

BIOGRAPHICAL DATA

Name Cliff C. Zou
(Legal name: Changchun Zou)
US Citizen

Education

Ph.D. in Electrical and Computer Engineering September 2005
University of Massachusetts at Amherst Amherst, MA
Advisors: Weibo Gong and Don Towsley

M.S., and B.S. in Electrical Engineering July 1999, & July 1996
University of Science & Technology of China (USTC) Hefei, China

Professional Positions

Associate Professor August 2011 - Present
Department of Electrical Engineering and Computer Science
Computer Science Division
University of Central Florida
Orlando, FL

Assistant Professor in University of Central Florida August 2005 – July 2011
School of Electrical Engineering and Computer Science
University of Central Florida
Orlando, FL

TEACHING

List all courses in the past five years

Course Number	Course Title	Credits	Class	Semester	# of Student
COT5405	Design and Analysis of Algorithms	3	Grad	Spring 15	49
CAP6135	Malware and Software Vulnerability Analysis	3	Grad	Spring 15	56
CDA6530	Performance Models of Computers and Networks	3	Grad	Fall 14	46
CNT4704	Analysis of Computer Communication Networks	3	Senior	Fall 14	85
CAP6135	Malware and Software Vulnerability Analysis	3	Grad	Spring 14	44
CDA6530	Performance Models of Computers and Networks	3	Grad	Fall 13	21
CNT4704	Analysis of Computer Communication Networks	3	Senior	Fall 13	70
CAP6135	Malware and Software Vulnerability Analysis	3	Grad	Spring 13	52
CDA6530	Performance Models of Computers and Networks	3	Grad	Fall 12	20
CNT4704	Analysis of Computer Communication Networks	3	Senior	Fall 12	49
CNT3004	Computer Network Concept	3	Junior	Summer 12	16
CAP6135	Malware and Software Vulnerability Analysis	3	Grad	Spring 12	45
CIS3360	Security in Computing	3	Junior	Spring 12	118
CDA6530	Performance Models of Computers and Networks	3	Grad	Fall 11	26
CNT4704	Analysis of Computer Communication Networks	3	Senior	Fall 11	32
CAP6135	Malware and Software Vulnerability Analysis	3	Grad	Spring 11	32
CNT3004	Computer Network Concept	3	Junior	Spring 11	51

List all MS Thesis and Ph.D. Dissertation Students

Graduated:

Ping Wang: Ph.D. graduated in December 2010. Working in Symantec Inc., Lake Mary, FL.

Baber Aslam: Ph.D. graduated in Spring 2012. Working as an assistant professor in National University of Sciences and Technology (NUST), Parkistan.

Faisal Amjad: Ph.D. graduated in May 2015. Working as an assistant professor in National University of Sciences and Technology (NUST), Parkistan.

Haiou Xiang: MS. graduated in August 2007.

Erich Dondyk: MS. graduated in May 2014.

Current:

Omar Hachum: current (CpE program).

Afraa Attiah: current (CpE program).

List all Undergraduate Honors in the Major Theses Students

Corey McCall: graduated in Fall 2010. Thesis title: "A System that Implements Automatic Medication Management and Passive Remote Monitoring to Enable Independent Living of Healthcare Patients".

Erich Dondyk: graduated in Spring 2012. Thesis title: "Denial of Convenience Attack to Smartphones Using a Fake Wi-Fi Access Point".

RESEARCH

Keywords: computer and network security; performance evaluation

List of Publications

Total Google Scholar Citations of all of my publications (2002 ~ Oct. 2015): 4389

Referreed Chapters in Edited Book

Baber Aslam*, Ping Wang*, Cliff C. Zou, "An Economical, Deployable and Secure Architecture for the Initial Deployment Stage of Vehicular Ad-Hoc Network", Chang, Chip-Hong, Potkonjak, Miodrag (Eds.): *Secure System Design and Trustable Computing*, Springer, ISBN 978-3-319-14971-4, 2016.

Ping Wang*, Lei Wu*, Baber Aslam* and Cliff C. Zou, "Analysis of Peer-to-Peer Botnet Attacks and Defenses", to appear in Dariusz Krol, Damien Fay, Bogdan Gabrys (Ed): *Propagation Phenomena in Real World Networks*, Springer, ISSN: 1868-4394.

