

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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HTC CORPORATION, HTC AMERICA, INC., AND LG ELECTRONICS,  
INC.

Petitioners

v.

UNILOC LUXEMBOURG, S.A. 1

Patent Owner

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IPR2018-01631

PATENT 7,881,902

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**DECLARATION OF WILLIAM C. EASTTOM II (CHUCK EASTTOM)**

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<sup>1</sup> The owner of this patent is Uniloc 2017 LLC.

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APPLE INC.,  
Petitioner

v.

UNILOC LUXEMBOURG S.A.  
Patent Owner

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Case No. IPR2018-424  
U.S. PATENT NO. 7,881,902

**DECLARATION OF WILLIAM C. EASTTOM II (CHUCK EASTTOM)**

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## **I. INTRODUCTION**

1. I have been retained by Uniloc to provide my expert opinions regarding validity of U.S. Patent No. 7,881,902 (“902 Patent”). Specifically, I have been asked to provide expert opinions regarding Claims 1-3, 5-7, and 10-18.

2. I am being compensated for my time at my standard consulting rate of \$300 per hour. I am also being reimbursed for expenses that I incur during the course of this work. My compensation is not contingent upon the results of my study or the substance of my opinions.

## **II. BACKGROUND AND QUALIFICATIONS**

3. I have 25+ years of experience in the computer science industry including extensive experience with computer security, computer programming, and computer networking. I have authored 26 computer science books, including textbooks used at universities around the world. I hold 42 different computer industry certifications, including many in networking subjects. I am experienced with multiple programming languages. I also have extensive experience in computer networking. I have extensive experience with mobile devices, including all aspects of mobile devices (hardware and software). I am a Distinguished Speaker for the Association of Computing Machinery (ACM), and a reviewer for the IEEE Security and Privacy journal, as well as a reviewer for the International Journal of Cyber Warfare and Terrorism (IJCWT). My CV is attached as appendix A.

### III. CLAIM CONSTRUCTION

4. For the purposes of an IPR, claim terms are given their broadest reasonable meaning.

5. The petitioner has adopted the definitions of *dominant axis* as “the axis most influenced by gravity.”

6. The petitioner has adopted the definition of *cadence window* as “a window of time since a last step was counted that is looked at to detect a new step.”

7. The petitioner has adopted the definition of *a dominant axis logic to determine an orientation of a device with respect to gravity, to assign a dominant axis, and to update the dominant axis when the orientation of the device changes* as “hardware, software, or both to determine an orientation of a device, to assign a dominant axis, and to update the dominant axis as the orientation of the device changes.” The petitioner seems to ignore the fact that software, by itself, cannot determine a dominant axis. Hardware with software/firmware, can.

8. While the petitioner has made some claims in claim construction that ignore the actual functionality of the hardware and software involved, for the purposes of this proceeding I will use the petitioners adopted definitions in performing my analysis and forming my opinions.

### IV. THE '902 PATENT

9. The '902 patent is titled “Human activity monitoring device.” The '902 patent issued February 1, 2011, from U.S. Patent Application No. 12/694,135 filed January

26, 2010, and is a continuation of U.S. Patent Application No. 11/644,455 filed December 22, 2006.

10. The inventors of the '902 patent observed that at the time, step counting devices that utilize an inertial sensor to measure motion to detect steps generally required the user to first position the device in a limited set of orientations. In some devices, the required orientations are dictated to the user by the device. In other devices, the beginning orientation is not critical, so long as this orientation can be maintained. EX1001, 1:23-30. Further, the inventors observed that devices at the time were often confused by motion noise experienced by the device throughout a user's daily routine. The noise would cause false steps to be measured and actual steps to be missed in conventional step counting devices. Conventional step counting devices also failed to accurately measure steps for individuals who walk at a slow pace.

11. According to the invention of the '902 Patent, a device to monitor human activity using an inertial sensor assigns a dominant axis after determining the orientation of an inertial sensor. The orientation of the inertial sensor is continuously determined, and the dominant axis is updated as the orientation of the inertial sensor changes.

## **V. ONE OF ORDINARY SKILL IN THE ART**

12. Patent claims must be viewed from the perspective of one of ordinary skill in the art. A Person of Ordinary Skill in the Art (POSA) in November 2006 would have been one with a bachelor's degree in engineering (specifically computer or systems engineering), computer science, or related technical area with 2 years of experience

related to mobile devices, accelerometers or similar devices. Additional experience can compensate for a lack of a degree.

13. I am aware that Dr. Paradiso has a somewhat different view of a POSA. While I disagree with a few of the nuances of Dr. Paradiso's definition of a POSA, our definitions are similar. Even if one adopts his view of a POSA, it would not alter my opinions.

## **VI. GENERAL ISSUES**

### **A. Mitchinick**

14. Mitchinick is well described in its own abstract "This invention provides a device, and method and system for its use, for monitoring participants in clinical trials so that participant self-reporting, which is known to be notoriously inaccurate, can be minimized or eliminated".

15. Mitchinick is a medical device. Biomedical engineering is an entirely separate discipline from electrical engineering and computer science. The petitioner's expert, Dr. Paradiso, should be well aware of this fact as his alma mater's Tuft's University<sup>1</sup> and MIT<sup>2</sup> both have biomedical/biological engineering in an entirely different department. Nothing in the petitioners own description of a POSA makes any mention of any training or experience in biomedical engineering.

16. The petitioners description of a POSA states "Bachelor's degree in Electrical Engineering, Computer Engineering, and/or Computer Science, or equivalent

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<sup>1</sup> <http://engineering.tufts.edu/bme/>

<sup>2</sup> <https://be.mit.edu/>



training, and (ii) approximately two years of experience working in hardware and/or software design and development related to MEMS (micro-electro-mechanical) devices and body motion sensing systems”. Electrical engineering, computer engineering, or computer science, is not biomedical engineering. It is a very different field. There are many micro-electro-mechanical devices, that are not biological in nature. Furthermore, body sensing devices can be placed on the body, such as being worn. Nothing in the petitioners description of a POSA describes a person who would be familiar with medically implanted devices.

17. One reason why biomedical/biological engineering is so different from other engineering disciplines is actually cited by the petitioner in describing Mitchinick “designed to be affixed to or reside in a cavity of, a participant”. This type of engineering requires extensive knowledge of biology and medicine, as well as adherence to a wide range of regulatory requirements. A POSA as defined by the petitioner does not have these skills and would not be motivated to even read Mitchinick, much less combine Mitchinick with any other technology.

18. Furthermore, Mitchinick is not a mobile device. It is a device implanted in a human being. While the human being may be mobile, the device is not. In fact surgical procedures would be required to remove the device, making it the antithesis of a mobile device. This is yet another reason that a POSA as defined by the petitioner would not be motivated to combine Mitchinick with any mobile device invention.

**B. Sheldon**

19. Sheldon is very well described in its own abstract “method of and apparatus for pacing a patient’s heart at a pacing rate dependent on patient activity and posture particularly during stair climbing. A dual chamber, rate responsive pacemaker for pacing a patient’s heart includes at least one DC accelerometer mounted in the pacemaker pulse generator for implantation such that the sensitive axis of the DC accelerometer is sensitive to the effects of gravity during forward lean of the patient characteristic of stair climbing posture.”

20. This is also a biomedical device and would be completely outside the expertise of a POSA as defined by the petitioner. Furthermore, Sheldon is the antithesis of a mobile device. It is a pacemaker surgically implanted in a human being. Removing it would require sophisticated surgical techniques. It not only is not mobile, it cannot be moved.

**C. Combining Mitchinick and Sheldon**

21. The petitioners cited reasons to combine these two patents are inaccurate. As one example, the petitioner’s first two reasons involve extending battery life:

### Reason 1: Improve Power Management and Extended Battery Life

A POSITA would have been motivated to modify the mobile device in Mitchnick to include Sheldon's technique for sampling an accelerometer signal over a given sampling time period. Ex.1003, p.30. This is because improved power management is one of Mitchnick's goals ("managing power use for longer battery life" Ex.1007, ¶13), and Sheldon provides improved power management by using a sampling time period to avoid scenarios where the activity check would unnecessarily occur because of ambiguous results. Ex.1003, pp.30-31. Implementing Sheldon's power management techniques (e.g. sampling for a predetermined time period) in Mitchnick's device would lead to better power

### Reason 2: Optimize Battery Cost

A POSITA would also have incorporated Sheldon's technique for sampling an accelerometer signal over a given sampling time period into Mitchnick's mobile device because it would minimize battery cost. Ex.1003, p.31. Mitchnick teaches that "[e]xtended battery life (for example, a month o[r] longer) is important." Ex.1007, ¶52. Mitchnick also explains that a "[s]uitable battery capacity is selected according the desired device life." Ex.1007, ¶52.

22. This ignores the fact that Mitchinick already has a built in mechanism to extend battery life:

[0069] After exiting wait state 71 (or initially, if a wait state is not implemented), the device enters operational state 73 during which sensor data monitoring sexual activity is retrieved and stored. Because sexual activity is intermittent, power and memory can be advantageously further conserved, and device life further extended, by only intermittently sampling 75 for sexual activity, and by storing sensor detail data only if sexual activity is observed. If sexual activity is not detected, the device remains in a low-power sleep state. For example, the device may periodically wake up and sample for sexual activity approximately every 5 min., or preferably approximately every 5-10 min., or more preferably approximately every 10-20 min. or longer. The time spent in the sexual-activity check is preferably sufficient for necessary accuracy, but such that the overall device duty cycle is less than approximately 20%, preferably less than approximately 10%, and more preferably less than approximately 5% or less.

23. The petitioners claim that Sheldon's sampling would improve Mitchinicks battery life is peculiar, given that Sheldon samples much more frequently than Mitchinick and would thus actually diminish Mitchinicks batter life if the two were combined:

the AC component "Activity Count" are determined over a certain sampling period, e.g. a running 2 second period. The

24. Contrary to the petitioners claim, combining Sheldon with Mitchinick would actually cause Mitchinick to sample more frequently, draining its battery faster, and would thus diminish the efficacy of Mitchinick. Not only would a POSA, as defined by the petitioner have no expertise with either Sheldon or Mitchinick, even an expert in biomedical devices (which is not the petitioners definition of a POSA) would have been strongly motivated to avoid combining Mitchinick and Sheldon.

**D. Combining Tanenhaus with Mitchinick or Sheldon**

25. The petitioner states it would be obvious to combine Tanenhaus with Mitchinick or Sheldon. However, their arguments are predicated on a misunderstanding of the prior art they cite, and of the '902 patent:

Mitchnick, Sheldon, and Tanenhaus are analogous art to the '902 patent and are each also in the same field of endeavor. Ex.1003, p.44. First, Mitchnick, Sheldon, and Tanenhaus all teach using accelerometers in MEMS-based devices. Ex.1003, p.44. Second, Mitchnick, Sheldon, and Tanenhaus all apply various

26. As has already been discussed, Mitchinick and Sheldon are medical devices. They are in an entirely different field than either Tanenhaus or the '902 patent. Biomedical engineering is a separate and distinct field from electrical engineering or computer engineering. A POSA as defined by the petitioner would have no expertise in medical devices.

27. Tanenhaus is in an entirely different field of endeavor, and this is best expressed in Tanenhaus:

consumption. The present invention also provides a method and apparatus for reducing inspection costs and also creates new monitoring capabilities not possible or not available for various types of systems. The present invention additionally advantageously provides a method and apparatus for making rapid, reliable, and timely readiness measurements of a broad range of systems desired to be monitored such as missiles, missile launchers, missile support systems, highway bridges, operating machinery, transportation, or telemetry systems. The present invention further advantageously increases reliability, readiness, flexibility, and safety and greatly reduces maintenance time, labor, and cost for monitoring various types of systems. For example, the apparatus advantageously can readily be expanded for additional types of sensors which may be desired on various selected applications.

