

Chin-Tser Huang

Department of Computer Science and Engineering
University of South Carolina

EDUCATION

- National Taiwan University Computer Science B.Sc., 1993
- The University of Texas at Austin Computer Science M.S., 1998
- The University of Texas at Austin Computer Science Ph.D., 2003
Dissertation title: *Hop Integrity: A Defense Against Denial-of-Service Attacks*

ACADEMIC/PROFESSIONAL APPOINTMENTS

- Professor, Department of Computer Science & Engineering, University of South Carolina, Columbia, SC (2019 – present)
- Global Carolina Regional Director for China and Taiwan, University of South Carolina (2015 – present)
- Associate Professor, Department of Computer Science & Engineering, University of South Carolina, Columbia, SC (2010 – 2018)
- Assistant Professor, Department of Computer Science & Engineering, University of South Carolina, Columbia, SC (2003 – 2010)

HONORS/AWARDS

- U.S. National Research Council (NRC) Research Associateship, 2020
- U.S. Air Force Summer Faculty Fellowship, 2021
- U.S. Air Force Summer Faculty Fellowship, 2020
- U.S. Air Force Summer Faculty Fellowship, 2019
- U.S. Air Force Summer Faculty Fellowship, 2018
- U.S. Air Force Summer Faculty Fellowship, 2016
- U.S. Air Force Summer Faculty Fellowship, 2010
- U.S. Air Force Summer Faculty Fellowship, 2009
- U.S. Air Force Summer Faculty Fellowship, 2008
- U.S. Air Force Research Laboratory/Information Directorate (AFRL/RI) Visiting Faculty Research Program (VFRP) Award, 2017
- U.S. Air Force Research Laboratory/Information Directorate (AFRL/RI) Visiting Faculty Research Program (VFRP) Award, 2015
- U.S. Air Force Research Laboratory/Information Directorate (AFRL/RI) Visiting Faculty Research Program (VFRP) Award, 2014

- U.S. Air Force Research Laboratory/Information Directorate (AFRL/RI) Visiting Faculty Research Program (VFRP) Award, 2013
- U.S. Air Force Research Laboratory/Information Directorate (AFRL/RI) Visiting Faculty Research Program (VFRP) Award, 2012
- U.S. Air Force Research Laboratory/Information Directorate (AFRL/RI) Visiting Faculty Research Program (VFRP) Award, 2011
- Outstanding Leadership Award, 2020 International Conference on Computing, Networking and Communications (ICNC 2020)

RESEARCH INTERESTS

Network security, network protocol design and verification, distributed systems, cloud and edge networking, theoretical modeling of cybersecurity

SELECTED PUBLICATIONS

Book and Book Chapters

1. C.-T. Huang, M. G. Gouda, *Hop Integrity in the Internet*, Springer, December 2005.
2. R. Falk, C.-T. Huang, F. Kohlmayer, A.-F. Sui, "Security in Wireless Mesh Networks," book chapter of *Wireless Mesh Networking: Architectures, Protocols and Standards*, Auerbach Publications and CRC Press, December 2006.
3. C.-T. Huang, "Hop Integrity in Wireless Mesh Networks," book chapter of *Security in Wireless Mesh Networks*, Auerbach Publications and CRC Press, December 2007.
4. C.-T. Huang, H. Carroll, J. Perretta, "Improving Cloud Performance with Router-based Filtering," book chapter of *High Performance Cloud Auditing and Applications*, Springer, 2014.
5. C.-T. Huang, J. Huang, J. Perretta, S. Chen, "Architecture and Protocols for Secure Caching of Private Data in Mobile Cloud Computing Environments," book chapter of *Security for Smartphone and Mobile Cloud Computing*, Springer, to be published in 2016.
6. N. Chen, Y. Chen, X. Ye, H. Ling, S. Song, C.-T. Huang, "Smart City Surveillance in Fog Computing," book chapter of *Advances in Mobile Cloud Computing and Big Data in the 5G Era*, C. X. Mavromoustakis, G. Mastorakis, C. Dobre (eds.), Springer, 2017, pp. 203-226.

Refereed Journal Articles

1. Q. Zeng, L. Luo, Z. Qian, X. Du, Z. Li, C.-T. Huang, C. Farkas. Resilient User-Side Android Application Repackaging and Tampering Detection Using Cryptographically Obfuscated Logic Bombs. *IEEE Transactions on Dependable and Secure Computing*, Vol. 18, No. 6, pp. 2582-2600, 1 Nov.-Dec. 2021.
2. T. Geng, L. Njilla, C.-T. Huang. Delegated Proof of Secret Sharing: A Privacy-Preserving Consensus Protocol based on Secure Multiparty Computation for IoT Environment. *Network*, in press, November 2021.

