. I therefore see no reason to question the authenticity of this copy of *Garfinkel* from counsel (**Ex. 1006**).

B. National Science Library of Canada Records

30. To determine if *Garfinkel* was publicly accessible in libraries, I searched WorldCat for records for NDSS symposium 2003, and a record at <https://worldcat.org/title/927386582> informed me that the National Science Library

of Canada held this conference proceedings. I then obtained the bibliographic and MARC records for this conference proceedings from the online catalog of the Federal Science Libraries Network of Canada. These records are presented as **Appendix 1006B** in this declaration. 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.

31. Pages 1 to 3 are the bibliographic record that shows the name of the conference, title, publisher, physical description, notes, system details, three variant titles, corporate names related to the conference, subjects, and ISBNs. The “Request this item” area on page 2 shows this work is held at the NRC Ottawa location, its call number is QA76.9.A25 S988 2003, and the work is for in library use only.

32. Pages 4 to 6 are the MARC record. The first six digits of Field 008 show the MARC record was created on “031001” (*i.e.*, October 1, 2003) and Field 040 shows “CaOON” created this record. According to the *Canadian Library Directory* (<https://sigles-symbols.bac-lac.gc.ca/eng/Search>), “OON” is the library symbol for the National Science Library (NRC). Data from Fields 008 and 040 inform my opinion that the National Science Library of Canada created a MARC record on October 1, 2003, for the conference proceedings containing *Garfinkel*, making this conference proceedings discoverable in the online catalog of the Federal Science Libraries Network of Canada from that date on.

33. Fields 020 shows the ISBNs for the paper proceedings and the accompanying CD-ROM. Field 111 shows the conference name as the author, Field 245 shows the title, and Fields 246 show three variant titles are included to help users discover this work. Field 260 shows the publisher and the copyright year. Field 300 shows this publication is on a CD-ROM. Fields 500 explains the source of the title, the location and date of the conference, the content of the CD-ROM, and the CD-ROM sponsor. Fields 710 show the publisher and the sponsor are included to help users discover this work.

34. Subject of this work is represented in Field 090 by a Library of Congress Classification (LCC) number of “QA76.9.A25” that represents “Access control. Computer security” (source: Library of Congress Classification Schedule Q at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2020TEXT.pdf). Subject is also represented by two Library of Congress subject headings, with “Computer networks |x Security measures” (“|x” indicating a topical subheading) and “Computers |x Access control” as the main topics, each followed by “Congresses” as a form subheading encoded in subfield v (“|v”) to indicate the main topics are treated at a conference. These subject representations enable users to conduct subject searches to discover this conference proceedings containing *Garfinkel*.

35. This MARC record was created on October 1, 2003, and it has made

the conference proceedings containing *Garfinkel* discoverable from that date on. Interested users would have been able to discover this work by the ISBNs, conference name, title, variant titles, publisher, and sponsor. They would also have been able to search by the LCC number and the subject headings to discover this work.

C. Usage Record

36. Actual usage of a publication is reflected by other publications that make reference to it. **Appendix 1006C** is a list of citations from 2003 that I identified from Google Scholar. The earliest citation is an IEEE article published in June 2003.

D. Summary of My Opinion on *Garfinkel*

37. The copy of *Garfinkel* from counsel (**Ex. 1006**) is authentic because it is the same as the copy from the conference website (**Appendix 1006A**). The conference proceedings containing *Garfinkel* was cataloged by the National Science Library of Canada on October 1, 2003, and the MARC record made this work discoverable from that date on. The earliest citation to *Garfinkel* appeared in June 2003, further supporting my opinion that *Garfinkel* would have been publicly accessible in October 2003.

III. Authenticity and Public Availability of *Hoglund* (Ex. 1007)

A. Authentication

38. Ex. 1007 is a true and correct copy of *Rootkits: Subverting the Windows Kernel*, (“*Hoglund*”), by Greg Hoglund and James Butler, published by Addison-Wesley Professional in 2005, that I obtained from counsel. This is an electronic copy obtained from the Internet. Page 1 is the cover that shows the title, subtitle and authors. Page 2 is the Overview and the top of the page shows the full title and authors, and also shows this work was published by Addison Wesley Professional on July 22, 2005 with an ISBN of 0-321-29431-9 and it has 352 pages. Pages 4 to 6 are the table of content that shows this book has ten chapters and an index. This electronic copy has 363 pages but the pages are not numbered.

