Chen Zhong

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The University of Tampa   401 W. Kennedy Blvd., Tampa, FL 33606-1490

RESEARCH INTEREST

My research interests include cybersecurity, artificial intelligence, and data analytics, with an emphasis on decision-making, AI explainability, and human-AI collaboration. Specifically, I explore:

- Cybersecurity: Anomaly detection, incident response, deception detection, and insider threats.
- Artificial Intelligence & XAI: Human-AI collaboration, explainable AI in cybersecurity, and AI-assisted decision making.
- Data Analytics: Text mining, data mining, and cyber analytics.
- Cybersecurity Education: Gamification and AI-enhanced training.

EDUCATION

Pennsylvania State University, University Park, Pennsylvania USA

Ph.D, Information Sciences and Technology   May 2016
Advisor: Peng Liu, Co-Advisor: John Yen
Thesis: "A Cognitive Process Tracing Approach to Cybersecurity Data Triage Operations Automation"

Graduate Minor, Applied Statistics   2014

Nanjing University, Nanjing, China

Bachelor of Science, Computer Science and Technology   2011

ACADEMIC EXPERIENCE

Assistant Professor   Aug, 2020 - Present
Cybersecurity, Department of Information and Technology Management, Sykes College of Business, The University of Tampa, Florida, USA

Assistant Professor   Aug, 2016 - May, 2020
Informatics and Computer Science, School of Science, Indiana University Kokomo, Indiana, USA

Research Assistant   Aug, 2011 - May, 2016
College of Information Sciences and Technologies, Pennsylvania State University, University Park, Pennsylvania USA

Teaching Assistant   Sep, 2015 - Dec, 2015
Information Sciences and Technologies, Pennsylvania State University, University Park, Pennsylvania USA

TEACHING EXPERIENCE

- ITM 380 Network Security SP 2024, FA 2023, SP 2023, FA 2021, SP 2021, FA 2020
- CYB 610 Cloud Systems Security   FA 2024, FA 2023, FA 2021, FA 2020
- CYB 630 Incident Response Management   FA 2024, SP 2024, FA 2023, SP 2023, SP 2021
- INFO I450/CSCI C380 System Analysis and Design (Capstone course)   FA 2019, FA 2018
- CSCI C100 Problem Solving Using Computer (intro-level CS)   FA 2018
- INFO I101: Introduction of Computer (intro-level CS and Informatics)   FA 2019, FA 2018, SP 2018, FA 2017, SP 2017, FA 2016
- INFO I202: Social Informatics (Security and Privacy)   SP 2019, SP 2018, SP 2017
- INFO I303: Organization Informatics (Organizational database and network, decision-making support system)   SP 2019, SP 2018, SP 2017
- INFO I399: Advanced Topics in Informatics: Cybersecurity SP 2019, SP 2018

GRANTS

- PI: Chen Zhong, Co-PI: Alper Yayla, "The Impact of Artificial Intelligence on Cybersecurity Decision-Making", Research Innovation and Scholarly Excellence (RISE) ($14,462.40), The University of Tampa   2024-2025
- PI: Chen Zhong, "A Study on Transformer-Based Insider Detection", Google Cloud Research Credits, ($5,000.00), Google Cloud   2023-2024
- PI: Chen Zhong, Co-PI: Joo Baek, "Assessing Students' Self-Efficacy and Learning Effectiveness Using Gamification in Cybersecurity Courses", Research Innovation and Scholarly Excellence (RISE) ($12,564.03), University of Tampa 2021-2022
- PI: Chen Zhong and Hong Liu, "Supporting Undergraduate Women in Computing: A Peer Mentoring and Collaboration Program", Womens Philanthropy Leadership Council Grant (IU WPLC) ($5,000), Indiana University. 2019-2020
- Co-PI: Hisako Masuda, Chen Zhong, and Yan He, "Computational Data Analysis Training Modules: Promoting Quantitative Reasoning and Early Research for Science Undergraduate Majors", Indiana University Collaborative Research Grants (IUCRG) ($43,667), Indiana University.   2018-2019
- PI: Chen Zhong, "LEGO Programming Training Approach", 2019-20 IUK Women of the Well House ($2,500), Indiana University Kokomo.   2018-2019
- PI: Chen Zhong, "Retrieving Cybersecurity Analysis Experience", Grant-in-Aid of Faculty Research Grant ($3,100), Indiana University Kokomo.   2018
- PI: Undergraduate Research/Creative Works ($2,500), "A Visual System for Supporting Collaborative Cybersecurity Analysis", Indiana University Kokomo. 2018
- Subcontractor, "Recognizing Unexplained Behavior in Network Events" ($12,774), subcontract award from the Pennsylvania State University, ARO (Solicitation: W911NF-12-R-0012-04).   2017