3. J.-R. Sun, C.-T. Huang, M.-S. Hwang. A SYN Flooding Attack Detection Approach with Hierarchical Policies Based on Self-information. *ETRI Journal*, in press, July 2021.
4. C.-T. Huang, M. Sakib, C. Kamhoua, K. Kwiat, L. Njilla. A Bayesian Game Theoretic Approach for Inspecting Web-based Malvertising. *IEEE Transactions on Dependable and Secure Computing*, Vol. 17, No. 6, pp. 1257-1268, 1 Nov.-Dec. 2020.
5. M. Sakib, C.-T. Huang, Y.-D. Lin. Maximizing Accuracy in Multi-Scanner Malware Detection Systems. *Computer Networks*, Vol. 169, March 2020.
6. X. He, J. Liu, C.-T. Huang, D. Wang, B. Meng. A Security Analysis Method of Security Protocol Implementation Based on Unpurified Security Protocol Trace and Security Protocol Implementation Ontology. *IEEE Access*, Vol. 7, 2019, September 2019.
7. J. Lu, L. Yao, X. He, C.-T. Huang, D. Wang, B. Meng. A Security Analysis Method for Security Protocol Implementations Based on Message Construction. *Applied Sciences, Section on Computer Science and Electrical Engineering*, 2018.
8. A. Rajab, C.-T. Huang, M. Al-Shargabi. Decision tree rule learning approach to counter burst header packet flooding attack in optical burst switching network. *Optical Switching and Networking*, Vol. 29, pp. 15-26, July 2018.
9. S. M. Jang, T. Geng, J.-Y. Li, R. Xia, C.-T. Huang, H. Kim, J. Tang. A Computational Approach for Examining the Roots and Spreading Patterns of Fake News: Evolution Tree Analysis. *Computers in Human Behavior*, No. 84, 2018, pp. 103-113.
10. H. Gebre-Amlak, A. Jabbari, Y. Chen, B.-Y. Choi, C.-T. Huang, S. Song. Agile Polymorphic Software-Defined Fog Computing Platform for Mobile Wireless Controllers and Sensors. *International Journal of Internet Technology and Secured Transactions*, 2017.
11. B. Meng, C.-T. Huang, Y. Yang, L. Niu, D. Wang. Automatic Generation of Security Protocol Implementations Written in Java from Abstract Specifications Proved in the Computational Model. *International Journal of Network Security*, Vol. 19, No. 1, January 2017, pp. 138-153.
12. J. A. Cobb, C.-T. Huang. Stabilizing Breach-Free Sensor Barriers. *International Journal on Advances in Security*, vol. 9, no. 3&4, 2016, pp. 133-145.
13. J. Huang, C.-T. Huang. Design and Verification of Secure Mutual Authentication Protocols for Mobile Multihop Relay WiMAX Networks against Rogue Base/Relay Stations. *Journal of Electrical and Computer Engineering*, Vol. 2016, 12 pages, 2016. doi:10.1155/2016/9859830
14. J. H. Gerdes Jr., C.-T. Huang, M. Sharaf. Incorporating biometrics into veiled certificates: preventing unauthorized use of anonymous certificates. *Electronic Commerce Research*, April 2016, pp. 1-28, doi:10.1007/s10660-016-9222-y
15. M. Sakib, J. Tang, W. J. Zheng, C.-T. Huang. Improving Transmission Efficiency of Large Sequence Alignment/Map (SAM) Files. *PLoS ONE*, Vol. 6, Issue 12, December 2011, e28251.

16. Y. Xian, C.-T. Huang, J. Cobb. Look-Ahead Routing and Message Scheduling in Delay-Tolerant Networks. *Computer Communications*, Vol. 34, Issue 18, December 2011, pp. 2184-2194.
17. Y. Choi, C.-T. Huang, M. G. Gouda. Stabilization of Flood Sequencing Protocols in Sensor Networks. *IEEE Transactions on Parallel and Distributed Systems*, Vol. 21, No. 7, 2010, pp. 1042-1055.
18. J. Gerdes, Jr., J. Kalvenes, C.-T. Huang. Multi-Dimensional Credentialing Using Veiled Certificates: Protecting Privacy in the Face of Regulatory Reporting Requirements. *Computers & Security*, Volume 28, Issue 5, July 2009, pp. 248-259.
19. C.-T. Huang, J. Janies. An Adaptive Approach to Granular Real-Time Anomaly Detection. *EURASIP Journal on Advances in Signal Processing*, Vol. 2009.
20. C.-T. Huang, J. Chang. Security Protocols and Issues in WiMAX Networks. *IEEE IT Professional*, Vol. 10, No. 5, Sep/Oct 2008.
21. Y. Kopylova, D. Buell, C.-T. Huang, J. Janies. Mutual Information Applied to Anomaly Detection. *Journal of Communications and Networks*, Vol. 10, No. 1, 2008, pp. 89-97.
22. C.-T. Huang, S. Thareja, Y.-J. Shin. Wavelet-based Real Time Detection of Network Traffic Anomalies. *International Journal of Network Security*, Vol. 6, No. 3, 2008, pp. 309-320.
23. C.-T. Huang, M. Matthews, M. Ginley, X. Zheng, C. Chen, M. Chang. Efficient and Secure Multicast in WirelessMAN: A Cross-layer Design. *Journal of Communications Software and Systems*, September 2007.
24. J. Janies, C.-T. Huang, N. L. Johnson, T. Richardson. SUMP: A Secure Unicast Messaging Protocol for Wireless Ad Hoc Sensor Networks. *International Journal of Sensor Networks*, Vol. 2, Issue 5/6, 2007.
25. C.-T. Huang, M. G. Gouda, E. N. Elnozahy. Convergence of IPsec in Presence of Resets. *Journal of High Speed Networks*, Vol. 15, No. 2, 2006.
26. M. G. Gouda, C.-T. Huang. A Secure Address Resolution Protocol. *Computer Networks*, Vol. 41, No. 1, January 2003.
27. M. G. Gouda, E. N. Elnozahy, C.-T. Huang, T. M. McGuire. Hop Integrity in Computer Networks. *IEEE/ACM Transactions on Networking*, Volume 10, Issue 3, June 2002.

