

Narasimha K. Shashidhar  
Associate Professor  
Department of Computer Science  
College of Science and Engineering Technology

### Degrees Earned

**Ph.D. Computer Science and Engineering** June 2010  
*University of Connecticut, Storrs, CT*

**M.S. Computer Science and Engineering** December 2004  
*University of Connecticut, Storrs, CT*

**B.E. Electronics and Communication** May 2001  
*University of Madras, Madras, India*

### Professional Licensure and Certifications

Digital Forensics *Certifications*:

- AccessData Certified Examiner/AccessData Mobile Examiner

### Peer-Review Publications and Artistic Performances/Exhibitions

#### Journal Publications

- [J11] *Ransomware Analysis and Defense-WannaCry and the Win32 environment*. J. Jones and N. Shashidhar. International Journal of Information Security Science, Volume 6, Issue 4 (November 2017): 57-69. ISSN: 2147-0030.
- [J10] *An Indistinguishability Model for Evaluating Diverse Classes of Phishing Attacks and Quantifying Attack Efficacy*. N. Shashidhar and L. Chen. International Journal of Security (IJS) Volume 9, Issue no. 2 (2015): 15-23. ISSN: 1985-2320.
- [J9] *StegoRogue: Steganography in Two-Dimensional Video Game Maps*. C. Gibbs and N. Shashidhar. Advances in Computer Science: an International Journal (ACSIJ), Volume 4, Issue 3, 141-146, May 2015. ISSN: 2322-5157.
- [J8] *Digital Forensic Analysis on Prefetch Files*. N. Shashidhar and D. Novak. International Journal of Information Security Science, Volume 4, Issue 2 (June 2015): 39-49. ISSN: 2147-0030.
- [J7] *The Efficacy of Epidemic Algorithms on Detecting Node Replicas in Wireless Sensor Networks*. N. Shashidhar, Chadi Kari and Rakesh Verma. Journal of Sensor and Actuator Networks. Volume 4, Issue 4 (2015): 378-409. DOI:10.3390/jsan4040378.
- [J6] *Secure P2P Patch Dissemination in a Race against Topological Worms*. N. Shashidhar and L. Chen. Journal of Information System Security, Volume 11, Issue 1 (October 13, 2015), p59-86. 28p.
- [J5] *Cloud Storage Client Application Analysis*. R. Malik, N. Shashidhar, and L. Chen. International Journal of Security (IJS) Volume 9, Issue no. 1 (June 2015): 1-14.
- [J4] *Do Private and Portable Web Browsers Leave Incriminating Evidence? A Forensic Analysis of Residual Artifacts from Private and Portable Web Browsing Sessions*. D. Ohana and N. Shashidhar. EURASIP Journal on Information Security, European Association for Signal Processing, SpringerOpen Journal. Published: 21<sup>st</sup> November 2013, Volume 2013. DOI:10.1186/1687-417X-2013-6. Impact Factor: 1.055. ISSN: 1687-417X.

- [J3] *A One-Time Stegosystem and Applications to Efficient Covert Communication*. A. Kiayias, Y. Raekow, A. Russell and N. Shashidhar. Journal of Cryptology, January 2014, Volume 27, Issue 1, pp 23-44 (2012) 1-22. 25<sup>th</sup> October 2012. DOI: 10.1007/s00145-012-9135-4. Print ISSN: 0933-2790. Online ISSN: 1432-1378. Impact Factor: 1.25.
- [J2] *Managing Software Development Risk with the OODA Loop*. N. Amsden and N. Shashidhar. International Journal of Soft Computing and Software Engineering (JSCSE), March 2012. Vol. 2, No. 7, pp. 1-8, 2012, DOI: 10.7321/jscse.v2.n7.1.
- [J1] *Work-Competitive Scheduling on Task Dependency Graphs*. C. Kari, A. Russell and N. Shashidhar. C. Kari, A. Russell, and N. Shashidhar. Journal of Parallel Processing Letters 25, no. 02 (30 June 2015): 1550001. DOI: 10.1142/S0129626415500012.