PUBLICATIONS

[J]:Journal, [C]: Conference proceeding (peer-reviewed publication), [BC]:Book chapter, [T] thesis, *:Corresponding author

Selected Publications

1. [J] J.B. Kim*, **Chen Zhong**, Hong Liu, (2025). "The Impact of Gamification on Cybersecurity Learning: Multi-Study Analysis", *Communications of the Association for Information Systems (CAIS),* 56(1), 6.
2. [J] **Chen Zhong**, John Oruongo, and J.B. Kim (2025). "LLM-Powered Low-Code/No-Code Data Analytics in Education and Workforce Development." *Computer*, 58(3), 49-59.
3. [J] **Chen Zhong***, Hisako Masuda, and Yan He, (2024). "Integrating Data Analytics Training into Curricula at Small Colleges: A Practical Framework for Enhancing Student Skills", *Journal of Statistics and Data Science Education*

(formerly Journal of Statistics Education), 1-13.
https://doi.org/10.1080/26939169.2024.2379333

4. [C] Chang Yue, **Chen Zhong**, Kai Cheng*, Zhiyu Zhang, and Yeonjoon Lee, (2024). "DarkFleece: Fleeceware Detection on Android System based on Dark Patterns", In The 33rd *USENIX Security Symposium (USENIX)* (Acceptance Rate: 18%), (pp. 1-18).

5. [J] **Chen Zhong***, J.B. Kim, Hong Liu, (2024). "The Art of Inclusive Gamification in Cybersecurity Training", the *IEEE Security & Privacy* .

6. [J] **Chen Zhong***, Hong Liu, and Hwee-Joo Kam, (2024). "Mining Reddit Users Perspectives on Cybersecurity Competitions: A Mixed Method Approach", *Information and Computer Security*, 32(5), 636-655.

7. [J] **Chen Zhong**, Sunita Goel*, (2024). "Transparent AI in Auditing through Explainable AI", *Current Issues in Auditing*, 18(2), A1-A14.

8. [J] **Chen Zhong***, J.B. Kim, (2024). "Teaching Business Students Logistic Regression in R with the Aid of ChatGPT", *Journal of Information Systems Education (JISE)*, 35(2), 138-143.

9. [J] **Chen Zhong***, J.B. Kim, Alper Yayla, (2023). "Enhancing Communication Among Remote Cybersecurity Analysts with Visual Traces", *IEEE IT Professional* (2023), 25(5), 29-36.

10. [J] J.B. Kim*, **Chen Zhong**, and Hong Liu, (2023). "Teaching Tip: What You Need to Know about Gamification Process of Cybersecurity Hands-on Lab Exercises: Lessons and Challenges", the *Journal of Information Systems Education (JISE)* (2023), Vol. 34 : Iss. 4 , 387-405.

11. [J] Hong Liu, **Chen Zhong**, Awny Alnusair*, and Sheikh Rabiul Islam. (2021). "FAIXID: A Framework for Enhancing AI Explainability of Intrusion Detection Results Using Data Cleaning Techniques", *Journal of Network and Systems Management (JNSM)*, 29, 40 (2021). doi.org/10.1007/s10922-021-09606-8.