Steven Zittrower* and Cliff C. Zou, "Encrypted Ranked Proximity and Phrase Searching in the Cloud", Al-Sakib Khan Pathan (Ed): *The State of the Art in Intrusion Prevention and Detection*, CRC Press, Taylor & Francis Group, USA, January 2014. (ISBN 9781482203516)

Sherri Sparks*, Shawn Embleton*, Cliff C. Zou. "Windows Rootkits - a Game of "Hide and Seek",," in Y. Xiao, F.H. Li, and H. Chen (Eds): *Handbook of Security and Networks*, Chapter 14, pp.345-369,

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World Scientific Publishing Co., ISBN-10: 9814273031, ISBN-13: 978-9814273039, 2011. pp. 345-368.

Ping Wang*, Baber Aslam*, Cliff C. Zou, "Peer-to-Peer Botnets: The Next Generation of Botnet Attacks", in *Stavroulakis, Peter; Stamp, Mark (Eds): Handbook of Information and Communication Security*, Chapter 18, Springer Press, 2010, pp. 335-350

Soyoung Park*, Cliff C. Zou, Damla Turgut. "Reliable Traffic Information Propagation in Vehicular Ad hoc Networks," in *R. Beyah, J. McNair, and C. Corbett (Eds): Security in Ad-hoc and Sensor Networks*, Chapter 9, World Scientific Press, 2009, pp. 261-291.

Referreed Journal Papers

Faisal Amjad, Baber Aslam, Affraa Attiah, Cliff C. Zou, "Towards Trustworthy Collaboration in Spectrum Sensing for Ad hoc Cognitive Radio Networks", to appear in *Springer Journal of Wireless Networks*.

Jiangyu Zheng, Xiaobin Tan, Cliff Zou, Yukun Niu, "Pseudonym-based Privacy-preserving Scheme for Data Collection In Smart Grid", to appear in *International Journal of Ad Hoc and Ubiquitous Computing (IJAHUC)*.

Sheng Wen, Wei Zhou, Jun Zhang, Yang Xiang, Wanlei Zhou, Weijia Jia, Cliff C. Zou, "Modeling and Analysis on the Propagation Dynamics of Modern Email Malware", in *IEEE Transactions on Dependable and Secure Computing*, Vol. 11, No. 4, pp. 361-374, July-Aug., 2014.

Erich Dondyk*, Louis Rivera*, and Cliff C. Zou, "Wi-Fi Access Denial of Service Attack to Smartphones", *Int. J. Security and Networks*, Vol. 8, No. 3, pp.117–129, 2013.

Shawn Embleton*, Sherri Sparks*, Cliff C. Zou, "SMM Rootkit: A New Breed of OS Independent Malware", *Wiley Journal of Security and Communication Networks*, Vol. 6, No. 12, December 2013, pp. 1590-1605.

Baber Aslam*, Ping Wang*, Cliff C. Zou, "Extension of internet access to VANET via satellite receive-only terminals". *International Journal of Ad Hoc and Ubiquitous Computing (IJAHUC)* Vol. 14, No. 3, 2013, pp. 172-190.

Soyoung Park*, Baber Aslam*, Damla Turgut, Cliff C. Zou, "Defense against Sybil Attack in the Initial Deployment Stage of Vehicular Ad hoc Network based on Roadside Unit Support", *Wiley Journal of Security and Communication Networks*, Vol. 6, No. 4, 2013, pp. 523-538.

Corey McCall*, Branden Maynes*, Cliff C. Zou, Ning J. Zhang, "An automatic medication self-management and monitoring system for independently living patients", *Elsevier Journal of Medical Engineering & Physics*, Vol. 35, No. 4, 2013, pp. 505-514.

Lei Wu*, Jerome Harrington*, Corey Kuwanoe*, Cliff C. Zou, "Harnessing the Power of BitTorrent for Distributed Denial-of-Service Attacks", *Wiley Journal of Security and Communication Networks*, 4(8), p.860-870, 2011.

Ping Wang*, Sherri Sparks*, Cliff C. Zou. "An Advanced Hybrid Peer-to-Peer Botnet", in *IEEE Transactions on Dependable and Secure Computing*, 7(2), 113-127, April-June, 2010.