#### Peer-Reviewed Conference Proceedings

- [C26] *Investigating The Security and Digital Forensics of Video Games and Gaming Systems: A study of PC games and PS4 console*. L. Chen, N. Shashidhar, D. Rawat, M. Yang, and C. Kadlec. In Computing, Networking and Communications (ICNC), 2016 International Conference on IEEE, 2016. Acceptance Rate: < 30%.
- [C25] *Cloud Storage Client Application Evidence Analysis on UNIX/Linux*. R. Malik, N. Shashidhar, and L. Chen. In Proceedings of the International Conference on Security and Management (SAM), p. 111. The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldComp), 2015. AR<20%
- [C24] *Analysis of Evidence in Cloud Storage Client Applications on the Windows Platform*. R. Malik, N. Shashidhar, and L. Chen. In Proceedings of the International Conference on Security and Management (SAM), p. 3. The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldComp), 2015. Acceptance Rate: < 20%.
- [C23] *Curbing the Spread of Topological Worms: A Defense Topology for the P2P Cyberspace*. N. Shashidhar and L. Chen. The third IEEE/ASE International Conference on Cyber Security. IEEE/Academy of Science and Engineering (ASE) International Conference on Cyber Security. Stanford, CA. May 27<sup>th</sup> to May 31<sup>st</sup> 2014. Acceptance Rate: < 26%.
- [C22] *Epidemic Node Replica Detection in Sensor Networks: Securing the Sensor Network Cyberspace against Replica Attacks*. N. Shashidhar, C. Kari and R. Verma. The third IEEE/ASE International Conference on Cyber Security. IEEE/Academy of Science and Engineering (ASE) International Conference on Cyber Security. Stanford, CA. May 27<sup>th</sup> - May 31<sup>st</sup> 2014. Acceptance Rate: < 26%.
- [C21] *IT Security Policies and Employee Compliance: The Effects of Organizational Environment*. K. Stephens and N. Shashidhar. The 2014 International Conference on Security and Management (SAM 2014) Las Vegas, NV, USA, July 21 – 24, 2014.
- [C20] *Advanced Dynamic Analysis of Cryptolocker*. J. Lang and N. Shashidhar. The Second International Symposium on Digital Forensics and Security (ISDFS 2014). May 12-13, 2014. Sam Houston State University, Huntsville, TX.
- [C19] *Digital Forensics in Social Networks and the Cloud: Process, Approaches, Methods, Tools, and Challenges*. L. Chen, L. Xu, X. Yuan and N. Shashidhar. The 2015 International Conference on Computing, Networking and Communications (ICNC 2015), Anaheim, CA, USA, February 16-19, 2015, pp. 1132-1136. IEEE, 2015. Acceptance Rate: < 32%.