Refereed Conference Papers

1. E. M. Abuhdima, G. Comert, P. Pisu, C.-T. Huang, A. Elqaouaq, C. Zhao, S. Alston, K. Ambrose, J. Liu. The effect of Dust and Sand on the 5G Millimetre-Wave links. *Proceedings of 9th Annual IEEE International Conference on Wireless for Space and Extreme Environments (WISEE 2021)*, October 2021.
2. J. Liu, C.-T. Huang. Efficient and Trustworthy Authentication in 5G Networks Based on Blockchain. *Proceedings of 2021 IEEE International Conference on Computer Communication Networks (ICCCN 2021)*, July 2021.
3. T. Geng, L. Njilla, C.-T. Huang. Smart Markers in Smart Contracts: Enabling Multiway Branching and Merging in Blockchain for Decentralized Runtime

- Verification. *Proceedings of the 2021 IEEE Conference on Dependable and Secure Computing (DSC 2021)*, January 2021.
4. C.-T. Huang, L. Njilla, T. Geng. Detecting Counterfeit ICs with Blockchain-based Verification Framework. *Proceedings of 2020 IEEE International Smart Cities Conference (ISC2)*, September 2020.
 5. T. Geng, H. Alsuwat, C.-T. Huang, C. Farkas. Securing Relational Database Storage with Attribute Association Aware Shuffling. *Proceedings of 2019 IEEE Conference on Dependable and Secure Computing (IDSC 2019)*, November 2019.
 6. C.-T. Huang, L. Njilla, T. Geng. Consensus of Whom? A Spectrum of Blockchain Consensus Protocols and New Directions. *Proceedings of 2019 IEEE International Smart Cities Conference (ISC2)*, October 2019.
 7. H. Alsuwat, T. Geng, C.-T. Huang, C. Farkas. Can Shuffling Algorithms Preserve Database Dependencies? *Proceedings of 2nd International Conference on Data Intelligence and Security (ICDIS 2019)*, June 2019.
 8. J. Crichigno, E. Kfoury, E. Bou-Harb, N. Ghani, Y. Prieto, C. Vega, J. Pezoa, C.-T. Huang, D. Torres. A Flow-based Entropy Characterization of a NATed Network and its Application on Intrusion Detection. *Proceedings of 2019 IEEE International Conference on Communications (ICC 2019)*, May 2019.
 9. H. Gulati, C.-T. Huang. Self-Sovereign Dynamic Digital Identities based on Blockchain Technology. *Proceedings of IEEE SoutheastCon 2019*, April 2019.
 10. C.-T. Huang, M. Sakib, L. Njilla, C. Kamhoua. A Game Theoretic Approach for Making IoT Device Connectivity Decisions During Malware Outbreak. *Proceedings of 2019 International Conference on Computing, Networking and Communications (ICNC)*, February 2019.
 11. T. Geng, C.-T. Huang. Blockchain-inspired Framework for Runtime Verification of IoT Ecosystem Task Fulfillment. *Proceedings of 2018 IEEE International Smart Cities Conference (ISC2)*, September 2018.
 12. N. Alkassab, C.-T. Huang, Y. Chen, B.-Y. Choi, S. Song. Benefits and Schemes of Prefetching from Cloud to Fog Networks. *Proceedings of 2017 IEEE International Conference on Cloud Networking (CloudNet 2017)*, September 2017.
 13. K. Ravindran, C.-T. Huang. Probabilistic Treatment of Service Assurance in Distributed Information Systems. *Proceedings of 2017 IEEE International Conference on Distributed and Secure Computing (DSC 2017)*, August 2017.
 14. C.-T. Huang, M. Sakib, C. Kamhoua, K. Kwiat, L. Njilla. A Game Theoretic Approach for Inspecting Web-based Malvertising. *Proceedings of IEEE 2017 Conference on Communications (ICC 2017)*, May 2017.
 15. H. Gebre-Amlak, S. Lee, A. Jabbari, Y. Chen, B.-Y. Choi, C.-T. Huang, S. Song. MIST: Mobility-Inspired Software-Defined Fog System. *Proceedings of 2017 IEEE International Conference on Consumer Electronics (ICCE 2017)*, January 2017.