28. The petitioner appears to be opining that all micro-electrical devices are in the same field, completely ignoring the very different fields involved in the prior art cited. Not only would a POSA not be motivated to combine Tanenhouse with Mitchinick or Sheldon, a POSA would not even be familiar with all three given they are in two very different fields of endeavor.

29. Furthermore, the specific reasons to combine cited by the petitioner further ignore the actual nature of the prior art:

Reason 1: Improved Detection of a User Activity

A POSITA would have been motivated to modify the accelerometer in Mitchnick and Sheldon to include Tanenhaus's accelerometer with a wake-up sensing circuit. Ex.1003, p.44. Mitchnick teaches an accelerometer that is "powered down" when not in use. Ex.1007, ¶12. Mitchnick also teaches that the monitoring device "can also wake up from sleep state upon occurrence of selected external events" detected by a sensor that can "generate an external wake up interrupt." Ex.1007, ¶12.

30. Given that Tanenhouse is designed for use in "missiles, missile launchers, missile support systems", Sheldon is a pacemaker, and Mitchinick monitors sexual activity in a human body, it is not even clear that a POSA could combine Tanenhouse with either Mitchinick or Sheldon without extensive re-engineering. The needs for missile design and internal biomedical devices are extremely divergent. Whether it is even possible to make such combinations, it is clear that a POSA as defined by the petitioner would not have expertise in both missile system electronics, and biomedical devices.

**VII. SPECIFIC CLAIM ELEMENTS**

31. Several claims discussed in the petitioner's brief and Dr. Paradiso's declaration stand out as requiring specific commentary. Those claims are discussed in this section

**A. Claim 1 detecting motion by an inertial sensor included in a mobile device**

32. The petitioner claims that Mitchinick teaches this element:

Ex.1007, Fig.1 (annotated); Ex.1003, p.21. In Mitchnick, the accelerometer detects *motion* because it measures acceleration caused by “patterns of participant motion.” Ex.1001, ¶12. Accordingly, Mitchnick teaches *detecting motion by an inertial sensor*.

33. While Mitchinick does have an accelerometer, it is not used to detect motion. In fact, Mitchinick actually teaches away from motion detection by the accelerometer, and instead teaches periodic sampling:

[0069] After exiting wait state 71 (or initially, if a wait state is not implemented), the device enters operational state 73 during which sensor data monitoring sexual activity is retrieved and stored. Because sexual activity is intermittent, power and memory can be advantageously further conserved, and device life further extended, by only intermittently sampling 75 for sexual activity, and by storing sensor detail data only if sexual activity is observed. If sexual activity is not detected, the device remains in a low-power sleep state. For example, the device may periodically wake up and sample for sexual activity approximately every 5 min., or preferably approximately every 5-10 min., or more preferably approximately every 10-20 min. or longer. The time spent in the sexual-activity check is preferably sufficient for necessary accuracy, but such that the overall device duty cycle is less than approximately 20%, preferably less than approximately 10%, and more preferably less than approximately 5% or less.

34. The person who has Mitchinick installed in their body may be in motion, but that motion will only be known if it happens to occur during the periodic sampling. The movement of the accelerator itself will not trigger Mitchinick to detect motion. In fact, the person could be in vigorous motion for as long as 20 minutes without Mitchinick detecting it. This is a completely different approach than the '902 patent. It is not



surprising that Mitchinick uses a radically different approach than the '902 patent, given that Mitchinick is in a completely different and unrelated field.

**B. Claim 1: determining, by the mobile device, whether the motion has a motion signature indicative of a user activity that the mobile device is configured to monitor**

35. The petitioner claims that Mitchinick teaches this element and cites the following:

Second, Mitchinick teaches that the monitoring device includes a “sexual-activity check” that “extracts characteristics from an observed accelerometer signal, **compares observed characteristics to a template indicating ranges of characteristics likely to indicate sexual activity**, and indicates sexual activity is likely if the observed characteristics match the template.” Ex.1007, ¶70. In particular, Mitchinick teaches the characteristics of the observed accelerometer signal include “the values of significant peaks in the accelerometer signal, representing significant acceleration of a device wearer, and the times of these peaks or the time intervals between these peaks.” Ex.1007, ¶70. These acceleration signals are compared with a template that “describes one or more joint ranges of peak values and time intervals that have been determined as likely indicative of sexual activity.” Ex.1007, ¶70. According to Mitchinick, the “sexual activity is likely if the observed characteristics match the template.” Ex.1007, ¶70. A

36. The petitioner has pieced together portions of Mitchinick and misrepresented what Mitchinick actually teaches:

[0043] The preferred embodiments of this invention are single-unit, intra-vaginal monitoring devices that include sensors for detecting sexual activity, and optionally, also for detecting/sampling other aspects of the intra-vaginal environment. This invention also includes multi-unit embodiments, and further embodiments for residing elsewhere in or on the body and detecting other parameters of medical/

37. This excerpt is one example of why Mitchinick is not a mobile device. Instead it is an implanted medical device. Furthermore, the motion in and of itself does not determine user activity. That is part of a template that includes other bodily measurements, not related to motion.

**C. Claim 5 “using a default step cadence window to identify a time frame within which to monitor for a next step; and”**

38. The petitioner states “The combination of Fabio and Pasolini renders this limitation obvious” claiming:

individual step (block 230).” Ex.1006, 4:24-27. In Fabio, the validation test “occurs when the duration  $\Delta T_K$  of a current step K is substantially homogeneous with respect to the duration  $\Delta T_{K-1}$  of an immediately preceding step K-1.” Ex.1006, 4:28-31, Fig. 4. In other words, **“the last step is validated if the instance of recognition of the current step  $T_R(K)$  falls within a validation interval  $T_V$ .”** Ex.1006, 4:35-39. The validation interval  $T_V$  is a *step cadence window* in that “step K” is validated when “instant of recognition of the current step  $T_R(K)$  falls within a validation interval  $T_V$ ” that is based on the immediately preceding step.

39. However, what Fabio actually states is shown here (note that portion underlined in red is the portion the petitioner cited):

If the control unit **5** does not recognize an event corresponding to a step (output NO from block **225**), a new sample of the acceleration signal  $A_z$  is read (block **200**). If, instead, the step-recognition test is passed (output YES from block **225**), the control unit **5** executes a first validation test, corresponding to the regularity of the individual step (block **230**). With reference also to FIG. **6**, the validation occurs when the duration  $\Delta T_K$  of a current step  $K$  is substantially homogeneous with respect to the duration  $\Delta T_{K-1}$  of an immediately preceding step  $K-1$  (the duration of a generic step is determined by the time that has elapsed between an instant of recognition of the step of which the duration is evaluated and an instant of recognition of the step that immediately precedes it). More precisely, the last step recognized is validated if the instant of recognition of the current step  $T_R(K)$  falls within a validation interval  $IV$ , defined with respect to the instant of recognition of the immediately preceding step  $T_R(K-1)$ , in the following way:

$$IV = [T_R(K-1) + \Delta T_{K-1} - TA, T_R(K-1) + \Delta T_{K-1} + TB]$$

40. What is being describes is a test of the regularity of the individual step.

This is the first validation test. Even if one supposes that “regularity of the individual step” to be synonymous with “cadence”, this excerpt is not describing updating the “regularity of the individual step”. This in no way describes updating anything even analogous to the cadence window. It must also be noted that Fabio only discusses updating with respect to updating the number of steps, not anything even analogous to the cadence window

## VIII. CONCLUSIONS

41. For the reasons discussed in this declaration, it is my opinion that there are Mitchinick neither renders obvious, nor anticipates the ‘902 patent.

42. For the reasons discussed in this declaration, it is my opinion that there are Sheldon neither renders obvious, nor anticipates the '902 patent.

43. For the reasons discussed in this declaration, it is my opinion that a POSA as defined by the petitioner would not have been familiar with either Mitchinick or Sheldon.

44. For the reasons discussed in this declaration, it is my opinion that even an expert in biomedical devices (which is not the petitioners definition of a POSA) would not have been motivated to combine Sheldon and Mitchinick and in fact would have been strongly motivated not to combine them.



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William C. Easttom II (Chuck Easttom) 25 April 2018

## **IX. APPENDIX A – EASTTOM CV**

### **A. Education**

#### **1. University Degrees**

- B.A. Southeastern Oklahoma State University. Major Communications with Minors in Chemistry and Psychology. Extensive coursework in science (chemistry, physics, and biology) as well as neuroscience (neurobiology of memory, cognitive science, etc.). Also, additional coursework in computer science including programming and database courses.
- M.Ed. Southeastern Oklahoma State University. Coursework included technology related courses such as digital video editing, multimedia presentations, and computer graphics. A statistics course was also part of the coursework.
- M.B.A. Northcentral University Emphasis in Applied Computer Science. Extensive course work in graduate computer science including graduate courses in: C++ programming, C# programming, Computer Graphics, Web Programming, Network communication, Complex Database Management Systems, and

Artificial Intelligence. Approximately 30 graduate hours of graduate computer science courses. Additionally, a doctoral level statistics course was included. A semester research project in medical software was also part of the curriculum. I also took several research courses beyond the requirements for the degree.

- Doctor of Science (In progress) Capitol Technology University. Majoring in cybersecurity, dissertation topic is a study of post quantum computing asymmetric cryptographic algorithms.
- Master of Science (In progress) University of Texas at El Paso. Majoring in systems engineering.

## **2. Industry Certifications**

The following is a list of computer industry certifications I have earned.

### **a. Hardware and Networking Related Certifications**

1. CompTIA (Computer Technology Industry Associations) A+ Certified
2. CompTIA Network + Certified
3. CompTIA Server+ Certified
4. CompTIA I-Net+ Certified

### **b. Operating System Related Certifications**

5. CompTIA Linux + Certified
6. Microsoft Certified Professional (MCP) – Windows Server 2000 Professional Certification Number: A527-9546
7. Microsoft Certified Systems Administrator (MCSA) Windows Server 2000 Certification Number: A527-9556
8. Microsoft Certified Systems Engineer (MCSE) Windows Server 2000 Certification Number: A527-9552
9. Microsoft Certified Technology Specialist (MCTS) Windows Server 2008 Active Directory Microsoft Certification ID: 1483483
10. Microsoft Certified Technology Specialist (MCTS) Windows 7 Microsoft Certification ID: 1483483
11. Microsoft Certified IT Professional (MCITP) Windows 7 Microsoft Certification ID: 1483483
12. Microsoft Certified Solutions Associate Windows 7 Microsoft Certification ID: 1483483
13. National Computer Science Academy Windows 8 Certification Certificate #: 4787829

### **c. Programming and Web Development Related Certifications**

14. Microsoft Certified Professional (MCP) – Visual Basic 6.0 Desktop Applications  
Microsoft Certification ID: 1483483
15. Microsoft Certified Professional (MCP) – Visual Basic 6.0 Distributed Applications  
Microsoft Certification ID: 1483483
16. Microsoft Certified Application Developer (MCAD) - C# Microsoft Certification ID:  
1483483
17. Microsoft Certified Trainer (MCT 2005-2012) Microsoft Certification ID: 1483483
18. Microsoft Certified Technology Specialist (MCTS) Visual Studio 2010 Windows  
Application Microsoft Certification ID: 1483483
19. Microsoft Certified Technology Specialist (MCTS) Visual Studio 2010 Data Access  
Microsoft Certification ID: 1483483
20. National Computer Science Academy HTML 5.0 Certification Certificate #: 4788000.
21. National Computer Science Academy ASP.Net Certification Certificate #: 4788342
22. Certified Internet Webmaster (CIW) Associate CIW0163791

### **d. Database Related Certifications**

23. Microsoft Certified Database Administrator (MCDBA) SQL Server 2000 Microsoft  
Certification ID: 1483483
24. Microsoft Certified Technology Specialist (MCTS) Implementing SQL Server 2008  
Microsoft Certification ID: 1483483
25. Microsoft Certified IT Professional (MCITP) SQL Server Administration Microsoft  
Certification ID: 1483483