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- Baber Aslam*, Soyoung Park, Cliff Zou, and Damla Turgut. "Secure Traffic Data Propagation in Vehicular Ad hoc Networks", in *International Journal of Ad Hoc and Ubiquitous Computing (IJAHUC)*, 6(1), 24-39, 2010.
- Ping Wang*, Lei Wu*, Ryan Cunningham*, Cliff C. Zou. "Honeypot Detection in Advanced Botnet Attacks", *International Journal of Information and Computer Security (IJICS)*, 4(1), 30–51, 2010.
- Cliff C. Zou, Don Towsley, Weibo Gong. "Modeling and Simulation Study of the Propagation and Defense of Internet Email Worm," *IEEE Transactions on Dependable and Secure Computing*, 4(2), 105-118, April-June 2007.
- Cliff C. Zou, Nick Duffield, Don Towsley, Weibo Gong. "Adaptive Defense Against Various Network Attacks," *IEEE Journal on Selected Areas in Communications: High-Speed Network Security (J-SAC)*, 24(10), 1877-1888, October 2006.
- Cliff C. Zou, Don Towsley, and Weibo Gong. "On the Performance of Internet Worm Scanning Strategies," *Elsevier Journal of Performance Evaluation*, 63(7), 700-723, July 2006.
- Cliff C. Zou, Don Towsley, Weibo Gong, Songlin Cai. "Advanced Routing Worm and Its Security Challenges," *Simulation: Transactions of the Society for Modeling and Simulation International*, 82(1), 75-85, 2006.
- Cliff C. Zou, Weibo Gong, Don Towsley, and Lixin Gao. "The Monitoring and Early Detection of Internet Worms," *IEEE/ACM Transactions on Networking*, 13(5), 961-974, October 2005.

Referreed Conference and Workshop Papers

- Afraa Attiah*, Faisal Amjad*, Omar Nakhila*, Cliff Zou, "Energy Efficient Movement of Wireless Sensors with Adjustable Sensing Ranges for Mending Barrier Gaps", to appear in 2016 International Conference on Computing, Networking and Communications (ICNC), *Workshop on Computing, Networking and Communications (CNC)*, February 2016.
- Graham Fleener, Marco Mayor, Cliff Zou, "Risk Management Framework (RMF) Transition Impacts in Training Simulation Systems", in *Interservice/Industry Training, Simulation and Education Conference (I/ITSEC)*, Nov.30 - Dec.4, 2015, Orlando, USA.
- Omar Nakhila*, Afraa Attiah*, Yier Jin, Cliff C. Zou, "Parallel Active Dictionary Attack on WPA2-PSK Wi-Fi Networks", to appear in *IEEE Military Communications Conference (MILCOM)*, October 26-28, Tampa, FL, 2015.
- Kien Hua, Ning Jiang, Jason Kuhns, Vaithiyanathan Sundaram, Cliff C. Zou, "Redundancy Control through Traffic Deduplication", in *IEEE INFOCOM*, 2015.(Acceptance rate: 316/1640=19.3%)
- Erich Dondyk*, Omar Nakhila*, Cliff C. Zou, "SPS: an SMS-based Push Service for Energy Saving in Smartphone's Idle State", in *12th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, Jan. 9-12, Las Vegas, 2015.
- Omar Nakhila*, Erich Dondyk*, Faisal Amjad*, Cliff C. Zou, "User-Side Wi-Fi Evil Twin Attack Detection Using SSL/TCP Protocols", in *12th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, Jan. 9-12, Las Vegas, 2015.