16. M. Sakib, C.-T. Huang. Privacy Preserving Proximity Testing Using Elliptic Curves. *Proceedings of 2016 International Telecommunication Networks and Applications Conference (ITNAC 2016)*, December 2016.
17. S. Malebary, W. Xu, C.-T. Huang. Jamming Mobility in 802.11p networks: Modeling, evaluation, and detection. *Proceedings of IEEE 35th International Performance Computing and Communications Conference (IPCCC 2016)*, Las Vegas, NV, December 2016.
18. A. Rajab, C.-T. Huang, M. Al-Shargabi, J. Cobb. Countering Burst Header Packet Flooding Attack in Optical Burst Switching Network. *Proceedings of 12th International Conference on Information Security Practice and Experience (ISPEC 2016)*, November 2016.
19. M. Sakib, C.-T. Huang. Using Anomaly Detection Based Techniques to Detect HTTP-based Botnet C&C Traffic. *Proceedings of IEEE 2016 Conference on Communications (ICC 2016)*, May 2016.
20. J. Cobb, C.-T. Huang. Fault-Tolerant Breach-Free Sensor Networks. *Proceedings of the 10th International Conference on Systems and Networks Communications (ICSNC 2015)*, November 2015.
21. M. Sakib, C.-T. Huang. Automated Collection and Analysis of Malware Disseminated via Online Advertising. *Proceedings of the 2nd International Workshop on the Emerging Future Internet and Network Security (EFINS 2015)*, August 2015.
22. F. Li, C.-T. Huang, J. Huang, W. Peng. Feedback-based Smartphone Strategic Sampling for BYOD Security. *Proceedings of 23rd IEEE International Conference on Computer Communication Networks (ICCCN 2014)*, August 2014.
23. M. Sakib, J. Halim, C.-T. Huang. Determining Location and Movement Pattern Using Anonymized WiFi Access Point BSSID. *Proceedings of 7th International Conference on Security Technology (SecTech 2014)*, 2014.
24. W. Peng, F. Li, C.-T. Huang, X. Zou. A Moving-target Defense Strategy for Cloud-based Services with Heterogeneous and Dynamic Attack Surfaces. *Proceedings of IEEE 2014 Conference on Communications (ICC 2014)*, June 2014.
25. M. Sharaf, J. Huang, C.-T. Huang. Using Bytecode Instrumentation to Secure Information Flow in Multithreaded Java Applications. *Proceedings of ICDCS Workshops 2013*, July 2013.
26. F. Li, W. Peng, C.-T. Huang, X. Zou. Smartphone strategic sampling in defending enterprise network security. *Proceedings of ICC 2013*, June 2013.
27. H. Park, S. Song, B.-K. Choi, C.-T. Huang. PASSAGES: Preserving Anonymity of Sources and Sinks against Global Eavesdroppers. *Proceedings of IEEE INFOCOM 2013*, April 2013.
28. M. Sakib, C.-T. Huang. Textact: A Text-Action based Web Authentication Scheme. *Proceedings of 55th Annual IEEE Global Telecommunications Conference (GLOBECOM 2012)*, December 2012.
29. J. Huang, M. Sharaf, C.-T. Huang. A Hierarchical Framework for Secure and Scalable EHR Sharing and Access Control in Multi-Cloud. *Proceedings of 4th*

International Workshop on Security in Cloud Computing (CloudSec 2012), September 2012.

30. J. Huang, C.-T. Huang. A Secure and Efficient Multi-Device and Multi-Service Authentication Protocol (SEMMAP) for 3GPP-LTE Networks. *Proceedings of 21st IEEE International Conference on Computer Communication Networks (ICCCN 2012)*, July 2012.
31. C.-T. Huang, V. Gupta. Modeling and Automating Analysis of Server Duty and Client Obligation for High Assurance. *Proceedings of 11th International Workshop on Assurance in Distributed Systems and Networks (ADSN 2012)*, June 2012.
32. C.-T. Huang, K. J. Han, J. Perretta. Automatic Selection of Routers for Placing Early Filters of Malicious Traffic. *Proceedings of 54th Annual IEEE Global Telecommunications Conference (GLOBECOM 2011)*, December 2011.
33. J. Huang, C.-T. Huang. Secure Mutual Authentication Protocols for Mobile Multi-hop Relay WiMAX Networks against Rogue Base/Relay Stations. *Proceedings of IEEE International Conference on Communications 2011 (ICC 2011)*, June 2011.
34. Y. Xian, C.-T. Huang, J. Cobb. Look-Ahead Routing and Message Scheduling in Delay-Tolerant Networks. *Proceedings of 35th IEEE International Conference on Local Computer Networks (LCN 2010)*, October 2010.
35. J. Gerdes, Jr., C.-T. Huang. Incorporating Biometrics into Veiled Certificates. *Identity in the Information Society Workshop 2010 (IDIS 2010)*, May 2010.
36. C.-T. Huang, D. Chuck, J. Chang. Analysis and Enhancement of Bandwidth Request Strategies in IEEE 802.16 Networks. *Proceedings of IEEE International Conference on Communications 2010 (ICC 2010)*, May 2010.
37. P. Kalakota, C.-T. Huang. On the Benefits of Early Filtering of Botnet Unwanted Traffic. *Proceedings of 18th IEEE International Conference on Computer Communications and Networks (ICCCN 2009)*, August 2009.
38. M. Jafari-Lafti, C.-T. Huang, C. Farkas. P²F: A User-Centric Privacy Protection Framework. *Proceedings of the Fourth International Conference on Availability, Reliability and Security (ARES 2009)*, March 2009.
39. S. Xu, C.-T. Huang, M. M. Matthews. Modeling and Analysis of IEEE 802.16 PKM Protocols using CasperFDR. *Proceedings of 5th IEEE International Symposium on Wireless Communication Systems (ISWCS 2008)*, October 2008.
40. C.-T. Huang. LOFT: Low-Overhead Freshness Transmission in Sensor Networks. *Proceedings of 2008 IEEE International Conference on Sensor Networks, Ubiquitous and Trustworthy Computing (SUTC 2008)*, June 2008.
41. R. Katpelly, T. Liu, C.-T. Huang. Summarization of Wearable Videos based on User Activity Analysis. *Proceedings of 9th IEEE International Symposium on Multimedia*, December 2007.
42. C. Choudary, T. Liu, C.-T. Huang. Semantic Retrieval of Instructional Videos. *Proceedings of 9th IEEE International Symposium on Multimedia Workshops*, December 2007.