## **3. Security and Forensics Related Certifications**

26. CIW Certified Security Analyst CIW0163791
27. EC Council Certified Ethical Hacker v5 (CEH) ECC942445
28. EC Council Certified Hacking Forensics Investigator v4 (CHFI) ECC945708
29. EC Council Certified Security Administrator (ECSA) ECC947248
30. EC Council Certified Encryption Specialist (ECES)
31. EC Council Certified Instructor
32. CISSP – Certified Information Systems Professional #387731
33. ISSAP – Certified Information Systems Architect #387731

34. CCFP – Certified Cyber Forensics Professional #387731
35. Certified Criminal Investigator (CCI)
36. Forensic Examination of CCTV Digital VTR Surveillance Recording Equipment
37. Oxygen Phone Forensics Certified
38. Access Data Certified Examiner (ACE) 2014-2017
39. OSForensics Certified Examiner (OSFCE)
40. Certified Forensic Consultant (CFC)

#### **4. Software Certifications**

41. National Computer Science Academy Microsoft Word 2013 Certification Certificate #: 5078016
42. National Computer Science Academy Microsoft Word 2000 Certification Certificate #: 5078187

#### **5. Licenses**

Texas State Licensed Private Investigator. Registration Number 827827. Associated with Allegiant Investigations & Security License Number: A18596

### **B. Publications**

#### **1. Books**

1. Easttom, C. (2003). Moving from Windows to Linux. Newton Center, MA: Charles River Learning. 1st Edition, Charles River Media.
2. Easttom, C., Hoff, B. (2006). Moving from Windows to Linux, 2<sup>nd</sup> Ed. Newton Center, MA: Charles River Learning. 1st Edition, Charles River Media.
3. Easttom, C. (2003). Programming Fundamentals in C++. Newton Center, MA: Charles River Learning. 1st Edition, Charles River Media.
4. Easttom C. (2002). JFC and Swing with JBuilder 8.0. Plano, Texas: WordWare Publishing.
5. Easttom, C. (2002). JBuilder 7.0 EJB Programming. Plano, Texas: WordWare Publishing.
6. Easttom, C. (2001). Beginning JavaScript, 1st Edition. Plano, Texas: WordWare Publishing.
7. Easttom, C. (2002). Beginning VB.Net. Plano, Texas: WordWare Publishing.

8. Easttom, C. (2001). Advanced JavaScript, 2<sup>nd</sup> Edition. Plano, Texas: WordWare Publishing.
9. Easttom, C. (2005). Introduction to Computer Security. New York City, New York: Pearson Press.
10. Easttom, C. (2006). Network Defense and Countermeasures. New York City, New York: Pearson Press.
11. Easttom, C. (2005). Advanced JavaScript, 3<sup>rd</sup> Edition. Plano, Texas: WordWare Publishing.
12. Easttom, C., Taylor, J. (2010). Computer Crime, Investigation, and the Law. Boston, Massachusetts: Cengage Learning.
13. Easttom, C. (2013). Essential Linux Administration: A Comprehensive Guide for Beginners. Boston, Massachusetts: Cengage Learning.
14. Easttom, C. (2011). Introduction to Computer Security, 2<sup>nd</sup> Edition. New York City, New York: Pearson Press.
15. Easttom, C. (2012). Network Defense and Countermeasures, 2<sup>nd</sup> Edition. New York City, New York: Pearson Press.
16. Easttom, C. (2013). System Forensics, Investigation, and Response, 2<sup>nd</sup> Edition. Burlington Massachusetts: Jones & Bartlett.
17. Easttom, C. (2014). CCFP Certified Cyber Forensics Professional All-in-One Exam Guide. New York City, New York: McGraw-Hill Publishing.
18. Easttom, C., Dulaney, E. (2015). CompTIA Security+ Study Guide: SY0-401. Hoboken, New Jersey: Sybex Press.
19. Easttom, C. (2015). Modern Cryptography: Applied Mathematics for Encryption and Information Security. New York City, New York: McGraw-Hill Publishing.
20. Easttom, C. (2016). Computer Security Fundamentals, 3<sup>rd</sup> Edition. New York City, New York: Pearson Press.
21. Easttom, C. (2017). System Forensics, Investigation, and Response, 3<sup>rd</sup> Edition. Burlington Massachusetts: Jones & Bartlett.
22. Easttom, C., Dulaney, E. (2017). CompTIA Security+ Study Guide: SY0-501. Hoboken, New Jersey: Sybex Press.
23. Easttom, C. (2018). Penetration Testing Fundamentals: A Hands on Guide to Reliable Security Audits. New York City, New York: Pearson Press.
24. Easttom, C., Christy, R. (2017). CompTIA Security+ Review Guide: SY0-501. Hoboken, New Jersey: Sybex Press.
25. Easttom, C., Roberts, R. (2018). Networking Fundamentals, 3rd Edition. Goodheart-Wilcox Publishing..
26. Easttom, C. (2018). Network Defense and Countermeasures, 3rd Edition. New York City, New York: Pearson Press.



## 2. Papers, presentations, & articles.

1. Easttom, C. (2010). RSA and its Challenges. EC Council White Paper.
2. Easttom, C. (2010). Finding Large Prime Numbers. EC Council White Paper
3. Easttom, C. (2010). A Method for Finding Large Prime Numbers. Hacking Magazine. Hands-On Cryptography Issue.
4. Easttom, C. (2014). A method for finding large prime numbers. Open Source Article published by Academia.edu 2014.
5. Easttom, C. (2011). The RSA Algorithm - The ups and Downs. CryptoMagazine.
6. Easttom, C. (2011). Feistel Ciphers - An Overview. Presentation at Cast Security Conference. Washington, D.C.
7. Easttom, C. (2011). Steganography- History and Modern Applications. Presentation at Takedown Security Conference.
8. Easttom, C. (2012). Problems with RSA. Presentation at Takedown Security Conference – Dallas, TX.
9. Easttom, C. (2013). Cryptanalysis. Presentation at Takedown Security Conference. Huntsville, Alabama.
10. Easttom, C. (2014). An Overview of Cryptographic S-Boxes used in Block Ciphers. Research Gate. DOI RG.2.2.14084.94088.
11. Easttom, C. (2014). Cryptographic Backdoors. Presentation at ISC2 Security Congress. Atlanta, Georgia.
12. Easttom, C. (2014). Cryptographic Backdoors. Presentation at University of Texas Dallas ACM Chapter Conference.
13. Easttom, C. (2014). Windows Registry Forensics. Research Gate. DOI RG.2.2.29603.86561
14. Easttom, C. (2014). Artificial Intelligence, Fuzzy Logic, Neural Networks and Fuzzy Neural Networks and their impact on Electronic Medical Records. Academia.edu.
15. Easttom, C. (2014). A Basic Overview of Electro-Magnetic Interference. Academia.edu.
16. Easttom, C. (2014). An Overview of Targeted Malware. Academia.edu.
17. Easttom C. (2014). An Introduction to Mobile Forensics. Academia.edu.
18. Easttom, C. (2015). Cryptographic Backdoors. Academia.edu.
19. Easttom, C. (2015). The History of Computer Crime in America. Academia.edu.
20. Easttom, C. (2015). Spyware Techniques. Academia.edu.
21. Easttom, C. (2015). Recovering Deleted Files from NTFS. Academia.edu.
22. Easttom, C. (2015). Multi-dimensional analysis of cyber-forensic evidence. Academia.edu.

23. Easttom, C. (2016). Spyware coding techniques. *Journal of Information Security Science & Digital Forensics (HJISSDF)*, 1 (1)
24. Easttom, C. (2016). Cryptographic Backdoors – an overview. *Journal of Information Security Science & Digital Forensics (HJISSDF)*, 1 (1)
25. Easttom, C. (2016). A Look at Spyware Techniques. *2600 Magazine*, 33(3). Autumn issue 2016.
26. Easttom, C. (2016). Multi-Dimensional Analysis of Digital Forensic Evidence. *Forensic Examiner Journal*, 25 (4).
27. Easttom, C. (2016). Applying Graph Theory to Evidence Evaluation. Research Gate DOI: RG.2.2.23391.0528
28. Easttom, C. (2017). An Overview of Pseudo Random Number Generators. Research Gate. DOI: RG.2.2.13941.58087
29. Easttom, C. (2017). A Model for Penetration Testing. Research Gate. DOI: RG.2.2.36221.15844
30. Easttom, C. (2017). The RSA Algorithm Explored. *International Journal of Innovative Research in Information Security. (IJIRIS)*. 4(1).
31. Easttom, C. (2017). Utilizing Graph Theory to Model Forensic Examination. *International Journal of Innovative Research in Information Security (IJIRIS)*, 4(2).
32. Easttom, C. (2017). Applying Graph Theory to Modeling Investigations. *IOSR Journal of Mathematics (IOSR-JM)* 13,2 PP 47-51. doi:10.9790/5728-130205475
33. Easttom, C. (2017). Enhancing SQL Injection with Stored Procedures. *2600 Magazine*. 34(3).
34. Easttom, C. (2017). An Overview of Key Exchange Protocols. *IOSR Journal of Mathematics (IOSR-JM)*. 13(4). DOI: 10.9790/5728-1304021618
35. Easttom, C. (2017). An Overview of Quantum Cryptography with Lattice Based Cryptography. *IOSR Journal of Mathematics*, 13(6).
36. Easttom, C. (2018). A Generalized Methodology for Designing Non-Linear Elements in Symmetric Cryptographic Primitives. In *Computing and Communication Workshop and Conference (CCWC), 2018 IEEE 8th Annual*. IEEE.
37. Easttom, C. (2018). The role of weaponized malware in cyber conflict and espionage. In *13th International Conference on Cyber Warfare and Security ICCWS, 2018*.
38. Easttom, C. (2018) An Overview of Cryptographic Backdoors. *Journal of Information System Security*, 13 (3), 177-185.
39. Easttom, C. (2018). The Daubert Standard as a Framework for Digital Forensics. *Digital Forensics Magazine*, 35.
40. Easttom, C. (2018). A Study of Cryptographic Backdoors in Cryptographic Primitives. *26th Iranian Conference on Electrical Engineering (ICEE2018)*. Mashad Iran

41. Easttom, C. (2018). Bluetooth Hacking 101. 2600 Magazine 35(1).

### **C. Patents**

U.S. Patent No. 8,527,779 B1 Method and apparatus of performing distributed steganography of a data message

U.S. Patent No. 8,713,067 Stable File System

U.S. Patent No. 8,819,827 B1 Method and apparatus of performing data executable integrity verification

U.S. Patent No. 8,825,845 B1 Managing a network element operating on a network

U.S. Patent No. 8,825,810 B1 Domain name service based remote programming objects

U.S. Patent 8,984,639 Method and apparatus of performing data executable integrity verification

U.S. Patent No. 9,405,907 Method and apparatus of performing data executable integrity verification (a continuation patent of '639)

US Patent No. 9,313,167 Domain name service based remote programming objects

US Patent No. 9,619,656 Method and apparatus of performing distributed steganography of a data message (continuation patent of 8,527,779 B1)

US Patent No. 9,686,227 Domain Name Service based remote programming objects (continuation patent of U.S. Pat. No. 9,313,167)

US Patent No. 9,755,887 Managing a network element operating on a network

US Patent No. 9,754,108 Method and apparatus of performing data executable integrity verification

US Patent No. 9,753,957 System and method for document tracking

#### **D. Standards and Certification Creation**

1. Member of the advisory board for Embry Riddle University cyber security program within the Homeland Security degree program.
1. Created the course and certification test for Certified OSForensics Examiner (OSFCE). OSForensics is a forensic software tool used to analyze computers.
2. Reviewer for scientific papers submitted to IEEE Security & Privacy.
3. Reviewer for scientific papers submitted to the International Journal of Cyber Warfare and Terrorism (IJCWT).
4. Editorial board member for the year 2016 for *Journal of Information Security Science & Digital Forensics*. This is an international peer reviewed information security journal.
5. Editorial board for the year 2016 member for *The Forensic Examiner*. This is a peer reviewed forensic journal.
6. Subject matter expert for the Computer Technology Industry Association (CompTIA) Server + exam creation team. I was part of the team that helped create the CompTIA Server+ certification test.
7. Subject matter expert for the Computer Technology Industry Association (CompTIA) Linux+ exam review team. I was part of the team that helped create the CompTIA Linux+ certification test.
8. Subject matter expert for the Computer Technology Industry Association (CompTIA) Security+ exam Job Task Analysis team. I was part of the team that helped create the CompTIA Security+ certification test.
9. Subject matter expert for the Computer Technology Industry Association (CompTIA) Certified Technical Trainer exam revision team.
10. Created the EC Council Certified Encryption Specialist course and certification test. Then revised the course and certification in 2017.
11. Created the EC Council CAST Advanced Encryption course.
12. Worked on the Job Task Analysis Team for the Certified Ethical Hacker v8 test.