12. [J] **Chen Zhong***, John Yen, Peng Liu, and Robert F. Erbacher. (2018). "Learning from experts' experience: toward automated cyber security data triage." *IEEE Systems Journal*, 99, pp.1-12.

13. [J] **Chen Zhong***, Tao Lin, Peng Liu, John Yen, and Kai Chen. (2018). "A cyber security data triage operation retrieval system." *Computers & Security* (2018), 76, pp.12-31.

Other Publications

14. [C] Hwee-joo Kam, **Chen Zhong**, Allen Johnston, Wael Soliman. "Generative AI and Cybersecurity: An Activity Theory Perspective", *SIGHCI 2024 Proceedings.* 14.

15. [C] Nour El Shamy, Wei Xie, and **Chen Zhong**. "Smishing: Exploring How Different Persuasion Techniques Influence Users Emotions, Cognitions, and Identification Accuracy." In NeuroIS Retreat, 2024, pp. 345-355. Cham: Springer Nature Switzerland.

16. [C] **Chen Zhong**, Motahareh Pourbehzadi, and Giti Javidi, "Insider Detection

Based on Behavior Sequences: A Transformer Approach". ICIS 2024 Proceedings. 12.

17. [C] **Chen Zhong**, Sam Zaza, and Valerie Bartelt. "Understanding Communication Preferences in Collaborative Cybersecurity Incident Response." In Proceedings of *the 2024 Computers and People Research Conference*, pp. 1-1. 2024.

18. [C] **Chen Zhong***. "Supporting Effective Communication in Remote Cybersecurity Analyst Team", *AMCIS 2023* (**Best ERF Paper Runner-up Award**).

19. [C] **Chen Zhong***, Qinwei Ni, and Ping Chen, "Predicting Analysts' Needs for Explainable Artificial Intelligence in Cybersecurity Analysis ", *AMCIS 2023*.

20. [C] Hwee-Joo Kam, **Chen Zhong**, Hong Liu, Allen C. Johnston, "The Blend of Human Cognition and AI Automation: What Will ChatGPT Do to the Cybersecurity Landscape?", The *2023 Dewald Roode Workshop on Information Systems Security Research*, IFIP WG8.11/WG11.13, 2023.

21. [C] Ed Marcavage, Jacob Mason, and **Chen Zhong***, "Predicting the Effectiveness of Blockchain Bug Bounty Programs", *The 36th International FLAIRS Conference* 2023 (poster).

22. [C] **Chen Zhong***, Joo Baek Kim, and Hong Liu. "The Impact of Gamification on Students' Learning Outcome and Career Interest in Cybersecurity Education.", In *AMCIS 2022* Proceedings. 9.

23. [C] Brock Floyd, Jared Jackson, Emma Probst, Hong Liu, Nischal Mishra, **Chen Zhong***, "Understanding Learners' Interests in Cybersecurity Competitions on Reddit", In 2021 *13th International Conference on Education Technology and Computers*, pp. 444-449. 2021.

24. [C] Joshua Ian Bertrand, Alex Martakis, Hong Liu, **Chen Zhong***, and Jun Yao, "Exploring Participants' Views of Cybersecurity Competitions Through the Lens of Social Media", In *2020 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA)*, pp. 155-162. IEEE, 2020.

25. [BC] **Chen Zhong**, John Yen, and Peng Liu*. "Can Cyber Operations Be Made Autonomous? An Answer from the Situational Awareness Viewpoint." In *Adaptive Autonomous Secure Cyber Systems*, pp. 63-88. Springer, Cham, 2020.

26. [C] Lindsey Thomas, Moises Balders, Zach Courtney, **Chen Zhong***, Jun Yao, and Chunxia Xu. "Cybersecurity Education: From Beginners to Advanced Players in Cybersecurity Competitions." In *2019 IEEE International Conference on Intelligence and Security Informatics (ISI)*, pp. 149-151. IEEE, 2019.