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- Faisal Amjad*, Mainak Chatterjee, Omar Nakhila*, Cliff C. Zou, "An Evolutionary Game Theoretic Framework for Coexistence in Cognitive Radio Networks", in *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Atlanta, Georgia, Dec. 3-5, 2014.
- Graham Fleener*, Cliff C. Zou, Jason Eddy, "Cybersecurity Impacts of a Cloud Computing Architecture in Live Training", in *Interservice/Industry Training, Simulation and Education Conference (I/ITSEC)*, Dec. 1-5, 2014, Orlando, USA.
- Xiaobin Tan, Zifei Zhou, Cliff Zou, Yukun Niu, Xin Chen, "Copyright Protection in Named Data Networking", in *International Conference on Wireless Communications and Signal Processing (WCSP)*, Hefei, China, Oct., 2014.
- Faisal Amjad*, Mainak Chatterjee, Cliff C. Zou, "Inducing Cooperation for Optimal Coexistence in Cognitive Radio Networks: A Game Theoretic Approach", in *IEEE Military Communications Conference (MILCOM)*, Baltimore, Oct. 6-8, 2014.
- Roberto Alberdeston*, Erich Dondyk*, Cliff C. Zou, "Click-Tracking Blocker: Privacy Preservation by Disabling Search Engines' Click-Tracking", in *IEEE GLOBECOM*, Dec. 2014.
- Jiangyu Zheng, Xiaobin Tan, Cliff C. Zou, Yukun Niu, Jin Zhu, "A Cloaking-Based Approach to Protect Location Privacy in Location-Based Services", to appear in *33rd Chinese Control Conference (CCC)*, Nanjing, China, July 28-30, 2014.
- Baber Aslam*, Faisal Amjad*, Cliff C. Zou, "PMTR: Privacy-enhancing Multilayer Trajectory-based Routing Protocol for Vehicular ad hoc Networks", *IEEE Military Communications Conference (MILCOM)*, San Diego, Nov. 18-20, 2013.
- Faisal Amjad*, Baber Aslam*, Cliff C. Zou, "Reputation Aware Collaborative Spectrum Sensing for Mobile Cognitive Radio Networks", *IEEE Military Communications Conference (MILCOM)*, San Diego, Nov. 18-20, 2013.
- Faisal Amjad*, Baber Aslam*, Cliff C. Zou, "DS3: A Dynamic and Smart Spectrum Sensing Technique for Cognitive Radio Networks Under Denial of Service Attack", *IEEE Globecom*, Atlanta, Dec. 9-13, 2013. (Acceptance rate: 37.0%)
- *Erich Dondyk, Cliff C. Zou, "Denial of Convenience Attack to Smartphones Using a Fake Wi-Fi Access Point," in *10th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, Jan. 11-14, 2013, pp. 164-170.
- *Faisal Amjad, *Baber Aslam, Cliff C. Zou, "Transparent Cross-Layer Solutions for Throughput Boost in Cognitive Radio Networks," in *10th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, Jan. 11-14, 2013, pp. 580-586.
- Rung-Ching Chen, Wei-Lung Chang, Chia-Fen Shieh, Cliff C. Zou, "Using Hybrid Artificial Bee Colony Algorithm to Extend Wireless Sensor Network Lifetime," *Third International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA)*, Sept. 26-28, 2012. pp. 156-161.
- *Steven Zittrower, Cliff C. Zou, "Encrypted Phrase Searching in the Cloud," *IEEE Global Communications Conference (GLOBECOM)*, Dec. 3-7, 2012. pp. 764-770.