#### **E. Professional Awards and Memberships**

1. Distinguished Speaker of the ACM (2017 to 2020)
2. Member of the International Association of Cryptological Research (IACR)
3. Member of the ACM (Association of Computing Machinery)

4. Member of the ACM Special Interest Group on Artificial Intelligence
5. Member of the ACM Special Interest Group on Security, Audit and Control
6. Member of the IEEE (Institute of Electronics and Electrical Engineers)
7. Member of the IEEE Computing group
8. Associate Member of the American Academy of Forensic Sciences (2015 to 2018)
9. Member of InfraGard (FBI-Civilian group for cyber security)
10. 1992-1993 National Deans List
11. Who's Who in American Colleges and Universities 1998
12. Marquis Who's Who in America
13. Marquis Who's Who in Education
14. Marquis Who's Who in Science and Engineering

#### **F. Speaking Engagements**

1. Mid-Cities PC Users Group September 19, 2003. The topic was computer security in general.
2. The Harvard Computer Society April 5, 2004. The topic was computer security.
3. The ACM Chapter of Columbia University November 15, 2005. The topic was computer viruses.
4. DeVry/Keller University in Dallas December 2009 Commencement Speaker.
5. Public presentation on computer crime in McKinney Texas in July 2008.
6. Southern Methodist University Computer Science and Engineering Colloquium September 2010. The topic was organized computer crime and computer terrorism. I was an invited speaker.
7. Takedowncon security conference in Dallas Texas, May 2011. The topic was steganography. I was an invited speaker.
8. An Overview of Modern Cryptography, May 5, 2011 Webinar
9. CAST Conference in Washington D.C. August 2011. The topic was Cryptography: Feistel Ciphers. The audience was primarily Department of Defense personnel and contractors. I was an invited speaker.
10. Digital Certificates: An Expert View, January 12, 2012 Webinar
11. Takedown security conference in Dallas Texas, May 2012. The topic was RSA cryptography. I was an invited speaker.
12. Problems with RSA, November 4, 2012 Webinar
13. Takedowncon security conference in Huntsville Alabama, July 15, 2013. The topic was cryptanalysis. The audience was primarily Department of Defense personnel and contractors. I was an invited speaker.
14. September 25-26, I conducted a 2-day master class in hacking techniques, in Singapore for Clariden Global. I was an invited speaker.
15. March 2014, I conducted a presentation for the University of Texas ACM chapter. The topics were distributed steganography and cryptographic backdoors.

16. May 26-27, 2014. I conducted a 2-day workshop in software testing in Singapore for Clariden Global. I was an invited speaker.
17. June 2014, I conducted a public talk on computer crime and internet safety in Melissa Texas, sponsored by the Melissa Police Department.
18. October 1, 2014 presentation of a talk on cryptographic backdoors at the ISC2 Security Conference in Atlanta Georgia.
19. October 5, 2014 presentation of a talk on cryptographic backdoors at the Hakon convention in Indore, India. I was an invited speaker.
20. October 17, 2014 U.S. Secret Service, North Texas Electronic Crimes (N-TEC) Task Force presenting a talk on the history and current state of computer crime. I was an invited speaker.
21. November 7, 2014 North Texas Crime Commission-Healthcare Cyber Security Symposium presenting a talk on health care breaches. I was an invited speaker.
22. January 27, 2015: Collin County Sheriff's Academy Alumni Association. "Cybercrime and online predators".
23. April 14, 2015 Brighttalk webinar "What you don't know about Cryptography and how it can hurt you".
24. May 4, 2015 North Texas Crime Commission-Healthcare Cyber Security Symposium presenting a talk on the causes and remediation of health care breaches. I was an invited speaker.
25. May 12, 2015 SecureWorld Houston "What you don't know about Cryptography and how it can hurt you".
26. August 20, 2015. Southwest Financial Crimes Forum "7 biggest mistakes of incident response." I was an invited speaker.
27. September 30, 2015 ISC2 Security Congress "Cryptanalysis for Forensics".
28. October 3, 2015. Conducted a 1-day workshop in Malware at Hakon India. I was an invited speaker.
29. October 4, 2015. Hakon India Indore India. 2015 "Cyberwar and Terrorism".
30. November 4, 2015 iSMG Fraud Summit in Dallas Texas "Business Email Masquerading: How Hackers Are Fooling Employees to Commit Fraud". I was an invited speaker.
31. November 5, 2015 SWACHA Electronic Payments Summit in Irving Texas "Emerging Trends in Cyber Crime". I was an invited speaker.
32. May 25, 2016 "Improving Professional Standards in Cyber Forensics" Keynote speaker for Association of Digital Forensics Security and Law. I was an invited speaker.
33. June 22, 2016 the topic was "Cyber Security Issues Facing Business" Texas Security Bank Business Institute meeting. I was an invited speaker.
34. August 4, 2016 "Steganography: The in's and Out's" DefCon 24, Las Vegas.
35. September 12, 2016 USMCOC Third North American Sustainable Economic Development Summit Cyber Security, Information Technology & Innovation Panel. I was an invited speaker.

36. September 13, 2016 Tarleton State University CyberSecurity Summit at the George W. Bush Institute. The topic was "A template for incident response". I was an invited speaker.
37. September 28, 2016 Secure World Dallas. A presentation on "Analyzing Forensic Evidence -Applications of graph theory to forensic analysis".
38. October 2, 2016 Hakon India (Indore India). A presentation on "The Dark Web Markets – Implications for Law Enforcement and Counter Terrorism". I was an invited speaker.
39. October 18-19, 2016 Jordan Cyber Security & Forensics Forum (JCSFF-2016) Presenting two presentations. The topics were "Zero Day Exploits" and "How to forensically analyze Zero Day Exploits". I was an invited speaker.
40. December 1-2. I conducted a 2-day advanced workshop on cyber-threat intelligence in Singapore for Clariden Global. I was an invited speaker.
41. January 17, 2017 the 2nd International Congress of the International Association of Law and Forensic Science (IALFS), in Cairo Egypt January 17, 18, 19. The topics were "Improving Digital Forensics" and "Applying Graph Theory to Model Forensic Examinations". I was an invited speaker.
42. February 11, 2017. North Texas Cyber Security Association bi monthly meeting. Speaking on Dark Web Markets and their impact for law enforcement and intelligence agencies. Plano Texas Collin College Courtyard Campus.
43. February 17, 2017. American Academy of Forensic Sciences 69th Annual Meeting. Speaking on a novel approach JTAG phone forensics.
44. March 3, 2017. University of North Texas. A presentation on Applying Graph Theory to Analyzing Digital Evidence.
45. May 24, 2017. Enfuse 2017 conference in Las Vegas. A presentation on Applying Graph Theory to Analyzing Digital Evidence.
46. July 27, 2017. Defcon 25 2017 conference in Las Vegas. A presentation entitled "Windows: The Undiscovered Country" on undocumented features of Windows and SQL Server that can be used for hacking and penetration testing.
47. September 25, 2017 ISC2 Security Congress in Austin Texas. A presentation on "Applying Graph Theory to Analyzing Digital Evidence".
48. September 27 and 28, 2017. Secure Jordan conference in Amman. I presented two talks. The first is "An overview of current challenges in phone forensics". The second is " How to address dark web markets".
49. October 18-19 SecureWorld Dallas 2017. A presentation on "Cryptography, what you don't know and how it can hurt you".
50. January 8 to 10<sup>th</sup> Annual IEEE Computing and Communication Workshop at the University of Nevada in Las Vegas, a presentation on my paper "A Generalized Methodology for Designing Non-Linear Elements in Symmetric Cryptographic Primitives". I also chaired a session on Artificial Intelligence, and another session on Computer Architecture and VLSI.
51. March 8 to 9 ICCWS conference (13th International Conference on Cyber Warfare and Security) presenting my paper "The Role of Weaponized Malware in

- Cyber Conflict and Espionage". Also presenting a research poster on "A Modified McCumber Cube as a Basis for a Taxonomy of Attacks"
52. March 23, 2018 presenting "Penetration Testing as a Profession Rather than a Dark Art". at the ISC2 Dallas Chapter Meeting in Murphy Texas.
  53. April 11, 2018 University of Texas at Dallas ACM chapter is hosting my Distinguished Speaker of the ACM Talk "Quantum Computing and Lattice Based Cryptography"
  54. May 7, 2018 Princess Sumaya University for Technology in Amman Jordan will be hosting my Distinguished Speaker of the ACM Talk "Applying Graph Theory to Digital Forensics" May 17, 2018. SecureWorld Houston 2018. Presentation on "Quantum Computing and Cryptography."
  55. September 25, 2018 I will be presenting "Dark Web Market Investigations" at the Global Security Exchange (GSX) 2018 (formerly the Annual Seminar and Exhibits) in Las Vegas Tuesday, September 25, 2018 (11 am Session 5127)
  56. October 8-10, 2018 "An exploration of quantum computing and post quantum cryptography" ISC2 Security Congress in New Orleans.

#### **G. Litigation Support Experience**

I have worked for both plaintiffs and defendants in computer science related cases. These cases include software copyright, trademark infringement, patent cases, and computer crime related cases. In patent cases I have opined on both infringement and validity issues. I have also testified as to the valuation of computer software.

1. 2004-2005 AVG v. Microsoft, consulting for the firm of McKool Smith on behalf of the plaintiff AVG. This was a patent infringement case involving six patents. I was the testifying expert for one patent (the '286 patent) and a consulting expert for the others. This case involved software analysis for several hundred gigabytes of software source code as well as preparation of claim charts.
2. 2006 Harrison v. Comtech Solutions Worldwide Inc., consulting for the firm of Winthrop & Weinstine on behalf of Comtech Solutions. This was a software copyright infringement case. I was a consulting expert for this case.
3. 2006 The Weidt Group v. Cold Spring Granite Company, consulting for the firm of Winthrop & Weinstine on behalf of The Weidt Group. This was a software copyright infringement case. I was a consulting expert for this case.
4. 2008 Countryman v. NextMedia Inc., consulting for the firm Siebman, Reynolds, Burg, & Phillips on behalf of the plaintiff, Countryman. This case involved an alleged breach of network security. I was a testifying expert, the case settled before trial.
5. 2008-2009 Virnetx v. Microsoft, consulting for firm of McDermott, Will, and Emery on behalf of the plaintiff Virnetx. This was a patent infringement case.



This case involved software analysis for several hundred gigabytes of software source code. I was a consulting expert for this case. The case went to trial in 2010.