43. C.-T. Huang, P. Kalakota, A. B. Alexandrov. Improving Availability with Adaptive Roaming Replicas in Presence of Determined DoS Attacks. *Proceedings of 50th Annual IEEE Global Telecommunications Conference (GLOBECOM 2007)*, November 2007.
44. Y. Xian, C.-T. Huang. Securing VoIP Services in Multi-Hop Wireless Mesh Networks. *Proceedings of 4th IEEE International Symposium on Wireless Communication Systems (ISWCS 2007)*, October 2007.
45. J. Janies, C.-T. Huang. Fates: A Granular Approach to Real-Time Anomaly Detection. *Proceedings of the 16th IEEE International Conference on Computer Communications and Networks (ICCCN 2007)*, August 2007.
46. T. Richardson, C.-T. Huang. Containing Hitlist-Based Worms with Polymorphic Signatures. *Proceedings of 16th IEEE International Conference on Computer and Communications and Networks (ICCCN 2007)*, August 2007.
47. X. Zheng, M. M. Matthews, C.-T. Huang. Hierarchical Scalable Group Key Management Based on Chinese Remainder Theorem. *Proceedings of the 6th Annual Security Conference*, April 2007.
48. S. Xu, C.-T. Huang, M. M. Matthews. Secure Multicast in Various Scenarios of WirelessMAN. *Proceedings of the 2007 IEEE Southeast Conference*, March 2007.
49. X. Zheng, C.-T. Huang, M. M. Matthews. Chinese Remainder Theorem Based Group Key Management. *Proceedings of the 45th ACM Southeast Conference (ACMSE 2007)*, March 2007.
50. M. Ginley, S. Xu, C.-T. Huang, M. M. Matthews. Efficient and Secure Multicast in WirelessMAN. *Proceedings of International Symposium on Wireless Pervasive Computing 2007 (ISWPC2007)*, February 2007.
51. S. Chaturvedi, P. Kalakota, C.-T. Huang. Improving Delay-Tolerant Network Performance Using Forward Routing Information. Poster session of *14th IEEE International Conference on Network Protocols (ICNP 2006)*, November 2006.
52. M. G. Gouda, J. Cobb, C.-T. Huang. Fault Masking in Tri-Redundant Systems. *Proceedings of the 8th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2006)*, November 2006.
53. C.-T. Huang, A. B. Alexandrov, P. Kalakota. Roaming Data Redundancy for Assurance in Critical Data Services. *Proceedings of the 2006 High Availability and Performance Computing Workshop (HAPCW 2006)*, in conjunction with the *2006 Los Alamos Computer Science Institute Symposium 2006 (LACSI 2006)*, October 2006.
54. S. Xu, C.-T. Huang. Attacks on PKM Protocols of IEEE 802.16 and Its Later Versions. *Proceedings of 3rd International Symposium on Wireless Communication Systems (ISWCS 2006)*, September 2006.
55. C.-T. Huang, S. Thareja, Y.-J. Shin. Wavelet-based Real Time Detection of Network Traffic Anomalies. *Proceedings of Workshop on Enterprise Network Security (WENS 2006)*, August 2006.