39. To authenticate *Hoglund*, I searched WorldCat for libraries holding this book, and a record at <https://www.worldcat.org/title/60373736> showed Library of Congress was one of the holding libraries. I then obtained a copy of portions of this book from the Library of Congress through a document delivery service. This library copy is presented as **Appendix 1007A** in this declaration.

40. Page 1 of **Appendix 1007A** shows the front cover, spine, and back cover of *Hoglund*. The front cover shows the title, subtitle, and authors. It also shows a call number label of “QA 76.9.A25 H637 2005 Copy 2” and a label indicating this book is in the “FT MEADE GenColl” (meaning the general collection

at the Fort Meade storage facility). The back cover shows “0-321-29431-9” as the book’s ISBN (International Standard Book Number), Addison-Wesley as the publisher, and a Library of Congress barcode. Page 3 is the “Praise for *Rootkits*” that carries a stamp of “Library of Congress SEP 20 2005 Copyright Office.” Page 4 is the title page that shows the same title, subtitle, authors, and publisher information as the front and back covers, and it also shows the publisher is located at Upper Saddle River, NJ. Page 5 is the copyright page that shows this book has a 2006 copyright date and Pearson Education, Inc. holds the copyright. This page also shows a block of Library of Congress Cataloging-in-Publication Data with a number of “2005013061” that has the appearance of a Library of Congress Control Number. This page also shows a hand-written call number of “QA76.9.A25H637 2006 Copy 2”. Pages 6 to 11 are the table of contents that shows this book has 10 chapters and an index. Page 14 (internal page xxiii) shows “About the Cover” and is the last page of the front matter. Pages 15 to 24 are the first page of each chapter and page 25 is the last page of the index with a page number of 324. I have compared the chapter starting pages in **Appendix 1007A** with the corresponding chapter starting pages in **Ex. 1007**, and found them to have the same content. The differences are that the print library copy carries page numbers and footnotes are formatted in the standard manner, whereas the electronic copy (**Ex. 1007**) does not carry page numbers and the footnotes are presented right after the in-text references.

41. **Ex. 1007** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, the text on each page appears to flow seamlessly from one page to the next, and there are no visible alterations to the document. Moreover, I have used portions of the print copy from the Library of Congress (**Appendix 1007A**) to verify the contents of **Ex. 1007** and found these two copies to have the same content. I therefore see no reason to question the authenticity of this copy of *Hoglund* from counsel (**Ex. 1007**).

B. Library of Congress Records

42. **Appendix 1007B** is a true and correct copy of the bibliographic and MARC records for *Rootkits: Subverting the Windows Kernel*. I personally located, identified, and obtained these records from the online catalog of the Library of Congress. They are the type of records experts in my field would reasonably rely upon when forming their opinion.

43. Pages 1 and 2 of **Appendix 1007B** are the bibliographic record that shows the author, title, publisher and copyright date of this book. It also shows the ISBN of this work is “0321294319” and the LCCN (Library of Congress control number) is “2005013061.” The title, author, publisher, ISBN and LCCN are the same as the information contained in the Library of Congress copy (**Appendix 1007A**), confirming this record represents the library copy of *Hoglund*. The “Item Available” area shows the book’s call number is “QA76.9.A25 H637 2006

LANDOVR Copy 1”, and it is stored offsite and can be requested at the “Jefferson or Adams Building Reading Rooms.” The status of this copy is “Not Charged” (meaning available for user request).

44. Page 3 and 4 are the MARC record that shows the date of record creation and revision. The first six digits of Field 008 show the MARC record was created on “050506” (*i.e.*, May 6, 2005), and the “s2006” code following this creation date indicates this work has a single publication date of 2006. Field 955 is a field for recording local cataloging activities, and it shows a copy of *Hoglund* was received on “2005-09-10” (*i.e.*, September 10, 2005) and sent to “CIP ver.” (meaning Cataloging in Publication Division for record verification). This field also shows a note of “2005-09-27 to BCCD” to indicate the cataloging work was completed and the book was sent to the Binding and Collections Care Division on September 27, 2005, and the note of “2006-02-27 Copy 2 to BCCD” indicates Copy 2 was sent to BCCD for processing on February 27, 2006. Subfields “a” and “c” of Field 040 shows “DLC” created the original record. According to the *Directory of OCLC Members*, (<https://www.oclc.org/en/contacts/libraries.html>), “DLC” is the OCLC library symbol for the Library of Congress. Fields 008, 955 and 040 inform my opinion that the Library of Congress created a Cataloging in Publication (CIP) MARC record for *Hoglund* on May 6, 2005, before it was published. After the book was published, it was received by Library of Congress, and on September 10, 2005,

a copy was sent to the CIP Division for record verification. Copy 1 was sent to the processing unit on September 27, 2005, and Copy 2 was sent to the processing unit on February 27, 2006.