6. 2010 SSL Services LLC v. Citrix Systems Inc., consulting for the firm of Dickstein and Shapiro LLC on behalf of the plaintiff SSL Services. This was a patent infringement case. I was a consulting expert for this case. Case No. 2-08-cv-158 (E.D. Tex.)
7. 2009-2012 Uniloc v. multiple defendants, consulting for the firm of Ethridge Law Group on behalf of Uniloc. This was a patent infringement case. I consulted and performed the analysis of over 100 potential defendants, determining if the products in question infringed. This involved analyzing the software utilizing standard network forensics techniques as well as reviewing source code. The case also required me to prepare over 100 claim charts. Case numbers including: No. 6:14-cv-00415 (E.D. Tex.) (ArcSoft, Inc.), No. 6:14-cv-00420 (E.D. Tex.) (Canon U.S.A., Inc.), No. 6:14-cv-00424 (E.D. Tex.) (Embarcadero Technologies, Inc.).
8. 2011-2012 Virnetx v. Cisco et. al.; Virnetx v Mitel, et. al., consulting for the firm of McKool Smith on behalf of Virnetx. This was a patent infringement case. I was a consulting expert for this case. This case involved software analysis for over 20 gigabytes of software source code for various Cisco products. I also worked on the related Alcatel case and reviewed source code for those products as well. Case No. 6:10-cv-00417 (E.D. Tex.)
9. 2011 Parallel Networks v. Abercrombie & Fitch, multiple defendants and multiple law firms on behalf of approximately 80 defendants. This was a patent infringement case. Most of the defendant's I was working on behalf of, won summary judgement Case No. 6:10-cv-00111 (E.D. Tex.).
10. 2011 Nuance v. Vlingo, consulting for the firm of Hays, Bostic, & Cronnin, on behalf of Vlingo. This was a patent infringement case. I was a consulting expert for this case that involved extensive source code review. Case No. 1:09-cv-11414 (D. Mass.).
11. 2011 Eolis v. Adobe Systems Inc., et al., Consulting for the firm of Locke, Lord, Bissel, and Liddell on behalf of defendant Citibank. This was a patent infringement case. I was a consulting expert for this case. Case No. 6:09-cv-00446 (E.D. Tex.).
12. 2012 Smartphone case v. Apple on behalf of the firm of Hayes, Bostic, and Cronin on behalf of Smartphone. This was a patent infringement case. I was a consulting expert for this case. As part of my work on this case I reviewed Apple iOS source code. Case No. 6:13-cv-00196 (E.D. Tex.).
13. 2012 Smartphone case v. Android (HTC and Sony) on behalf of the firm of Nelson, Bumgardner, and Castro on behalf of Smartphone. This was a patent infringement case. I was a consulting expert for this case. As part of my work on this case I reviewed source code for several Android based phones. Case No. 6:10-cv-00580 (E.D. Tex.).

14. 2012-2013 Market One Models v. Tekcenture. For the plaintiff. This was a software copyright infringement case. This case also involved valuation of software and intellectual property. I was a testifying expert in this case. The case settled during trial. Dallas County CAUSE NO. CC-10-05682-A.
15. 2012-2013 Allstate v. Nationwide consulting for the firm Banner & Whitcoff, on behalf of AllState. This was a patent infringement case; I was a consulting expert for this case. My work on this case involved software source code review for insurance applications. The case settled before trial. Case No. 1:12-cv-03609 (N.D. Ill.).
16. 2012 Unified Messaging Solutions LLC v. Facebook Inc., Google inc., Intuit, etc. consulting for the firm of Nelson, Bumgardner, and Castro on behalf of Unified Messaging Solutions LLC. This was a patent infringement case. I was a consulting expert for this case. This case involved extensive software source code analysis. Cases No. 6:11-cv-00120 (E.D. Tex.) (Facebook), No. 6:12-cv-00085 (E.D. Tex.) (Intuit), No. 6:11-cv-00464 (E.D. Tex.) (Google).
17. 2012- 2013 DN Lookup Technologies v. Charter Communications et. al. Consulting for the firm of Lee, Jorgensen, Pyle & Kewalraman on behalf of DN Lookup Technologies. This was a patent infringement case. I was a consulting expert for this case. Case No. 1:11-cv-01177 (D. Del.).
18. 2013 Droplets v. Amazon, et al Consulting for the firm of Wilson, Sonsini, Goodrich, & Rosati on behalf of the defendants E-Trade, Charles Schwab, Ameritrade, and ScottTrade. This was a patent infringement case. I was a consulting expert for this case. The case settled before trial. Case No. 3:12-cv-03733 (N.D. Cal.).
19. 2013 Andrews v. Medical Excesses LLC. Consulting for the firm of Maynard, Cooper & Gale on behalf of the defendant. This was a liability case involving a breach of network security. The case settled before trial. Case No. 2:11-cv-1074 (M.D. Ala.).
20. 2013 Macro Niche Software, Inc. and Michael j. Ruthemeyer v. 4 Imaging Solutions, L.L.C., Protech Leaded Eyewear, Inc. And Imaging Solutions of Australia consulting for the firm of Kevin R. Michaels, P.C on behalf of the plaintiff. This was a software copyright infringement case. This case also involved valuation of software and intellectual property. I was a testifying expert in this case. The case settled before trial. Case No. 4:12-cv-2292 (S.D. Tex.).
21. 2013 Geotag v. Frontier Communications et al. Consulting for the firm of Reese, Gordon, & Marketos on behalf of the plaintiff. This was a patent infringement case involving multiple defendants. I was a testifying expert in this case. The case involved extensive source code and product analysis. The cases settled before trial. Case No. 2:10-cv-00265 (E.D. Tex.).
22. 2013-2014 Geotag v. Starbucks et al. Consulting for the firm of Reese, Gordon, & Marketos on behalf of the plaintiff. This was a patent infringement case involving multiple defendants. I was a testifying expert in

- this case. The case involved extensive source code and product analysis. The cases settled before trial. Case No. 2:10-cv-00572 (E.D. Tex.).
23. 2013-2014 Geotag v. AT&T et al. Consulting for the firm of Malouf & Nockels LLP and the Winstead law firm, on behalf of the plaintiff. This was a patent infringement case. I was a testifying expert in this case. The case involved extensive source code and product analysis. The case settled before trial. Case No. 3:13-cv-00169 (N.D. Tex.).
  24. 2013 MCNE, Inc. and David Todd McGee v Amarone Partners LLC, et. al. District Court of Dallas County. Consulting for the firm of Howie Law PC on behalf of the defendant. This was a software copyright infringement case. I was a testifying expert in this case, but the case settled before trial. Case Dallas County, Texas DC-11-03860.
  25. 2013 PiNet v. J.P. Morgan Chase. Consulting for the firm of Puziniak Law Office on behalf of the plaintiff. This was a patent infringement case. I was a testifying expert on invalidity issues. The case settled before trial. Case 1:12-cv-00282 (D. Del.).
  26. 2014 Pragmatius Telecom LLC v Volkswagen Group of America. Working for the defendant on behalf of the firm Locke Lord LLP. I was a consulting expert. The case settled before trial. Case 1:12-cv-01559 (D. Del.).
  27. 2014 API Technical Services LLC vs Anthony Francis et. al. working for the defendant on behalf of the Wade Law Firm. I was a testifying expert in this case, the case settled before trial. Case 4:13-cv-627 (E.D. Tex.).
  28. 2014 Ameranth, Inc. v. Genesis Gaming Solutions, Inc., for the defendant Genesis Gaming Solutions. This was a patent infringement case. I was a testifying expert in this case, the case settled before trial. This case was in the Central District of California. Case 8:13-cv-00720 (C.D. Cal.).
  29. 2014 Ameranth, INC v. ITCS INC., for the defendant ITCS. This was a patent infringement case. I was a testifying expert in this case, the settled before trial. This case was in the Central District of California SA 8:13-00720 AG. Case 8:13-cv-00720 (C.D. Cal.).
  30. 2014 Neomedia Inc. vs Dunkin Brands Inc. Civil Action No.: 13-cv-02351-RM-BNB. I was retained by the firm of Nutter law on behalf of the defendant Dunkin Brands Inc. The case settled before trial. Case 1:13-cv-02351 (D. Colo.).
  31. Neomedia v Marriot Intl. Inc Civil Action No. 14-cv-001752-KLM. I was retained by the firm of Ballard Spahr LLP for the defendant. The case settled before trial. Case 1:13-cv-001752 (D. Colo.).
  32. 2014 Federal Trade Commission vs Boost Software Inc. for the defendant. Case 14-cv-81397 (S.D. Fla.). The case settled.
  33. 2014 Federal Trade Commission vs PC Cleaner Pro Inc. for the defendant. Case 14-cv-81395 (S.D. Fla.). The case settled.
  34. 2015 E AutoXchange LLC vs Academy, LLC. I am working on behalf of the defendant for the law firm of Wolfe & Wyman LLP. This was a software copyright infringement case. Case 1:14-cv-01278. The case settled.

35. 2015 Attorney General of Florida v ASAP Tech Help LLC, Working for the firm of Lubell & Rosen for the defendant. This case settled before trial. Case 2015 CA002751XXXXMB. Case concluded.
36. 2015 SNA1 S.p.A. v Barcrest Group Ltd. For the firm of Winget, Spadafora, & Schwartzberg on behalf of Illinois Insurance Company. I was a consulting expert. The case settled.
37. 2015 Suncoast Post-Tension LTD vs Peter Scoppa, et. al. US District Court Houston. For the firm of Macdonald Devin P.C., on behalf of the defendant. Case No. 4:13-cv-03125. Case concluded.
38. 2015-2017 Walmart Stores Inc. v. Cuker Interactive LLC. for the Henry Law Firm on behalf of Cuker Interactive LLC. Software trade secrets is the underlying matter in the case. Case has concluded.
39. 2015 United States of America vs. Anastasio N. Laoutaris. District Court for the Northern District of Texas, Dallas Division case no 3:13-CR-00386-B. Working for the firm of Law Office of John R. Teakell on behalf of the defendant. This was a criminal case involving alleged violation of 18 U.S.C. 1030 (a)(5)(A) and (c)(4)(B)(i). Case concluded.
40. 2016 VPN Multicast Technologies LLC vs AT&T Corp., Civil Action No.: 3:15-cv-02943-M. Patent infringement case. For the firm of The Simon Law Firm on behalf of the plaintiff. This case settled.
41. 2015-2016 Bradium Technologies vs Microsoft Cause 35:27 Patent infringement case. For the firm of Kenyon & Kenyon LLP on behalf of the plaintiff.
42. 2016 United States v Michael Thomas. Eastern District of Texas Sherman Division Case No 4:13CR227. For the firm of Tor Ekeland, P.C. on behalf of the defense. Case concluded.
43. 2016 Motio Inc. VS. BSP Software LLC, Brightstar. United States District Court for the Northern District of Texas Dallas Division Civil Action No. 3:16-cv-00331-O. For the firm of Walsh Law on behalf of the plaintiff. The case settled.
44. 2016-2017 Sanders et. al. v. Knight et. al. For the firm of Bradley, Murchison, Kelley, and Shea.
45. 2016 – 2017 Thomas Sisoian v. IBM. United States District Court for the Western District of Texas Austin Division Case No. 1-14-CV-565-SS. For the firm of DiNovo Price Ellwanger & Hardy LLP on behalf of the plaintiff.
46. 2016 – 2017 Evicam International, Inc. v. Enforcement Video, LLC, d/b/a WatchGuard Video. US District Court for the Eastern District of Texas, Sherman Division Case No. 4:15-cv-00105-ALM. For the firm of Reese, Gorden, and Marketos on behalf of the defendant WatchGuard Video on the topic of patent invalidity. Case has concluded.
47. 2016 – 2017 Uniloc USA v Cisco Systems Inc. Civil Action No. 6:15-cv-1175. Eastern District of Texas Tyler Division. Working for the firm of Prince Lobel, on behalf of the plaintiff.