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- *Baber Aslam, *Faisal M. Amjad, Cliff C. Zou, "Optimal Roadside Units Placement in Urban Areas for Vehicular Networks," in *17th IEEE Symposium on Computers and Communications (ISCC)*, Turkey, Jul. 1-4, 2012. pp. 423-429.
- *Jim Bardgett, Cliff C. Zou, "nSwitching: Virtual Machine Aware Relay Hardware Switching to improve intra-NIC Virtual Machine Traffic", in *IEEE International Conference on Communications (ICC)*, Ottawa, Canada, Jun. 10-15, 2012. pp. 2700-2705.
- Huy D. Truong*, Christopher F. Turner, Cliff C. Zou, "iCAPTCHA: The Next Generation of CAPTCHA Designed to Defend Against 3rd Party Human Attacks", to appear in *IEEE International Conference on Communications, (ICC)*, Kyoto, Japan, Jun. 5-9, 2011.
- Soyoung Park, Baber Aslam*, Cliff C. Zou, "Long-term Reputation System for Vehicular Networking based on Vehicle's Daily Commute Routine", in *8th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, Jan. 9-12, 2011. (Acceptance ratio: 95/305 = **31.1%**)
- Baber Aslam*, Cliff C. Zou, "One-way-linkable Blind Signature Security Architecture for VANET", in *8th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, Jan. 9-12, 2011. (Acceptance ratio: 95/305 = **31.1%**)
- Corey McCall*, Branden Maynes*, Cliff C. Zou, Ning Zhang. "RMAIS: RFID-based Medication Adherence Intelligence System", in *32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Buenos Aires, Argentina, Aug.31-Sept. 4, 2010, pp. 3768-3771.
- Baber Aslam*, Lei Wu*, Cliff C. Zou. "PwIDIP-Hash: A Lightweight Solution to Phishing and Pharming Attacks", in *IEEE International Symposium on Network Computing and Applications (NCA)*, 15-17 July, 2010, pp. 198-203.
- Peter Matthews*, Cliff C. Zou. "Scene Tagging: Image-Based CAPTCHA Using Image Composition and Object Relationships", in *ACM Symposium on Information, Computer and Communications Security (ASIACCS)*, Beijing, China, 13-16 Apr. 2010, pp. 345-350. (6-page short paper, Acceptance ratio: 38/166=**23%**)
- Baber Aslam*, Cliff C. Zou. "Distributed Certificate and Application Architecture for VANETs", *IEEE Military Communications Conference (MILCOM)*, pp. 1-7, Boston, Oct. 18-21, 2009.
- Soyoung Park*, Baber Aslam*, Damla Turgut, Cliff C. Zou. "Defense against Sybil Attack in Vehicular Ad-Hoc Network based On Roadside Units Support", *IEEE Military Communications Conference (MILCOM)*, pp. 1-7, Boston, Oct. 18-21, 2009.
- Baber Aslam*, Ping Wang*, Cliff C. Zou. "Pervasive Internet Access by Vehicles through Satellite Receive-only Terminals", *International Conference on Computer Communications and Networks (ICCCN)*, pp. 1-6, San Francisco, Aug. 2-6, 2009. (Acceptance ratio: 114/387 = **29.5%**)
- Ping Wang*, Lei Wu*, Baber Aslam*, Cliff C. Zou. "A Systematic Study on Peer-to-Peer Botnets", *International Conference on Computer Communications and Networks (ICCCN)*, pp. 1-8, San Francisco, Aug. 2-6, 2009. (Acceptance ratio: 114/387 = **29.5%**)
- Sherri Sparks*, Shawn Ambleton*, Cliff C. Zou. "A Chipset Level Network Backdoor: Bypassing Host-Based Firewall & IDS", to appear in *Proceedings of ACM Symposium on Information,*

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- Computer and Communications Security (ASIACCS), pp. 125-134, Sydney, Australia, 10-12 Mar 2009. (Acceptance ratio: 33/147 = **22.5%**)
- Baber Aslam*, Ping Wang*, Cliff C. Zou. "An Economical, Deployable and Secure Vehicular Ad hoc Network", in *Proceedings of IEEE Military Communications Conference (MILCOM'08)*, pp. 1-7, San Diego, November 17-19, 2008.
- Shawn Embleton*, Sherri Sparks*, Cliff C. Zou. "SMM Rootkits: A New Breed of OS Independent Malware", in *Proceedings of 4th International Conference on Security and Privacy in Communication Networks (SecureComm)*, Istanbul, Turkey, Sept. 22-25, 2008. (Acceptance ratio: 26/123=**21%**)
- Soyoung Park*, Cliff C. Zou. "Reliable Traffic Information Propagation in Vehicular Ad-Hoc Networks," *IEEE Sarnoff Symposium*, Apr. 28-30, NJ, 2008 (invited paper).
- Sherri Sparks*, Ryan Cunningham*, Shawn Embleton*, Cliff C. Zou. "Automated Vulnerability Analysis: Leveraging Control Flow for Evolutionary Input Crafting", *23rd Annual Computer Security Applications Conference (ACSAC)*, p. 477-486, Miami Beach, Florida, Dec. 10-14, 2007. (Acceptance ratio: 40/191=**21%**) **Best Student Paper Award**
- Jerome Harrington*, Corey Kuwanoe*, Cliff C. Zou. "A BitTorrent-Driven Distributed Denial-of-Service Attack", *3rd International Conference on Security and Privacy in Communication Networks (SecureComm)*, Nice, France, Sept. 17-20, 2007. (Acceptance ratio 31/119=**26%**)
- Ping Wang*, Sherri Sparks*, and Cliff C. Zou, "An Advanced Hybrid Peer-to-Peer Botnet", *USENIX Workshop on Hot Topics in Understanding Botnets (HotBots)*, Cambridge, MA, April 10th, 2007. (Acceptance ratio: 11/32=**34.4%**)
- Jingfei Kong, Cliff C. Zou, and Huiyang Zhou, "Improving Software Security via Runtime Instruction-Level Taint Checking", *Workshop on Architectural and System Support for Improving Software Dependability (ASID)*, October, 2006.
- Cliff C. Zou and Ryan Cunningham*. "Honey-pot-Aware Advanced Botnet Construction and Maintenance," in the *International Conference on Dependable Systems and Networks (DSN)*, June 25-28, Philadelphia, 2006 (Acceptance ratio: 34/187=**18.2%**).
- David Dagon, Cliff C. Zou, and Wenke Lee. "Modeling Botnet Propagation Using Time Zones," in *Proceedings of 13th Annual Network and Distributed System Security Symposium (NDSS)*, p. 235-249, Feb. 2-5, 2006. San Diego, CA, U.S. (Acceptance ratio: 17/127 = **13.4%**).
- Cliff C. Zou, Nick Duffield, Don Towsley, and Weibo Gong. "Adaptive Defense Against Various Network Attacks," in *Proceedings of SRUTI: Steps to Reducing Unwanted Traffic on the Internet*, p. 69-75, July 7-8, 2005. Boston, MA, U.S. (Acceptance ratio: 13/35=**37.1%**).
- Cliff C. Zou, Don Towsley, Weibo Gong, and Songlin Cai. "Routing Worm: A Fast, Selective Attack Worm based on IP Address Information," in *Proceedings of 19th ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (PADS'05)*, p. 199-206, June 1-3, 2005. Monterey, CA, U.S. (**Best Paper Runner-up**, Acceptance ratio: 22/46=**48%**).
- Cliff C. Zou, Don Towsley, and Weibo Gong. "Email Worm Modeling and Defense," in *Proceedings of 13th International Conference on Computer Communications and Networks (ICCCN'04)*, p.

