IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: John Albert Kembel, et al.
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Filing Date: October 31, 2007
Title: DISPLAYING TIME-VARYING INTERNET BASED DATA
                      USING APPLICATION MEDIA PACKAGES

DECLARATION OF DR. DOUGLAS C. SCHMIDT

I, Dr. Douglas C. Schmidt, of Nashville, Tennessee, declare that:

QUALIFICATIONS AND BACKGROUND INFORMATION

1.   My qualifications can be found in my Curriculum Vitae, which is

submitted with this Declaration as Exhibit 1004 and includes a complete list of my

education, patents and publications, employment and research history, and

professional activities and awards.

2.   I am currently tenured as the Cornelius Vanderbilt Professor of

Engineering with the Department of Electrical Engineering and Computer Science

at Vanderbilt University in Nashville, TN, where I also serve as the Associate

Chair of the Computer Science Department. I have been a full-time university

professor since 1994, and I was previously a tenured professor at the University of

California, Irvine with the Electrical and Computer Engineering department from

2000 to 2003 and Washington University in St. Louis, MO with the Computer

Science and Engineering department from 1994 to 2000. In addition, I served as

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the Chief Technology Officer for the Software Engineering Institute at Carnegie Mellon University from 2010 to 2012.

3.	I hold a Doctor of Philosophy (PhD) degree in Computer Science from the University of California (UC) Irvine in Irvine, CA, which I received in 1994. I also earned a Master's Degree in Computer Science from UC Irvine in 1990, as well as a Bachelor's Degree in Sociology in 1986 and Master's Degree in Sociology in 1984 from the College of William and Mary in Williamsburg, VA. Prior to completing my graduate studies at UC Irvine, I worked with the Urban Information Systems ("URBIS") project at UC Irvine's Public Policy Research organization, where I studied end-user computing interactivity with municipal institutions in 40 cities across the United States. I also worked at the International Center for Information Technology ("ICIT") in Washington, D.C. on projects assessing techniques for improving software productivity for enterprise IT systems.

4.	I first started programming in 1983 when I was an undergraduate student taking statistics courses at the College of William and Mary in Williamsburg, VA. While I was an undergraduate and graduate student at William and Mary I programmed with the SPSS and SAS statistical packages and worked as a programmer at the National Center for State Courts during the summer of 1986 as I was completing my Master's degree. From 1985 through 1988 I learned how to program in Pascal, C, C++, Ada, Prolog, and Lisp, both at the College of

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William and Mary (where I was a graduate student in the Sociology department) and at UC Irvine (where I was a graduate student in the Information and Computer Science department). During this time period I also learned how to program networked software services and applications using platforms, libraries, and protocols available at the time, such as UNIX Sockets and TCP/IP. During the time I was also an avid user of popular networked applications, such as remote login (rlogin and TELNET), email, and file transfer (FTP), which provided distributed services for accessing remote computer resources and collaborating over local area and wide area networks.

5.   During the past 30 years, I have conducted and supervised a significant number of research projects involving a wide range of software-related topics including patterns, optimization techniques, and empirical analyses of object-oriented middleware frameworks for distributed real-time embedded systems and mobile cloud computing applications, including applications backed by relational database management systems. I have published over 640 scholarly articles and technical papers, and I am the co-author or editor of 12 books or book-length manuscripts on various topics, including software architecture, network programming, object-oriented frameworks, distributed and real-time systems, open-source middleware platforms, and mobile cloud computing applications. My work has been cited more than 38,000 times across a comprehensive spectrum of

high-impact publications, and my current h-index score is 90, which indicates the significant impact of my publications on scholarly literature in the field of Computer Science.[1] I have also supervised the research of more than 40 PhD and Master's graduate students to date. In addition to conducting and publishing my own research, I have served on the editorial board of numerous journals, including publications by IEEE and the ACM, and I have been a guest editor of numerous special issue journals based on my research expertise.

6.   My research has been funded by a variety of organizations, including both federal agencies, such as DARPA, NSF, NASA, NIH, the U.S. Air Force, and the U.S. Navy, as well as leading companies, such as Northrup Grumman, Raytheon, Lockheed- Martin, Boeing, McDonnell-Douglas, General Electric, and Siemens. I have also received other honors and awards, including election to professional organizations, engagements for invited talks and the 2015 Award for Excellence in Teaching from the Vanderbilt University Department of Electrical Engineering.

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[1] The h-index is a popular measure of scholarly productivity. The definition of the index is that a scholar with an index of h has published h papers each of which has been cited in other papers at least h times. Thus, the h-index reflects both the number of publications and the number of citations

7.   In addition to my research experience, I have decades of hands-on programming experience with a variety of different programming languages. I have programmed with object-oriented languages since the mid-1980s, when I began to program with C++. I have programmed with Java and other related object-oriented and functional languages (such as C# and Python) since the mid-1990s and early 2000s. While at the University of California Irvine starting in 1991 I led the development of one of the first C++ object-oriented frameworks for concurrent and networked middleware and applications (ACE) and later starting in 1996 developed one of the first Java object-oriented frameworks for concurrent and networked middleware and applications (Java ACE). Since 1990, I have taught more than 1,000 students in dozens of face-to-face courses on network programming to both undergraduate and graduate students at UC Irvine, Washington University St. Louis, and Vanderbilt University. Since 2013, I have taught mobile cloud computing to more than 200,000 students in Massive Open Online Courses (MOOCs) on the Coursera platform, which have focused on technologies such as mobile app programming with Android and JavaScript and cloud service programming with various web services frameworks, such as Spring and Node.js. Mobile cloud computing applications commonly connect to relational database management systems to provide access to large data repositories.

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