48. 2016 – 2017 Uniloc USA v Facebook Inc. Civil Action No. 6:15-cv-223. Eastern District of Texas Tyler Division. Working for the firm of Prince Lobel, on behalf of the plaintiff.
49. 2016 – 2017 Uniloc USA v Huawei Enterprises Inc. Civil Action No. 6:15-cv-0099. Eastern District of Texas Tyler Division. Working for the firm of Prince Lobel, on behalf of the plaintiff. This case has settled.
50. 2016 – 2017 Uniloc USA v Unify Inc. Civil Action No. 6:16-cv-101. Eastern District of Texas Tyler Division. Working for the firm of Prince Lobel, on behalf of the plaintiff. This case has settled.
51. 2017-2018. Bascom Global Internet Service Inc., v AT&T Corp. Case No. 3:14-CV-3942-M. I was hired by the firm of Susman Godfrey LLP for the plaintiff.
52. 2017-2018. Dale Oliver v Bruce Johanson, Blair Johanson, and DB Squared LLC. United States District Court for the Western District of Arkansas, Fayetteville Division. Case No. 5:17-cv-05129-TLB. Hired by the Mark Henry Law firm for the defendant/counter claimant.
53. 2017-2018. Kathy Whiting v Gurjit Singh Dhillon, C.H. Robinson Worldwide, Inc. District Court of Lincoln County State of Oklahoma. Case No. CJ-2013-120. Hired by the firm of Kane, Russell, Colman, and Logan PC for the defendant.
54. 2017-2018. John M. Money, LLC dba Auditors Recovery Service v. AmWins Speciality Auto, Inc. Cause No. DC-16-05483 101st Judicial District Court, Dallas County Texas. Hired by the firm of Kessler Collins for the defendant.

### **1. Testifying Experience**

1. March 02, 2018. My deposition was taken in the matter of Dale Oliver v Bruce Johanson, Blair Johanson, and DB Squared LLC
2. December 22, 2017, I testified at a hearing in the matter of John M. Money, LLC dba Auditors Recovery Service v. AmWins Speciality Auto, Inc. Cause No. DC-16-05483 101st Judicial District Court.
3. My deposition was taken 27 November 2017 in the case of: Case IPR2017-00221, U.S. Patent 7,535,890; Case IPR2017-00222, U.S. Patent 8,243,902; and Case IPR2017-00225, U.S. Patent 8,995,433.
4. I testified at trial regarding patent invalidity on July 13<sup>th</sup> and July 14<sup>th</sup>, 2017 in the case of Evicam International, Inc. v. Enforcement Video, LLC, d/b/a WatchGuard Video.
5. My deposition was taken on June 27<sup>th</sup> in the case of Thomas Sisoian v. IBM. United States District Court for the Western District of Texas Austin Division Case No. 1-14-CV-565-SS.
6. My deposition was taken on June 17<sup>th</sup> in the case of Evicam International, Inc. v. Enforcement Video, LLC, d/b/a WatchGuard Video, on the issues of patent invalidity.

7. I testified at trial April 17 and 18, 2017 in the case of Walmart Stores Inc. v. Cuker Interactive LLC. July 12, 2016. Case No. 5:14-CV-5262
8. I testified at a hearing regarding multiple motions in the case of Walmart Stores Inc. v. Cuker Interactive LLC. December 12, 2016. Case No. 5:14-CV-5262
9. My deposition was taken in the case of Walmart Stores Inc. v. Cuker Interactive LLC. July 12, 2016. Case No. 5:14-CV-5262
10. I testified in the trial of United States v Michael Thomas June 7, 2016.
11. My deposition was taken in the case of Federal Trade Commission and State of Florida v Inbound Call Experts, LLC, et. al. Case No. 14-81395-CIV-Marra/Matthewman US District Court Southern District of Florida
12. I testified in the trial of Suncoast Post-Tension LTD vs Peter Scoppa, et. al. October 9, 2015.
13. I testified in the trial of United States of America vs. Anastasio N. Laoutaris, September 25, 2015 and September 28, 2015.
14. My deposition was taken in the Suncoast Post-Tension LTD vs Peter Scoppa, et. al. case August 27, 2015.
15. My deposition was taken in the Attorney General of Florida v ASAP Tech Help LLC case May 22, 2015.
16. I testified at a non-jury trial/hearing in the Federal Trade Commission vs PC Cleaner Pro Inc. case December 17, 2014.
17. I testified at a non-jury trial/hearing in the Federal Trade Commission vs Boost Software Inc. case November 24, 2014.
18. My deposition was taken in the Neomedia Inc. vs Dunkin Brands Inc. case relating to patent indefiniteness/invalidity issues on November 13, 2014
19. My deposition was taken in the Geotag v AT&T case relating to validity issues on July 9, 2014.
20. My deposition was taken in the Geotag v AT&T case relating to infringement issues on June 11, 2014.
21. My deposition was taken in the Geotag v. Starbucks et. al. case relating to invalidity issues in regard to the defendants Dominos and Darden May 15 2014
22. My deposition was taken in the Geotag v. Starbucks et. al. case relating to infringement issues in regard to the defendant Darden May 14 2014
23. My deposition was taken in the Geotag v. Frontier Communications et. al. case relating to infringement issues in regard to the defendants Gander Mountain and Abercrombie and Fitch 24 January 2014.
24. My deposition was taken in the Geotag v. Frontier Communications et. al. case relating to infringement issues in regard to the defendants Trane and Genesco 23 January 2014.

25. My deposition was taken in the Geotag v. Frontier Communications et. al. case relating to infringement issues in regard to the defendants Cinemark, Spencer's Gifts, and Regis Corp. on 22 January 2014.
26. My deposition was taken in the Geotag v. Frontier Communications et. al. case relating to infringement issues in regard to the defendants Walmart, Nike, and Advanced auto on 21 January 2014.
27. My deposition was taken in the PiNet v. J.P. Morgan Chase case relating to invalidity in January 2014.
28. My deposition was taken in the Geotag v. Frontier Communications et. al. case relating to infringement issues in regard to the defendants in Judge Gilstrap's court in December 2013.
29. My deposition was taken in the Geotag v. Frontier Communications et. al. case relating to alleged invalidity issues in regard to the defendants in Judge Gilstrap's court in December 2013.
30. My deposition was taken in the Microsoft v. Geotag case in regard to Google in December 2013.
31. I testified at an evidentiary hearing in the matter of Macroniche Software Inc. v 4 Imaging Solutions LLC, et. al. Southern District of Texas Houston Division.
32. I testified at the trial of Market One v. Tekcenture case in the Dallas County Courts in February 2013.
33. My deposition was taken in the Geotag v. Frontier Communications case in regard to the defendant Yellow Pages in September 2013.
34. My deposition was taken in the Market One v. Tekcenture case in December 2012.
35. My deposition was taken in 2011 in Eolas Tech. Inc. v. Adobe Systems, Inc., et al., Civil Action No. 6:09-cv-446 (E.D. Tex.) (On behalf of defendant, Citibank).

**H. Professional Experience**

From: 2005

To: Present

Organization: Chuck Easttom Consulting

Title: Computer Scientist/Consultant

As an independent consultant, I have developed 2 electronic medical records software solutions, several small financial and web based applications, microcontroller programming, and consulted with various companies on networking and security issues. My consulting work has included security audits, penetration tests, and forensic analysis. I have also done corporate

training and college teaching in a wide range of topics including network administration, network security, web development (HTML, JavaScript, CSS, ASP, ASP.Net etc.), programming (C, C++, C#, Java, VB, etc.) and database operations (MS SQL Server, MySQL, PostGRES, Microsoft Access, Oracle, etc.). I also developed the advanced cryptography course for the EC- Council. I developed training courses for various companies such as SkillSoft and SimpliLearn in topics such as NoSQL, MongoDB, VMWare cloud, Information Systems Auditing, CSSLP certification prep, CISA certification prep, and others. I frequently consult with various companies on computer security, cryptography, forensics, and related issues. My consulting activities have included a variety of government agencies including U.S. and Foreign governments. Some of my training courses are through my own training company CEC-LLC, which is approved by the U.S. Department of Homeland Security National Initiative for Cyber Security Careers and Studies (NICCS) <https://niccs.us-cert.gov/training/search/cec-security-llc>

From: 2003  
To: 2013  
Organization: Collin College (Professional Development Department)  
Title: Adjunct Instructor (Part Time)

I taught professional development courses to IT professionals in programming (C, Java, C++, and C#), web development (HTML, JavaScript, CSS, and .net), networking, and network security. I have also designed and taught computer security courses for the college. These courses include:

- CompTIA Security+ Certification Prep.
- CISSP Certification Prep
- Hacking & Penetration Testing
- Computer Forensics
- Network Administration

From: 2003  
To: 2005  
Organization: Great American Insurance Company- Professional Liability Division  
Title: Systems Director

Summary: In this position I oversaw all application development including complex insurance Windows applications, web development including extensive online systems, database administration with SQL Server, network administration on a Windows based network, and network security for a division of an insurance company. This role combined management with hands on work in all of these areas. I was first hired as Systems Manager, then after 12 months promoted to Systems Director. While in this role I oversaw and participated in the development of a web portal to allow customers to apply for insurance, renew policies, and check status. I personally developed an extensive reporting



application. I also oversaw and participated in a complete re-writing of the underwriting application used by our underwriters. Development was primarily using .Net with Microsoft SQL Server as a backend.

From: 2000  
To: 2003  
Organization: Remington College  
Title: Department Chair for Computer Information Systems department  
Summary: I was initially hired as an instructor but was later promoted to department chair. I taught a variety of computer science courses and managed the Computer Information Systems department. I taught courses in programming, systems analysis, web development (HTML, JavaScript, Java Applets, and .Net), e-commerce, and information security.

From: 1999  
To: 2000  
Organization: Digital Speech Systems Inc.  
Title: Senior Software Engineer  
Summary: I began at digital speech as a software engineer and was later promoted to senior software engineer. My duties included developing voicemail and related software as well as mentoring new programmers. The programming work included work on voicemail server software, unified messaging software, and related applications. I worked extensively with C, Visual C++, SQL Server, and Visual Basic.

From: 1998  
To: 1999  
Organization: Southeastern Oklahoma State University  
Title: Director of Academic Computing  
Summary: I began as the Director of Educational Technology for the School of Arts and Letters but then took over the management of the entire universities information systems when I was promoted to the Director of Academic Computing for Southeastern Oklahoma State University. In this position I managed all technical support for the campus as well as overseeing all network administration, network security, and web development.

From: 1996  
To: 1998  
Organization: Aegis Corporation Systems Group

Title: Software Engineer  
Summary: I began as a programmer/analyst and was later promoted to Software Engineer. I worked developing Windows based financial and collections applications for companies such as Boatman's Bank of St. Louis, Chrysler Financial, and Western Union. I worked extensively with C, C++, and Visual Basic (Versions 4.0 and 5.0). I also developed and oversaw the website of the company using HTML, JavaScript, and Cascading Style Sheets.

From: 1995  
To: 1996  
Organization: Boeing Aerospace Operations  
Title: Contract Programmer/Analyst  
Summary: I worked as part of a team developing a Windows application to manage the maintenance and engineering tasks for the NATO AWACS. I worked with C, C++ and Visual Basic (starting with version 3.0) as well as Microsoft SQL Server.

From: 1991  
To: 1995  
Organization: Worked various technical support and computer related jobs while attending college. From late 1993 to 1995 a great deal of time was spent developing websites with HTML (1.0), JavaScript (beginning with its release in late 1995). Among the websites I created were websites for: a computer store, two martial arts studios, a quarter horse ranch, and a university chess club. During that same time period I worked extensively with some of the early browsers such as Mosaic and Netscape (late 1994). Prior to 1992, in 1991 to 1993 I worked building and repairing PC's.

From: 1987  
To: 1991  
Organization: United States Army  
HHC 5/21 Infantry Battalion  
7<sup>th</sup> Light Infantry Division  
Title: Highest rank E-4  
Summary: Awards received – Army Service Ribbon, National defense medal, marksman badge with grenade component. Honorable discharge.

### **I. Continuing Professional Education**

I am always interested in updating and expanding my education, and therefore participate in seminars, webinars, online courses, continuing education/professional

development training, etc. In some cases, I retake introductory or intermediate courses as a refresher. Here is an exemplary list of such courses.