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409-414, Oct. 11–13, 2004. Chicago, IL, U.S. (**Best Paper Runner-up**, Acceptance ratio: 73/207=**35.3%**).

Cliff C. Zou, Lixin Gao, Weibo Gong, and Don Towsley. “Monitoring and Early Warning for Internet Worms,” in *Proceedings of 10th ACM Conference on Computer and Communication Security (CCS’03)*, p. 190-199, Oct. 27–31, 2003. Washington DC, U.S. (Acceptance ratio: 35/253=**13.8%**).

Cliff C. Zou, Weibo Gong, and Don Towsley. “Worm Propagation Modeling and Analysis under Dynamic Quarantine Defense,” in *Proceedings of ACM/CCS Workshop on Rapid Malcode (WORM’03)*, p. 51-60, Oct. 27, 2003. Washington DC, U.S. (Acceptance ratio: 10/25=**40%**).

Cliff C. Zou, Weibo Gong, and Don Towsley. “Code Red Worm Propagation Modeling and Analysis,” in *Proceedings of 9th ACM Conference on Computer and Communication Security (CCS’02)*, p. 138-147, Nov. 18–22, 2002. Washington DC, U.S. (Acceptance ratio: 27/153=**17.6%**).

Invited Presentations

Invited talks entitled “Modeling, Analysis, and Mitigation of Internet Worm Attacks”:

- AT&T Labs Research, Florham Park, NJ, December 9, 2003
- CS Dept. Colloquium, Worcester Polytechnic Institute (WPI), MA, January 16, 2004
- College of Computing, Georgia Institute of Technology, GA, October 11, 2005
- University of Science & Technology of China, January 2006

Invited talks entitled “The Next Generation of Botnet Attacks”:

- University of Massachusetts, Amherst, January 22, 2009.
- University of Science and Technology of China, China, Apr. 27, 2010.

Invited talk entitled “Research in malware detection and software vulnerability analysis”:

- Cyber Security Conference @ UCF (Mar. 15th, 2014).

Patent

- US Patent 7587761: Adaptive Defense Against Various Network Attacks, September 8, 2009.
- Patent Pending: Filed on Dec. 10th, 2013 (14/102,088): "System and Method for Routing Network Frames Between Virtual Machines", by Jim Bardgett and Changchun Zou.

Grants and Contracts

- Florida Center for Cybersecurity (FC2) seed grant: "Smart Grid Security Protection through Cross Layer Approaches" (**co-PI**, my share: \$16,666, 03/2015-05/2016).
- NSF REU supplement grant for CNS-0627318, single **PI** (\$16,000, 09/2009 - 08/2010).
- Intel Research Fund: “Automated Vulnerability Analysis: Leveraging Control Flow for Evolutionary Input Crafting,” single **PI**, \$53,465 (2007 - 2010).
- NSF Cyber Trust program **CNS-0627318**: "Collaborative Research: CT-ISG: Modeling and Measuring Botnets". **PI**, my share: \$175,000 (Aug. 2006 - Aug. 2009).
- UCF In-House Research Grants, single **PI**, my share: \$7,500 (2005-2006).