27. [C] **Chen Zhong***, Awny Alnusair, Brandon Sayger, Aaron Troxell, and Jun Yao. "AOH-Map: A Mind Mapping System for Supporting Collaborative Cyber Security Analysis." In *2019 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA)*, pp. 74-80. IEEE, 2019.

28. [C] Hong Liu*, **Chen Zhong**, "Assessing Programming Education Approaches for College Beginners with Different Backgrounds", the *10th International Conference On Education Technology And Computers (ICETC)*, pp. 136-139. ACM, 2018.

29. [BC] Tao Lin, **Chen Zhong**, John Yen, and Peng Liu*. "Retrieval of Relevant

Historical Data Triage Operations in Security Operation Centers." In *From Database to Cyber Security*, pp. 227-243. Springer, Cham, 2018.

30. [C] Lindsey Thomas, Adam Vaughan, Zachary Courtney, **Chen Zhong***, Awny Alnusair. "Supporting Collaboration among Cyber Security Analysts through Visualizing their Analytical Reasoning Processes". *IEEE International Workshop on Machine Learning and Artificial Intelligence for Multimedia Creation.* In Conjunction with IEEE ICME '18. San Diego, CA, USA. (2018).

31. [J] **Chen Zhong***, Hong Liu, and Awny Alnusair. "Leveraging Decision Making in Cyber Security Analysis through Data Cleaning." *Southwestern Business Administration Journal* 16, no. 1 (2017): 1

32. [J] Awny Alnusair*, **Chen Zhong**, Majdi Rawashdeh, M. Shamim Hossain, and Atif Alamri. "Context-Aware Multimodal Recommendations of Multimedia data in Cyber Situational Awareness." *Multimedia Tools and Applications*, 76, no. 21 (2017): 22823-22843. **(IF: 2.101)**

33. [C] Zachary Courtney, Scott Finney, Matt Floyd, **Chen Zhong***, Awny Alnusair, "A Cognitive-Based Visualized Collaboration Support System for Cyber Defense Analysis". The *International Conference of Technology Innovation, Management and Entrepreneurship (TIME-2017)*. Springer. (2017)

34. [BC] **Chen Zhong***, John Yen, Peng Liu, Robert F. Erbacher and Christopher Garneau. "Studying Analysts Data Triage Operations in Cyber Defense Situational Analysis.", In Peng Liu, Sushil Jajodia, and Cliff Wang (Eds.), In *Theory and Models for Cyber Situation Awareness*, pp. 128-169. Springer, Cham, 2017.

35. [C] **Chen Zhong***, John Yen, Peng Liu, and Robert F. Erbacher. "Automate Cybersecurity Data Triage by Leveraging Human Analysts Cognitive Process.", In *IEEE International Conference on Intelligent Data and Security (IEEE IDS)*, 2016.

36. [C] **Chen Zhong***, John Yen, Peng Liu, Robert F. Erbacher, Renee Etoty, and Christopher Garneau. "An Integrated Computer-Aided Cognitive Task Analysis Method for Tracing Cyberattack Analysis Processes." In *proceedings of the 2015 Symposium and Bootcamp on the Science of Security*, p. 9. ACM, 2015.

37. [C] **Chen Zhong***, John Yen, Peng Liu, Robert F. Erbacher, Renee Etoty, and Christopher Garneau. "ARSCA: A Computer Tool for Tracing the Cognitive Processes of Cyberattack Analysis." In *proceedings of IEEE Cognitive Methods in Situation Awareness and Decision Support (CogSIMA)*, pp. 165-171. IEEE, 2015.

38. [T] **Chen Zhong***, John Yen, Peng Liu, Robert F. Erbacher, and Christopher Garneau, "Peer Into Cyber Security Analysts' Minds: Capturing and Studying Their Cognitive Processes of Analytical Reasoning.", Graduate Exhibition of Research, Pennsylvania State University, University Park, PA, March 2015. *Awarded the First Place in Engineering.*

39. [BC] John Yen*, Robert F. Erbacher, **Chen Zhong**, and Peng Liu. "Cognitive Process." In Alexander Kott, Cliff Wang and Robert F. Erbacher (Eds.), *Cyber Defense and Situational Awareness* (ISBN: 978-3-319-11390-6), pp. 119-144. Springer International Publishing, 2014.