56. C.-T. Huang, N. L. Johnson, J. Janies, A. X. Liu. On Capturing and Containing E-mail Worms. *Proceedings of 25th IEEE International Performance Computing and Communications Conference (IPCCC)*, April 2006.
57. J. Janies, C.-T. Huang, N. L. Johnson. SUMP: A Secure Unicast Messaging Protocol for Wireless Ad Hoc Sensor Networks. *Proceedings of IEEE International Conference on Communications (ICC 2006)*, June 2006.
58. A. X. Liu, J. Kovacs, C.-T. Huang, M. G. Gouda. A Secure Cookie Protocol for HTTP. *Proceedings of the 14th International Conference on Computer and Communications and Networks (ICCCN 2005)*, October 2005.
59. X. Zheng, C. Chen, C.-T. Huang, M. M. Matthews, N. Santhapuri. A Dual Authentication Protocol for IEEE 802.11 Wireless LANs. *Proceedings of the 2nd International Symposium on Wireless Communication Systems (ISWCS 2005)*, September 2005.
60. C.-T. Huang, M. G. Gouda. State Checksum and Its Role in System Stabilization. *Proceedings of the 4th International Workshop on Assurance in Distributed Systems and Networks (ADSN 2005)*, Columbus, Ohio, June 2005.
61. C.-T. Huang, M. G. Gouda, E. N. Elnozahy. Convergence of IPsec in Presence of Resets. *Proceedings of the 2nd International Workshop on Assurance in Distributed Systems and Networks (ADSN 2003)*, Providence, Rhode Island, May 2003.
62. M. G. Gouda, C.-T. Huang, E. N. Elnozahy. Key Trees and the Security of Interval Multicast. *Proceedings of the 22nd International Conference on Distributed Computing Systems (ICDCS 2002)*, Vienna, Austria, July 2002.
63. C.-T. Huang, M. G. Gouda. An Anti-Replay Window Protocol with Controlled Shift. *Proceedings of the 10th IEEE International Conference on Computer Communications and Networks (ICCCN 2001)*, Scottsdale, October 2001.
64. M. G. Gouda, C.-T. Huang, A. Arora. On the Security and Vulnerability of PING. *Proceedings of the 5th International Workshop on Self-Stabilizing Systems (WSS 2001)*, October 2001.
65. M. G. Gouda, E. N. Elnozahy, C.-T. Huang, T. M. McGuire. Hop Integrity in Computer Networks. *Proceedings of the 8th IEEE International Conference on Network Protocols (ICNP 2000)*, Osaka, Japan, November 2000.
66. M. G. Gouda, C.-T. Huang, E. Li. Anti-Replay Window Protocols for Secure IP. *Proceedings of the 9th IEEE International Conference on Computer Communications and Networks (ICCCN 2000)*, Las Vegas, October 2000.

PATENT AND INVENTION

1. J. H. Gerdes, Jr., J. Kalvenes, C.-T. Huang, "Multi-dimensional credentialing using veiled certificates", US8468355B2, granted June 2013.

SYNERGISTIC ACTIVITIES

- Editor, Journal of High Speed Networks (2005-present).
- Area Editor, International Journal of Distributed Sensor Networks (2007-present).

- Editor, International Journal of Security and Its Applications (2007-present).
- Editor, International Journal of Security and Networks (2010-present).
- Guest Editor, Special Issue on Signal Processing Applications in Network IDS, EURASIP Journal on Advances in Signal Processing (2007).
- President, Chinese-American Academic and Professional Association in Southeastern United States (CAPASUS), 2014-2015.
- Program Chair, Fourteenth and Sixth International Workshop on Assurance in Distributed Systems and Networks (ADSN 2015 and 2007).
- Symposium Co-chair, Mobile & Wireless Networks Symposium, 2023 IEEE International Conference on Communications (ICC 2023).
- Symposium Co-chair, Communications & Information Security Symposium, 2023 International Conference on Computing, Networking and Communications (ICNC 2023).
- Symposium Co-chair, Communication & Information Systems Security Symposium, 2020 IEEE Global Communications Conference (GLOBECOM 2020).
- Symposium Co-chair, Machine Learning for Communications and Networking Symposium, 2020 International Conference on Computing, Networking and Communications (ICNC 2020).
- Program Co-chair, IEEE International Symposium on Wireless Communication Systems 2008 (ISWCS 2008).
- Student Travel Grant Co-chair and Program Committee member, 18th International Conference on Computer and Communications and Networks (ICCCN 2009).
- Student Travel Grant Chair, 17th International Conference on Computer and Communications and Networks (ICCCN 2008).
- Symposium Co-chair for Broadband Networking and Protocols track, 16th International Conference on Computer and Communications and Networks (ICCCN 2007).
- Vice Program Chair, Fifth International Workshop on Assurance in Distributed Systems and Networks (ADSN 2006).
- Program Committee member, IEEE International Conference on Communications (ICC 2009-2019).
- Program Committee member, 27th International Conference on Distributed Computing Systems (ICDCS 2007).
- Program Committee member, 49th Annual IEEE GLOBECOM Technical Conference (GLOBECOM 2006).
- Program Committee member, 13th International Conference on Network Protocols (ICNP 2005).
- Program Committee member, 14th International Conference on Computer and Communications and Networks (ICCCN 2005).