- [C18] *Do Private and Portable Web Browsers Leave Incriminating Evidence?* D. Ohana and N. Shashidhar. International Workshop on Cyber Crime (IWCC 2013), an event of The IEEE Computer Society's Security and Privacy Workshops (SPW 2013), in conjunction with The 34th IEEE Symposium on Security and Privacy (IEEE S&P 2013). San Francisco, CA, USA. May 24, 2013. (Acceptance Rate: 33%). Best Paper Award.
- [C17] *Using Client-Side JavaScript to Mitigate Drive-by-Downloads.* A. Mendoza and N. Shashidhar. The 2013 International Conference on Security and Management (SAM'13) Las Vegas, NV, USA, July 22 – 25, 2013.
- [C16] *QR Code Steganography.* D. Ohana and N. Shashidhar. The 2013 International Conference on Security & Management (SAM'13) Las Vegas, NV, USA, July 22–25, '13.
- [C15] *Distributed Dynamic Channel Assignment in Wireless Networks.* C. Kari, N. Shashidhar and S. Kentros. International Conference on Computing, Networking and Communication (ICNC 2014). Honolulu, Hawaii, USA. Feb. 3-6, 2014. (Acceptance Rate: < 30%)
- [C14] *Detecting Phishing Emails the Natural Language Way.* R. Verma, N. Shashidhar, and N. Hossain. 17<sup>th</sup> European Symposium on Research in Computer Security (ESORICS 2012), Institute of Informatics and Telematics of National Research Council (CNR), Pisa, Italy, September 10<sup>th</sup> -12<sup>th</sup> 2012. (Acceptance Rate: 19%)
- [C13] *Two-pronged phish snagging.* R. Verma, N. Shashidhar, and N. Hossain. 7<sup>th</sup> International Conference on Availability, Reliability and Security (ARES 2012), University of Economics in Prague, Czech Republic, August 20<sup>th</sup> - 24<sup>th</sup>, 2012. (Acceptance Rate: 26%)
- [C12] *Economical and Robust VoIP Infrastructure for Disaster Recovery Communication.* L. Carvajal and N. Shashidhar. International Conference on Disaster Management (ICDM 2012), Peshawar, Pakistan, June 30, 2012.
- [C11] *Implementing a Standardized Method of Storing Asset Information.* A. Mendoza and N. Shashidhar. International Conference on Disaster Management (ICDM 2012), Peshawar, Pakistan, June 30, 2012.
- [C10] *Disaster Recovery Planning in a Museum Environment.* C. Hale, N. Shashidhar. International Conference on Disaster Management (ICDM 2012), Peshawar, Pakistan, June 30, 2012.
- [C09] *Key-Efficient Steganography.* A. Kiayias, A. Russell and N. Shashidhar. 14<sup>th</sup> Information Hiding Conference, May 15–18, 2012, Berkeley, California.
- [C08] *Scalable Resource Discovery in Bandwidth Bounded Networks.* C. Kari, N. Shashidhar and S. Kentros. 8<sup>th</sup> Annual International Conference on Computer Science and Information Systems, 21-24 May 2012, Athens, Greece.
- [C07] *Scalable Secure MJPEG Video Streaming.* Lei Chen, Narasimha Shashidhar, and Qingzhong Liu. 8<sup>th</sup> International Symposium on Frontiers of Information Systems and Network Applications (FINA-2012), in conjunction with the 26<sup>th</sup> IEEE International Conference on Advanced Information Networking and Applications (AINA-2012), Fukuoka, Japan, March 26-30, 2012. (Acceptance rate: 29.4%)
- [C06] *A Phishing Model and Its applications to Evaluating Phishing Attacks.* N. Shashidhar and L. Chen. 2011 International Cyber Resilience Conference, August 1-2, 2011, Perth, Western Australia. (Acceptance rate: 34%)
- [C05] *Taking Total Control of Voting Systems: Firmware Manipulations on an Optical Scan Voting Terminal.* S. Davtyan, S. Kentros, A. Kiayias, L. Michel, N. Nicolaou, A. Russell, See, N. Shashidhar and A. Shvartsman. 2009 ACM Symposium on Applied Computing (SAC 2009), Honolulu, Hawaii, March 9-12, 2009.

- [C04] *Randomized Work-Competitive Scheduling for Cooperative Computing on k-partite Task Graphs*. C. Kari, A. Russell and N. Shashidhar. The Seventh IEEE International Symposium on Networking Computing and Applications, (NCA 2008), July 10-12, 2008, Cambridge, Massachusetts.
- [C03] *Pre-Election Testing and Post-Election Audit of Optical Scan Voting Terminal Memory Cards*. S. Davtyan, S. Kentros, A. Kiayias, L. Michel, N. Nicolaou, A. Russell, See, N. Shashidhar and A. Shvartsman. USENIX/ACCURATE Electronic Voting Workshop (EVT 2008), July 28-29, 2008, San Jose, CA.
- [C02] *Tampering with Special Purpose Trusted Computing Devices: A Case Study in Optical Scan E-Voting*. A. Kiayias, L. Michel, A. Russell, N. Shashidhar, A. See, A. Shvartsman, S. Davtyan. 23rd Annual Computer Security Applications Conference (ACSAC 2007), December 10-14, 2007, Miami Beach, Florida.
- [C01] *An Authentication and Ballot Layout Attack against an Optical Scan Voting Terminal*. A. Kiayias, L. Michel, A. Russell, N. Shashidhar, A. See and A. Shvartsman. 16<sup>th</sup> USENIX Security Symposium, 2007 USENIX/ACCURATE Electronic Voting Technology Workshop (EVT 2007), August 6, 2007. Boston, MA.