- Paul Deitel, Teaching Strategies for Visual C# 2008 from Pearson Publishing – 2010.
- Design and Analysis of Algorithms from Massachusetts Institute of Technology – 2012.
- Parallel Computing from Massachusetts Institute of Technology – 2013.
- Microsoft Technet - Windows 7 Feature Overview – 2011.
- Programming Methodology from Stanford University Center for Professional Development – 2012.
- Perl fundamentals from the Association of Computing Machinery 2012.
- Key Issues in Distributed Systems from Stanford University Center for Professional Development – 2013.
- Introduction to HTML5 and CSS3 from the Association of Computing Machinery – 2013.
- Software Program Control Flow Fundamentals from the Association of Computing Machinery – 2013.
- Harvard Extension School CS 50 Intensive Introduction to Computer Science. This was an intensive coverage of C, PHP, MySQL, Algorithms, and Data Structures. I took this course as a refresher – 2014.
- The Fundamentals of Conducting an Internal Investigation from Guidance Software (webinar) – 2015
- Carnegie Mellon University Software Engineering Institute - Trends and New Directions in Software Architecture (webinar)- 2015
- Analyzing Evidence from Mobile Devices, Including Hidden and Deleted Data. Oxygen Forensics (webinar) – 2015
  
- Technical Debt in Large Systems: Understanding the Cost of Software Complexity. Massachusetts Institute of Technology (webinar) – 2015
- Current Trends in Computer Security. Stanford University (webinar) – 2015
- Windows FE and Live Forensic Triage (webinar) Forensic Magazine. – 2015
- American College of Forensic Examiners course - Forensic Examination of CCTV Digital VTR Surveillance Recording Equipment. 2015
- American College of Forensic Examiners course - Developmental and Motivational Factors of Transnational Terrorists. 2015
- American College of Forensic Examiners course - Psychological Profiles of Terrorists. 2015
- Oxygen Forensics Trainer Certification Course – 2015
- Access Data FTK Online training course – 2015
- American College of Forensic Examiners course - Digital Forensics in the 21<sup>st</sup> Century – 2016

- Specialized Forensic Photography and Diagramming – June 2017

## **J. References to my work**

The following sections are provided as examples of the impact my work in computer science has had in the field.

### **1. Media References**

My computer science expertise has been sought out by reporters including:

- CNN Money interviewed me regarding alleged unbreakable cryptography [http://money.cnn.com/2011/09/02/technology/unhackable\\_code/](http://money.cnn.com/2011/09/02/technology/unhackable_code/)
- CBS SmartPlanet interviewed me regarding NSA and cryptography <http://www.smartplanet.com/blog/bulletin/nsa-proof-products-protective-or-a-profit-motive/>
- "NSA proof products: protective or a profit motive?" also appeared on ZDNet
- E-Books directory lists my "Moving from Windows to Linux" book as one of the top 10 Linux books <http://www.e-booksdirectory.com/linux/top10.html>.
- Lawrence Journal World interviewed me for a hacking story that was published August 6, 2006. The article was entitled "Hackers infiltrate Web site".
- GoCertify.com Author Interview "Author Interview: CCFP Certified Cyber Forensics Professional All-in-One Exam Guide" January 2015
- ISMG interviewed me regarding the JP Morgan Chase Breach of 2015 <http://www.bankinfosecurity.com/interviews/what-jpmorgan-chase-breach-teaches-us-i-2982>
- CIO Magazine (Nov 14, 2016) in the article "12 steps to lower your espionage risk" references my book Computer Security Fundamentals 3rd Edition
- Forensic Focus Magazine (June 2017) interviewed me regarding my work in applying graph theory to digital forensics.

### **2. References to publications**

My books and articles have been referenced by numerous computer scientists, including being referenced in several Ph.D. dissertations and Master's Thesis'. A few of those references are included here:

#### **a. Dissertations and Thesis citing my work**

1. An assessment of user response to phishing attacks: the effects of fear and self-confidence by Deanna House, Ph.D. Dissertation in Information Systems, University of Texas Arlington.

2. Assessment of Users' Information Security Behavior in Smartphone Networks- Ph. D dissertation of Mohammadjafar Esmaeili Eastern Michigan University.
3. A cryptographically-based operating system security model that protects against privileged attackers. By Christian Pain Ph.D. Dissertation Murdoch University School of Information Technology
4. Assessing and Mitigating Information Security Risk in Saudi Arabia. Ph.D. dissertation of Abdulaziz Saad Alarifi. University of Wollongong
5. Reference Model Based High Fidelity Simulation Modeling for Manufacturing Systems by Hansoo Kim Ph.D. Dissertation, School of Industrial and Systems Engineering Georgia Institute of Technology.
6. Leadership Styles and Information Security in Small Businesses: An Empirical Investigation by Debasis Bhattachary, Ph.D. Dissertation, University of Phoenix.
7. The adoption of business-to-business systems by small and medium enterprises in Amman and the perceptions of its influence on performance and efficiency by Anals A. AlBakry, Ph.D. Dissertation, University of Southern Queensland.
8. Models, Services and Security in Modern Online Social Networks, Ph.D. dissertation of Alessio Bonti Deakin University, Australia.
9. Design of a Forensic Overlay Model for Application Development Linlin Ke, Master's Thesis, College of Engineering, University of Canterbury.
10. Forensic Analysis of Linux Physical Memory: Extraction and Resumption of Running Processes. ED Mougoue, Master's Thesis, James Madison University.
11. Motivations behind Software Piracy: From the viewpoint of Computer Ethics Theories. Bethelhem Tadele, Master's Thesis University of Oulu (Scandinavia).
12. Securing CAN Bus Communication: An Analysis of Cryptographic Approaches by Jennifer Ann Bruton. Master's Thesis National University of Ireland, Galway.
13. Guidelines for the Adaptation of the TETRA Educational Programme at Nelson Mandela Metropolitan University to Address Human Behavioural Issues. Master's thesis of Nico Pieter Fouché.
14. A DDoS Security Control Framework. Post graduate thesis of Lars Drost.
15. The Value of the Automated Fingerprint Identification System as A Technique in The Identification of Suspects. Madimetja Edward Mokwele, Master's Thesis University of South Africa.
16. Securing CAN Bus Communication: An Analysis of Cryptographic Approaches by Jennifer Ann Bruton. Master's Thesis M.Sc. in Software Engineering. National University of Ireland
17. Radical Reddits: into the Minds of Online Radicalized Communities. Utrecht University. Master's Thesis. Verhaar, P.

18. Encryption, storage technology and security of data at rest. Alkorbi, Mohammed. Master's Thesis, Unitec Institute of Technology.
19. Proactive Forensic Support for Android Devices. Karthik Rao. Master's Thesis: Master of Technology in Cyber Security. Amrita School of Engineering
20. The Value of The Automated Fingerprint Identification System as A Technique in The Identification of Suspects. Adimetja Edward Mokwel. Master of Technology Thesis University of South Africa.

**b. Papers citing my work**

1. Hackers, spies, and stolen secrets: protecting law firms from data theft by Alan W. Ezekiel. Harvard Journal of Law & Technology Volume 26, Number 2 Spring 2013 Taming the diversity of information assurance & security - Journal of Computing Sciences in Colleges Volume 23, Issue 4 (April 2008) J. Paul Myers, Sandra Riela.
2. Adding information assurance to the curriculum - Journal of Computing Sciences in Colleges Volume 22, Issue 2 (December 2006) Richard Weiss.
3. Effect of Windows XP Firewall on Network Issues in Informing Science and Information Technology Volume 4, 2007 *Al-Rawi (King Faisal University Saudi Arabia), Lansari (Zayed University UAE)*.
4. Ahssan, M., Abdulkareem, I. (2017). A Proposed Non Feistel Block Cipher Algorithm. *The 1st International Conference on Information Technology*.
5. Assessing Risks of Policies to Patch Software Vulnerabilities Radianti, Sveen, and Gonzalez.
6. A study of efficient avoidance in the event of DNS (domain name system) failure - Proceedings of the 8th Conference on 8th WSEAS International Conference on Automation and Information - Volume 8 Lin, Hwang, Lin.
7. Embracing the Diversity of Information Assurance & Security - Myers
8. A study of efficient avoidance in the event of DNS (domain name system) failure - Yang, Hyon, and Hankyu.
9. Social and Organizational Aspects of Information Security Management - K. Michael.
10. The Problems and Policy Alternatives for Cyber Security in the Networking Age by Lee Ki Shik.
11. Securing Small Business: - The Role of Information Technology Policy. Batten and Castleman.
12. The Impact of Virtual Private Network (VPN) on a Company's Network. Powell, J.M.
13. Thinking Globally: Incorporating an International Component in Information Security Curricula. Kiswani and Al-Bakari.
14. Security, ethics and electronic commerce systems: cybercrime and the need for information sharing security White and Long.

15. The Expanded Risk Horizon of Accounting Networks Utilizing Wireless Technology - David R. Fordham -AIS Educator Journal Volume: 4 Issue: 1 2009.
16. Researches on the IPv6 Network safeguard linked system - Ma Yue, Lian Hong, and Zhang Xiao Feng- Computer Science and Information Technology (ICCSIT), 2010 3rd IEEE International Conference 2010.
17. Migration from Microsoft to Linux on Servers and Desktops. –Kumar.
18. Decision making process in migration from Microsoft to Linux –Kumar.
19. Automatic Generation of Intelligent JavaScript Programs for Handling Input Forms in HTML Documents Suzuki and Tokuda Dept. of Comp. Science, Tokyo Inst. of Tech.
20. Influence of copyrights over the relationships in elearning Ivan Pogarcic, Marko Pogarcic, Matej Pogarcic Polytechnic of Rijeka, University of Rijeka, Faculty of Law, University of Ljubljana.
21. Using Whois Based Geolocation and Google Maps API for support cybercrime investigations, Asmir Butkovic et. al.
22. Odyssey of Data Security with A New Perception. Ankita & Lavisha
23. Cyber Law: Approach to Prevent Cyber Crime. M Verma, SA Hussain, SS Kushwah.
24. The Internet-EDI Systems Adoption by Enterprises in Jordan: Descriptive Analysis of Adoption, Strategies and Benefits by Anas Al Bakri International Journal of Internet and Distributed Systems.
25. Encryption Protocol using some Pieces of Message as Key by S. Prakanchaoren - International Journal of Applied Computer Technology.
26. A Patient Privacy Protection Scheme for Medical Information System by Lu, Wu, Liu, Chen, and Guo. Journal of Medical Systems October 2013.
27. A study of information security awareness and practices in Saudi Arabia by Alarifi, A.; SISAT, Univ. of Wollongong, Wollongong, NSW, Australia. doi: 10.1109/ICCITechnol.2012.6285845.
28. Secure login by using One-time Password authentication based on MD5 Hash encrypted SMS by Sedyono, E.; Satya Wacana Christian Univ., Salatiga, Indonesia; Santoso, K.I.; Suhartono. doi: 10.1109/ICACCI.2013.6637420.
29. Design and Implementation of a Virtual Calculation Centre (VCC) for Engineering Students, by Alaeddine. Published in International Journal of Online Engineering. 2010, Vol. 6 Issue 1, p18-23.
30. Artificial Intelligence Tool and Electronic Systems Used to Develop Optical Applications, By Tecpoyotl-Torres et. al. Chapter 10 in the book Advances in Lasers and Electro Optics.
31. The entry on 'computer crime and security' in the Encyclopedia of Computer Science and Technology cites my Computer Security Fundamentals textbook.
32. University of British Columbia Law Review "In Plain View R V Jones and the Challenge of Protecting Privacy in an era of computer search"