- Panelist, NSF SBIR/STTR (Phase II), October 2003; NSF SBIR/STTR (Phase I), March 2006, February 2007; NSF IHCS, May 2007; NSF CIF, May 2009.
- Senior Member of IEEE.
- Senior Member of ACM.
- Member of Sigma Xi.

RECENT GRANT ACTIVITIES

- Lead PI: Chin-Tser Huang, PIs: Esmail Abuhdima, Pierluigi, Gurcan Comert, “A Machine Learning-Assisted Framework for Determination of Performance Degradation Causes and Selection of Channel Switching Strategy in Vehicular Networks,” US Department of Transportation (USDOT), \$119,215 (my share \$50,000), 09/01/21 – 08/31/22.
- Lead PI: Gurcan Comert, PIs: Pierluigi Pisu, Esmail Abuhdima, Chin-Tser Huang (UofSC PI), “Modeling Impact of Weather Conditions on 5G Communication and Mitigation Measures on Control of Automated Intersections,” US Department of Transportation (USDOT), \$123,121 (my share \$49,706), 09/01/20 – 08/31/21.
- PI: Chin-Tser Huang, “Multiway Branching and Merging in Blockchain Framework for Runtime Verification of IoT Ecosystem Task Fulfillment,” Air Force Research Laboratory, \$10,000, 09/01/19 – 10/31/19.
- PI: S. Mo Jang, Co-PIs: Elaine Chun, Chin-Tser Huang, Jijun Tang, “Evolution in Digital Discourse: Toward a Computational Tool for Identifying Patterns of Language Change in Social Media,” National Endowment of Humanities (NEH), \$89,566, 09/01/18 – 02/01/20.
- PI: Chin-Tser Huang, “Applying Game Theory to Resource Transactions in the Integration of Cloud, Fog, and IoT Networks,” Air Force Research Laboratory, \$10,000, 09/01/18 – 10/31/18.
- PI: Chin-Tser Huang, Co-PIs: S. Mo Jang, Jijun Tang, “Web Archaeology: Uncovering Hidden History on the Internet,” USC ASPIRE-II, \$99,887, 07/01/16 – 09/30/17.
- Chin-Tser Huang, “Applying Game Theory to Detection and Mitigation of Malvertising,” Air Force Research Laboratory, \$10,000, 09/01/16 – 12/31/16.
- Chin-Tser Huang, “TC: Small: Dynamic Early Filtering of Botnet Garbage Traffic,” NSF, \$216,000, 02/01/10 – 01/31/14.
- Chin-Tser Huang, “Providing Prefetching and Precomputation in Fog Computing,” Air Force Research Laboratory, \$10,000, 09/01/15 – 12/31/15.
- Chin-Tser Huang, “Secure Smart Caching for Mobile Cloud Computing,” USC ASPIRE-I, \$14,774, 05/16/14 – 09/15/15.
- Chin-Tser Huang, “Secure Storage and Management of Big Data in Mobile Cloud Computing,” Air Force Research Laboratory, \$10,000, 09/01/14 – 12/31/14.
- Chin-Tser Huang, “Architecture and Protocols for Secure Caching of Private Data in Mobile Cloud Computing Environments,” Air Force Research Laboratory, \$9,000, 09/01/13 – 10/30/13.

- PI: Shouhuai Xu (UTSA), Co-PIs: Md E Karim, Sumeet Dua, Vir V. Phoha (LaTech); Kyoung-Don Kang (Binghamton); Sachin Shetty (TSU); Negar Kiyavash (UIUC); Chin-Tser Huang (SC); Ravi Sandhu (UTSA); “Collaborative Cyber Attack Data Capturing, Sharing and Analysis for Cloud Security”, AFOSR, Huang’s share: \$23,873, 08/01/11 – 10/31/12.

PAST RESEARCH PROJECTS

- “CRI: Generic Experimental Networking Infrastructure for Research on Emerging Networks and Services”, sponsored by NSF, \$199,583, Huang’s share: \$70,000, 05/15/06-04/30/09.
- “Adaptive and Precise Intrusion Detection Techniques,” sponsored by DARPA/AFRL, \$179,778, 08/16/05 – 09/30/06.
- “Active Detection and Automated Classification of Network Anomalies using Wavelet-based Techniques,” sponsored by DARPA/AFRL, \$100,024, Huang’s share: \$92,000, 01/01/06 – 09/30/06.
- “Early Detection and Filtering of Peer-to-Peer Botnet Traffic,” sponsored by Air Force Research Laboratory, \$10,000, 09/01/08 – 12/31/08.
- “Early Filtering of Botnet Traffic Using Routers,” sponsored by Air Force Research Laboratory, \$12,000, 01/01/09 – 04/30/09.
- “Multiple Instantiations of Dynamic Firewall Rules in BGP Routers,” sponsored by University of South Carolina Research and Productive Scholarship, \$16,000, 04/01/05 – 06/30/06.