45. Field 010 of the MARC record (**Appendix 1007B**) shows the Library of Congress control number assigned to *Hoglund* and Field 020 shows the book's ISBN. Field 100 shows the author as the main access point for this record, Field 245 shows the title and author statement, and Field 260 shows the publisher information and copyright date. Field 300 shows the front matter of this work ends on page xxiii, and the last numbered page of this book is page 324. The pagination in Field 300 matches the pagination of the Library of Congress copy (**Appendix 1007A**). Field 700 shows the second author is included to help users discover this book.

46. Subjects are represented in Field 050 by a Library of Congress Classification (LCC) number of "QA76.9.A25" that represents "Access control. Computer security" (source: Library of Congress Classification Schedule Q, at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2023TEXT.pdf) and in Field 082 by a Dewey Decimal Classification (DDC) number of "005.8" that represents "Data security." Subjects are also represented in Fields 630 and 650 by four Library of Congress subject headings: Microsoft Windows (Computer File), Rootkits (Computer software), Computers |x Access control ("|x" indicates a topical subheading), and Computer security. These subject representations support

interested users to conduct subject searches to discover this work.

47. This MARC record (**Appendix 1007B**) shows that a CIP record was created on May 6, 2005, by the Library of Congress for *Hoglund* before it was published, and the MARC record made this book discoverable in the online catalog of the Library of Congress from that date on. Users would have been able to conduct subject searches by the LCC number, DDC number and the Library of Congress subject headings in the MARC record to discover this book. They would also have been able to search for this book by the authors, title, ISBN, and LCCN. A customary library practice is to process a newly cataloged book promptly to make it publicly accessible. In most academic libraries, the processing of such a book takes no more than a week after the MARC record is completed. Based on my personal experience with the Library of Congress collections, the processing of a newly cataloged book can take one to three months. It is therefore my opinion that, after processing, the Library of Congress copies of *Hoglund* would have become publicly accessible no later than May 27, 2006.

C. Copyright Registration Record

48. **Appendix 1007C** is a true and correct copy of the copyright registration record for *Rootkits: Subverting the Windows Kernel*. 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.

49. The title, imprint, description, and copyright claimant match the details in the Library of Congress copy of *Hoglund* (**Appendix 1007A**), confirming this record represents the *Hoglund* book. The “Date of Publication” field shows this book was published on “2005-08-02” (*i.e.*, August 2, 2005), and the “Registration Number / Date” field shows the registration number was assigned on “2005-09-20” (*i.e.*, September 20, 2005).

D. Usage Record

50. Actual usage of a publication is reflected by other publications that make reference to it. **Appendix 1007D** is a list of early citations I have compiled from Google Scholar. The earliest citations appeared in December 2005, and at least three citations were published by May 2006.

E. Summary of My Opinion on *Hoglund*

51. The copy of *Hoglund* from counsel (**Ex. 1007**) is authentic because it has the same content as the Library of Congress copy (**Appendix 1007A**). The copyright registration record shows *Hoglund* was published on August 2, 2005 (**Appendix 1007C**), the Library of Congress MARC record shows a CIP record was created on May 6, 2005, making *Hoglund* discoverable in the online catalog of the library (**Appendix 1007B**). The MARC record also shows that on September 27, 2005, the cataloging work was completed and Copy 1 was sent to the processing

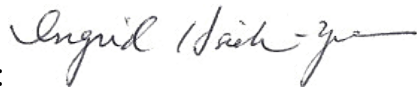
unit, and on February 27, 2006, Copy 2 was sent to the processing unit. After processing, these copies would have been publicly accessible no later than May 2006. In short, the documents and records I have reviewed inform my opinion that *Hoglund* would have been publicly accessible no later than May 27, 2006. The citations I have compiled from Google Scholar show at least five citations had appeared by May 2006, further supporting my opinion that *Hoglund* would have been publicly available no later than May 27, 2006.

IV. Conclusion

52. In signing this declaration I recognize that the declaration will be filed as evidence in a Petition for *Inter Partes* Review before the Patent Trial and Appeal Board of the United States Patent and Trade Mark Office. I also recognize that I may be subject to deposition in the case. If deposition is required of me, I will appear at a reasonable time and place to be agreed upon.

53. 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 punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: Sept. 7, 2023

Executed: 
Ingrid Hsieh-Yee, Ph.D.