33. "Researches on the IPv6 Network safeguard linked system" Computer Science and Information Technology (ICCSIT), 2010 3rd IEEE International Conference on (Volume:7).
34. The Criminalization of Identity Theft under the Saudi Anti-Cybercrime Law 2007 Journal of International Commercial Law and Technology vol 9, no2 by Suhail Almerdas.
35. An Optimized and Secured VPN with Web Service Networking and Communication Engineering vol 6, No2; by A. Balasubramanian, A. Hemanth Kumar, R. Prasanna Venkatesan.
36. Factors Affecting the Implementation of Management Information System In Selected Financial Cooperatives In Nairobi. Published in the International Journal of Social Sciences and Project Planning Management, Vol 1, Issue 2, 2014.
37. A New Classification Scheme for Intrusion Detection Systems by Bilal Beigh published in the International Journal of Computer Network and Information Security vol 6, No. 8, July 2014.
38. Santoso, E. (2014, June). The Role of Biometrics Technology to Support E-Governance in Public and Business Administration. International Scientific Conference "e-governance"
39. Mughal, S. (2014) Counter Measures to Mitigate Cyberstalking Risks: A Value Focused Multiple Criteria Approach.
40. Dragan, A. (2014). Hacking and Computer Crimes Computer Fraud - A Comparative Look at the New Criminal Code and the Criminal Code of the Republic of Moldova. AGORA International Journal of Juridical Sciences No. 1, pp 29-34.
41. Ramakic, A. Bundalao, Z. (2014). Data Protection in Microcomputer Systems and Networks. Acta Tehnica Corviniensis – Bulletin of Engineering (University of Bosnia and Herzegovina)
42. "Preventing Document Leakage through Active Document" by Aaber, Crowder, Fadhel, and Wills. World Congress on Internet Security (WorldCIS-2014).
43. Public Perception vs. the Reality of Bluetooth Security. Janczewski & Wong, International Conference on Information Resources Management (2010).
44. Security, ethics and electronic commerce systems: cybercrime and the need for information sharing security. Kisswani1 & Al-Bakro. International Journal of Liability and Scientific Enquiry. DOI 10.1504/IJLSE.2010.033357.
45. An Overview of Information and Communication Technology (ICT) in Jordan: Review the Literature of Usage, Benefits and Barriers. Al Bakri. International Journal of Internet and Distributed Systems. Vol.1 No.2(2013), Article ID:31349, DOI:10.4236/ijids.2013.12002.



46. Not So Funny Funny-Money: The Threat of North Korean Counterfeiting of U.S. Currency. Corbett. Stevenson University Forensics Journal. Vol 4 2013.
47. Pendekatan Model Ontologi Untuk Merepresentasikan Body of Knowledge Digital Chain of Custody by Prayudi, Luthi, Pratama. Jurnal Cybermaticka. Vol2, No 2 (2014)
48. Digital Chain of Custody: State of the Art. By Prayudi and Sn. International Journal of Computer Applications (0975 – 8887). Volume 114 – No. 5, March 2015.
49. Prayudi, Y., Ashari, A., & Priyambodo, T. K. (2014). Digital Evidence Cabinets: A Proposed Frameworks for Handling Digital Chain of Custody. Int. J. Comput. Appl, 109(9), 30-36.
50. Issac, R. M. (2011, March). Application of Cybernetics in Cyber Criminology. In Proceedings of the UGC Sponsored National Seminar on Cyber Criminology (NSCC~ 2011) at BPC College, Piravom, Kerala, India on (pp. 101-110).
51. Aaber, Z. S., Crowder, R. M., Chang, V., Fadhel, N. F., & Wills, G. B. (2014, December). Towards a Framework for Securing a Document outside an Organisational Firewall. In Cloud Computing Technology and Science (CloudCom), 2014 IEEE 6th International Conference on (pp. 1057-1062). IEEE.
52. Miškovic, V., Milosavljević, M., Adamović, S., & Jevremović, A. Application of Hybrid Incremental Machine Learning Methods to Anomaly Based Intrusion Detection. methods, 5, 6.
53. Graham, C. (2013). Terrorism. com: Classifying Online Islamic Radicalism as a Cybercrime. Journal Article | October, 21(8), 10am.
54. Odion, I. (2015). Data Security in The Cloud Using Serpent Encryption and Distributed Steganography. European Scientific Journal June 2015 edition vol.11, No.18 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431.
55. Abdulaziz, A. (2015). Information Assurance Practices in Saudi Arabian Organizations. HCI International 2015, vol 529. DOI: 10.1007/978-3-319-21383-5\_106.
56. MITTAL, P., & SINGH, A. A Study of Cyber Crimes & Cyber Laws in India.
57. What Common Law and Common Sense Teach Us About Corporate Cybersecurity. Stephanie Balitzer. University of Michigan Journal of Law Reform. Vol 49 (4), 2016.
58. Using 3-D Virtual Worlds as a Platform for an Experiential Case Study in Information Systems Auditing. By Moscato, Donald R.; Boekman, Diana M. E. Communications of the IIMA Vol. 10, No. 1.

59. Information Security Awareness in Saudi Arabia. Arifi, A., Tootell, H., Hyland, P. CONF-IRM 2012 Proceedings.
60. An Overview of Cloud Systems and Supply Chains in Jordan. Al-Bakri, A. Cloud Systems in Supply Chains. pp 195-213.
61. Dumpster Diving: A Study on Data Recovery and Exploitation. Weaver, R., Cazier, J. Conference: Southeast Institute for Operations Research and the Management Sciences, At Myrtle Beach, South Carolina

### **3. Universities using my books**

A number of colleges and universities around the world have used, or are using one or more of my books as textbooks. Below is an exemplary sample of some of those universities.

1. Auburn University
2. University of Texas at Dallas
3. University of Dallas
4. University of Oklahoma
5. Arizona Western College
6. Kent State University Ohio
7. California State University, Los Angeles
8. Pennsylvania State University
9. University of Nebraska
10. University of North Dakota
11. Illinois State University
12. University of Southern California
13. Western Illinois University
14. University of South Carolina
15. University of Wyoming
16. Florida State University
17. East Tennessee State University
18. The Citadel
19. University of The Incarnate Word
20. Midwestern State University
21. University of S Carolina-Lancaster
22. Southeast Missouri State University
23. George Mason University

24. Queen's College New York
25. American Military University
26. Columbus State University
27. Texas Christian University
28. Liberty University
29. Illinois Institute of Technology
30. Rochester Institute of Technology
31. California State Los Angeles
32. Wentworth Institute of Technology
33. Western Nevada College
34. Eastern Florida State College
35. Florida State College
36. University of Southern Florida Sarasota
37. University of Alaska at Fairbanks
38. College of So Nevada-Cheyenne
39. College of S Nevada-W Charleston
40. Colorado Mesa University
41. Temple University
42. Calumet College – University of St. Joseph
43. University of Dhaka (Bangladesh)
44. Kurukshetra University (India)
45. Universiti Malaysia Sarawak (Malaysia)
46. Al-Zaytoonah University of Jordan
47. Trinity College of Puerto Rico
48. Technological Institute of the Philippines
49. Nigeria University
50. SRM University Chennai India
51. Louisiana Technical University
52. Brookdale Community College
53. Hagerstown Community College
54. Wake Technical Community College
55. Nashville State Community College
56. Delmar College
57. Southwestern Community College

58. Charter Oak State College
59. Triton College
60. Hartford Community College

In addition to the universities using my books, some of my books have been translated into additional languages including German, Arabic, Korean, and Mandarin.

## **K. Training**

Since the late 1990's I have been teaching at least on a part-time basis. I have taught courses at colleges, technical schools, corporate training environments, and on site for companies and government agencies. Some of my training courses are through my own training company CEC-LLC, which is approved by the U.S. Department of Homeland Security National Initiative For Cyber Security Careers and Studies (NICCS)

<https://niccs.us-cert.gov/training/search/cec-security-llc>

I have taught courses in the following topics:

1. HTML (including HTML 5 and CSS3)
2. JavaScript (including advanced courses)
3. Java
4. C and C++
5. VB.Net, ASP.Net, and C#
6. Objective C/iPhone programming
7. Microsoft SQL Server
8. Oracle
9. Microsoft Access
10. NoSQL (including MongoDB and CouchDB)
11. Computer Networks (routers, switches, virtualization, SDN, NFV, etc.)
12. Computer Hardware (motherboards, chips, etc.)
13. JTAG techniques for phone forensics
14. Certification preparation courses for the following certifications: CompTIA A+, CompTIA Network+, CompTIA Security+, CISSP, ISSAP, CEH, CISA, CSSLP, ECES, CND, and CHFI.
15. Computer forensics (phone forensics, Windows forensics, general forensic science, etc.)
16. Computer security (principles, IDS/IPS, Honey Pots, policies, DRP/BCP, cyber threat intelligence, etc.)
17. Cryptology (including advanced courses)
18. Math for cryptography including statistics, number theory, combinatorics, abstract algebra, graph theory, and related topics.
19. Windows Server (NT 4.0, Server 2003, Server 2008, Server 2012)
20. Secure programming (including web programming)

21. Linux
22. Hacking and penetration testing
23. Cloud Computing

I have conducted computer security (computer forensics, network security, penetration testing cryptography, etc.) related courses for a variety of government and law enforcement agencies, various law enforcement officers, friendly foreign governments, and a variety of corporations.

I have also created a number of video courses for companies such as Skillssoft on topics such as Secure Programming, MongoDB, NoSQL, Virtualization, Cloud computing, Digital Forensics, and other topics.

## L. Technical Skills

The Following is an exemplary list of technologies. This is not meant to be an exhaustive list, but rather to provide a sample of computer technology areas within which I have expertise. I have experience and/or knowledge with:

**Computer Hardware:** CPU architecture, motherboard structure, chip programming/testing (using HDLs, SystemVerilog, etc.) and testing, etc.

**Programming Languages:** C, C++, Assembly, .Net (C#, VB.Net, etc.), Pascal, Python, PHP, Ruby, Perl, Objective C, Java, and SmallTalk.

**Software Engineering:** Design and testing methodologies. ISO 9000, ISO 15504, also known as Software Process Improvement Capability Determination (SPICE), UML, software complexity measurements, etc.

**Web development technologies:** HTML, JavaScript, PHP, CSS, ColdFusion, Flash, and Dream Weaver.

**Artificial Intelligence:** Expert systems, Fuzzy Logic, and AI Programming.

**Cryptography:** I have extensive knowledge of cryptographic algorithms such as: DES, Blowfish, Twofish, AES, Serpent, RSA, Diffie-Hellman, ElGamal, MQV, ECC, GOST, and others. I also have extensive understanding of cryptographic hashes, message authentication codes, and cryptographic protocols.

**Mathematics:** Discrete math, number theory, graph theory, and statistics.

**Cell Phones:** I am experienced with iOS and Android. I have worked with both operating systems extensively including teaching programming for both operating systems, and reviewing source code for both operating systems.

**Networking:** Network protocols, routers, switches, servers, IPv4, IPv6, Network models and concepts (TCP/IP, OSI, etc.), telecommunications, and network management. Also, very familiar with cloud computing with both theoretical knowledge and hands on experience with VMWare cloud.

**Databases:** MySQL, SQL Server, DB2, PostGres, Progress, Microsoft SQL Server, MS Access, Oracle, and SQL Anywhere. I have also worked with NoSQL databases including MongoDB and CouchDB.

**Computer/Network Security:** PCI standards, Common Criteria, penetration testing, computer viruses and other malware, disaster recovery planning, cryptology, firewalls, IDS, Honey Pots, biometrics, chip security, cyber threat intelligence, and security policies & procedures.

**Cyber Forensics:** PC forensics, network forensics, cell phone forensics (including JTAG). Experience with a wide range of tools, including but not limited to: Guidance Software Encase, Access Data FTK, Paraben Sim Seizure, Oxygen Forensics, OSForensics, WindowsFE, and various open source tools.

**Domains:** The domains within which I have practical IT experience include finance & banking, insurance, education, customer management, geographical mapping/tracking, defense department applications, and medical applications.

**Soft Skills:** I have experience in valuing software and intellectual property as well as IT management related issues.