COURSES TAUGHT

- CSCE 813: Internet Security; Fall 2015, Fall 2016.
- CSCE 790G: Topics in Computer Network Security; Fall 2003.
- CSCE 715: Network Systems Security; Fall 2004, Fall 2005, Fall 2006, Fall 2007, Spring 2009, Fall 2010, Fall 2011, Fall 2013, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Spring 2019, Spring 2020.
- CSCE 522: Information Security Principles; Fall 2021.
- CSCE 517: Computer Crime and Forensics; Fall 2021.
- CSCE 515: Computer Network Programming; Spring 2004, Spring 2005, Fall 2014.
- CSCE 350: Data Structures and Algorithms; Spring 2008, Spring 2009, Spring 2012.
- CSCE 311: Operating Systems; Spring 2006, Spring 2007.
- CSCE 211: Digital Logic Design; Fall 2009, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020.
- CSCE 211H: HNRS: Digital Logic Design; Fall 2017, Fall 2018, Fall 2019.

- CSCE 210: Computer Hardware Foundation; Fall 2007, Fall 2008.

ACADEMIC ADVISING

Ph.D. students

- Adel Rajab (graduated 2017)
Dissertation title: A Machine Learning Approach for Enhancing Security and Quality of Service of Optical Burst Switching Networks
Current position: Assistant Professor at Najran University, Saudi Arabia
- Muhammad Nazmus Sakib (graduated 2016)
Dissertation title: Revealing Malicious Contents Hidden in the Internet
Current position: Software Engineer at Itron
- Yi Xian (graduated 2012)
Dissertation title: Techniques for Alleviating the Inconveniences Caused by Mobility in Wireless Environments
Current position: Software Engineer at Microsoft
- Prasanth Kalakota (graduated 2009)
Dissertation title: Soft Mobility Techniques for Ensuring Network Availability
Current position: Software Engineer
- Maryam Jafari-Lafti (graduated 2010, co-advised with Dr. Csilla Farkas)
Current position: P2F: A User-Centric Privacy Protection Framework
Current position: Senior Lead of Cyber Threat Intelligence at Deloitte Canada
- Sen Xu (graduated 2008, co-advised with Dr. Manton Matthews)
Dissertation title: Security Protocols in WirelessMAN
Current position: network security professional in industry
- Xinliang Zheng (graduated 2008, co-advised with Dr. Manton Matthews)
Dissertation title: Chinese Remainder Theorem Based Single and Multi-Group Key Management Protocols
Current position: Associate Professor at Frostburg State University

M.S. students

- Kevin Walker (graduated 2006)
Thesis title: Mercury: A More Secure Instant Messaging Service
Current position: Computer Scientist at US Army Engineer Research and Development Center
- Jeff Janies (graduated 2006)
Thesis title: Fates: A Granular Approach to Real-Time Anomaly Detection
Current position: Senior Network Security Analyst at RedJack
- Sachin Thareja (graduated 2005)

Thesis title: A Real Time Network Traffic Wavelet Analysis Implementation and Evaluation

Current position: Product Manager at Bloomberg

Undergraduate students

- Clio Lang (UofSC Magellan Scholar award, 2020)
Project title: Is the Lesson Learned? A Study on Dissemination of Fake News in 2016 and 2020 Presidential Elections
- Rohan Bhandari (UofSC Magellan Scholar award, 2017)
Project title: Analyzing and Mitigating Device-to-Device Malware Infection in IoT Networks
- Victor Reynolds (UofSC SURF award, 2016)
Project title: Development of Tools for Digital Event Excavation in Internet Archaeology
- Miguel Contreras (AFRL internship, 2012)
Project title: Development of Android Cookie Analysis Tool
- David Stonecypher (graduated 2012)
Projects: Dynamic Early Filtering of Botnet Garbage Traffic (NSF REU); Graph Packet Flow: Developed Visualization Tool for Simulated Botnet Traffic (Honors thesis); Development of Android Cookie Analysis Tool (AFRL internship)
- Will Goss (graduated 2011)
Projects: Development of Multi-Dimensional Credentialing using Veiled Certificate to Ensure Privacy Protection (Magellan Scholar); Dynamic Early Filtering of Botnet Garbage Traffic (NSF REU)
- Everett Hite (UofSC Magellan Scholar award 2008-2009)
Project title: Development of Algorithms for Automated Analysis of Suspected Botnet Clients

COLLABORATORS AND OTHER AFFILIATIONS

Collaborators

- Drs. E. Chun, C. Farkas, J. Gerdes Jr., S. M. Jang, M. Matthews, S. Nelakuditi, J. Tang (USC)
- Dr. M. Chang (Iowa State University)
- Dr. J. Cobb (University of Texas at Dallas)
- Dr. F. Li (IUPUI)
- Dr. F. Sheldon (Oak Ridge National Laboratory, University of Idaho)
- Drs. B.-Y. Choi, S. Song (University of Missouri at Kansas City)
- Dr. Y. Chen (Binghamton University)
- Dr. Y.-D. Lin (National Chiao Tung University, Hsinchu, Taiwan)

Graduate Advisor

- Ph.D. advisor: Dr. M. G. Gouda (University of Texas at Austin)