### Book Chapters

- [BC03] *Digital Forensics Process and Model in the Cloud*. Narasimha Shashidhar and Lei Chen. To appear in Security, Privacy, and Digital Forensics in the Cloud, Wiley (USA) and Higher Education Press (HEP, China), 2015 (editors: Lei Chen, and Hassan Takabi).
- [BC02] *Cyber Law and Cyber Terrorism in the Cloud*. Lei Chen and Narasimha Shashidhar. To appear in Security, Privacy, and Digital Forensics in the Cloud, Wiley (USA) and Higher Education Press (HEP, China), 2015 (editors: Lei Chen, and Hassan Takabi).
- [BC01] *Security in Wireless Metropolitan Area Networks*. Lei Chen, Narasimha Shashidhar, Shengli Yuan, and Ming Yang. To appear in Wireless Network Security: Theories and Applications, Springer (U.S.) and Higher Education Press (China), 2012 (editors: Lei Chen, Jiahuang Ji, and Zihong Zhang).

### Posters

- [P04] *Prefetch File Forensics*. D. Novak and N. Shashidhar. University of Texas at San Antonio College of Sciences Research Conference. October 3, 2014.
- [P03] *Parallel Imaging and Collaborative Analysis*. K. Cohn and N. Shashidhar. University of Texas at San Antonio College of Sciences Research Conference. October 3, 2014. (**Best Poster Award**)
- [P02] *Forensic USB Evidence Recovery*. E. Deering and N. Shashidhar. University of Texas at San Antonio College of Sciences Research Conference. October 3, 2014.
- [P01] *Natural Language Approaches to Phishing Email Detection*. N. Hossain, N. **Shashidhar** and R. Verma. Second Annual Mid-Atlantic Student Colloquium on Speech, Language and Learning. MASC 2012, October 29<sup>th</sup>, 2012. College Park, MD.

### Funded External Grants

- Faculty Enhancement Research Grant, ERG 2012, June 2012 – July 2013.
  - Granting Agency: Faculty Research Council, SHSU, \$15,000
  - Title: *Secure Patch Distribution over Peer-to-Peer Networks*

- College of Science Undergraduate Student Research Award, SHSU, 2013.
  - Granting Agency: College of Science, SHSU, \$6,000
  - Title: *Private Browsing Forensics*
- Faculty And Student Team, EURECA Center, SHSU, 2013.
  - Granting Agency: EURECA Center, SHSU, \$6,000
  - Title: *Digital Forensics and Prefetch Files, Exploring the Forensic Artifacts of Prefetch Files*
- EURECA/FAST Undergraduate Research Award, 2014.
  - Granting Agency: EURECA Center SHSU, \$6,000
  - Title: *Investigating the Security and Forensics of PlayStation 4 (PS4) System and Games.*
- Faculty Enhancement Research Grant, ERG 2012, June 2014 – July 2015.
  - Granting Agency: Faculty Research Council, SHSU, \$15,000
  - Title: *iBaTs: Interactive Bash Shell Adaptive Tutoring System*
- The IEEE CS Security and Privacy Workshops (SPW) Student Travel Grant. \$1000.
- Pending Patents: Comprehensive Natural Language Based Phishing Detection Scheme, Application Number: 14/015,524, United States Patent and Trademark Office, 09/2013.

### **Work or Professional Experiences**

2010 – Present, Assistant Professor of Computer Science, Sam Houston State University

2004-2010, Research Assistant, Department of Computer Science, University of Connecticut

### **Honors and Awards**

- Public Service Award, Office of the Secretary of the State of Connecticut, 2009.  
Awarded for substantial contribution towards ensuring the integrity and accuracy of Connecticut State's Voting Equipment
- Graduate PreDoctoral Fellowship, Univ. of Connecticut, 2004, 2008 & 2009
- Recognition for significant contribution to the success of SHSU students, Office of the Vice President for Student Services, Sam Houston State University, SHSU, Dec 2011.
- Graduate Fellowship, Pace University, 2001
- Elevator Pitch Competition Winner, Business Plan Competition 2012, Wolff Center for Entrepreneurship (WCE) at the University of Houston.

### **Other Competencies**

- Programming Languages: C, C++ , Java, Matlab
- Software: LATEX, Adobe Suite: Captivate, Dreamweaver
- Operating Systems: Linux/Unix, Mac OS, Windows
- Digital Forensics: Forensic Toolkit, Password Recovery Toolkit, Registry Viewer, FTK Imager
- Digital Forensics *Certifications*:
  - AccessData Certified Examiner
  - AccessData Mobile Examiner