PROFESSIONAL ACTIVITIES

- Senior Member of IEEE
- Program Co-Chair:
 - Second IEEE LCN workshop on network security, 2006.
 - 5th IEEE International Conference on Malicious and Unwanted Software (Malware), 2010.
 - IEEE International Workshop on Cyberspace Safety and Security (CSS), 2011.
- Conference Session Chair:
 - International Conference on Security and Privacy in Communication Networks (SecureComm), 2008.
 - International Swarm Intelligence & Other Forms of Malware Workshop (Malware), 2008.
 - 4th Workshop on Rapid Malcode (WORM'06), 2006.
- Local Arrangement Co-Chair:
 - ACM Multimedia Conference, 2014.
 - 11th International Conference on Ubiquitous Computing (UbiComp), 2009.
 - IEEE International Conference on Network Protocols (ICNP), 2008.
 - IEEE/ACM Symposium on Architectures for Networking and Communications Systems (ANCS), 2007.

Service as Editor for Journals

- Editorial Board Member: International Journal of Ad Hoc and Ubiquitous Computing (IJAHUC)
- Associate Editor: Wiley Journal of Security and Communication Networks (SCN)

Other External Service

- **NIH Panelist** on NIH Small Business Innovation Research grant applications, Feb. 2014.
- **NSF Panelist** on NeTS Small Security Panel (P111391), April 4-5, 2011.
- I served as a judge for UCF Graduate Research Forum on April 1st, 2014.
- I served as a judge for UCF Showcase of Undergraduate Research Excellence on April 3rd, 2014.
- I served as a judge for the first ArtScience Prize program for the Disney Boys & Girls Clubs on May 8th, 2014.
- I served as Judge for the “Florida Elementary Science Olympiad” held in May 14th, 2011 in UCF.
- I served as Judge for the “Graduate Research Forum” held in April 3rd 2012 by UCF College of Graduate Studies.

RECOGNITION AND AWARDS

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- Nov. 2013: I was interviewed by Local 6 News about hacked baby monitor and how to defend against it
- Received UCF-Teaching Incentive Program (UCF-TIP) Award, May 2013.
- Cliff Zou got “Outstanding Contribution Award” for the program co-chair work on conference Malware 2010.
- Our undergraduate research project “Personal Medication Monitor” won the first prize (\$1500) in the *first annual UCF Inventing Entrepreneurs Innovation Competition*, Mar. 2010. It is reported by UCF News: <http://today.ucf.edu/winners-of-inaugural-innovation-competition-named/>
- Our work and paper “Honeypot detection in advanced botnet attacks” published in *International Journal of Information and Computer Security* 2010, 4(1), pp. 30-51 have been reported by *EurekaAlert!* News Service, and by *The Register* (one of the world's biggest online tech publications), respectively at:
http://www.eurekaalert.org/pub_releases/2010-02/ip-hth022610.php
http://www.theregister.co.uk/2010/03/02/honeypot_anti_security_countermeasures/
- I provided comments about botnet attack on [WDBO-AM Radio](#) news broadcasted on 03/02/2010. The audio is at: <http://www.cs.ucf.edu/~czou/research/botnets-radio.MP3>
- Our paper in Milcom'09 reported by a conference preview article published in *IEEE communication magazine*, October 2009, page 22.
- The SMM rootkit work (paper published in Securecomm'08) was reported by *PCWorld Magazine* (05/09/2008).
- The SMM rootkit paper published in Securecomm'08 is invited for SCN journal submission as one of the best papers from the conference.
- The paper published in conference ACSAC 2007 was awarded with “*Best Student Paper Award*.”
- The research work in NDSS'06 paper "Modeling Botnet Propagation Using Time Zones" was reported by the [New Scientist Magazine](#), Mar. 4, 2006 189(2541), pg. 32.
- **Best Paper Runner-up** in conference PADS'05.
- **Best Paper Runner-up** in conference ICCCN'04.
- Interviewed by National Public Radio (NPR) on my research “dynamic quarantine of Internet worm” (by Correspondent Larry Abramson), September 2003.