40. [C] **Chen Zhong***, Deepak S. Kirubakaran, John Yen, Peng Liu, Robert F.

Erbacher, Steve Hutchinson, Renee Etoty, Hasan Cam, and William Glodek. "RankAOH: Context-Driven Similarity-Based Retrieval of Experiences in Cyber Analysis." In *proceedings of Cognitive Methods in Situation Awareness and Decision Support (CogSIMA)*, pp. 230-236. IEEE, 2014.

41. [C] **Chen Zhong***, Deepak S. Kirubakaran, John Yen, Peng Liu, Steve Hutchinson, and Hasan Cam. "How to Use Experience in Cyber Analysis: An Analytical Reasoning Support System." In *proceedings of Intelligence and Security Informatics (ISI)*, pp. 263-265.IEEE, 2013.

42. [C] **Chen Zhong***, Mingyi Zhao, Gaoyao Xiao, and Jun Xu, "Leveraging Visualization Function in Hypothesis-Based Collaboration on Cyber Analysis.", *IEEE VIS 2013 VAST Challenge Workshop*, Atlanta, GA, 2013. **Honorable Mention**.

43. [C] Mingyi Zhao*, **Chen Zhong**, Richard Ciamaichelo, Michael Konek, Neela Sawant and Nicklaus A. Giacobe. "Federating Geovisual Analytic tools for Cyber Security Analysis." In *2012 IEEE Conference on Visual Analytics Science and Technology (VAST)*, pp. 303-304. IEEE, 2012 (Short Paper).

ACADEMIC HONORS AND AWARDS

- Outstanding Faculty Award Nominee, The University of Tampa   2025
- Outstanding Faculty Advisor Award, The University of Tampa   2024
- COB Course Offload Teaching Award, The University of Tampa   2023
- Research Innovation and Scholarly Excellence (RISE) Award, The University of Tampa   2021
- COB Course Offload Research Award, The University of Tampa   2020
- Indiana University Trustees Teaching Award   2019
- Indiana University Kokomo Summer Faculty Fellowship   2019
- Women in Cybersecurity (WiCys) Faculty Scholarship   2018
- Grace Hopper Faculty Scholarship   2017
- Indiana University Kokomo Summer Faculty Fellowship   2017
- (ISC)^2 Foundation Graduate Scholarship   2015
- 1st Place in Engineering, Graduate Exhibition, Pennsylvania State University 2015
- HotSoS Conference Student Travel Award   2015
- CogSIMA Conference Student Travel Awards   2015, 2014
- Grace Hopper Scholarship of Women in Computing   2013
- IEEE VAST Challenge 2013 Honorable Mention   2013
- National Undergraduate Innovation Grant, China's Ministry of Education 2010
- National Scholarship, China's Ministry of Education (Awarded to top 1%) 2010, 2009, 2008
- Outstanding Student Awards (Awarded to top 5%), Nanjing University, China 2010, 2009, 2008

Students' Awards

- National Cyber League (NCL) Top 50 Team   2024
- National Cyber League (NCL) Top 50 Team   2022
- Travel Award, Florida Undergraduate Research Conference   2022
- Runner-Up Award, COB Study Research Day   2022
- Women in Cybersecurity Student(WiCys) Scholarship   2021, 2019, 2018
- Grace Hopper Celebration (GHC) Student Scholarship   2018
- Best Poster Award, IUK Research Symposium   2018
- Travel Award for Presenting at National Conferences on Undergraduate Research (NCUR)   2018
- Best Poster Award of IUK Research Symposium   2017
- Travel Award for Presenting at NCUR   2017

UNIVERSITY SERVICES

- Graduate Curriculum Committee, University of Tampa   2024
- Diversity, Equity, and Inclusion Committee, University of Tampa   2023
- COB Teaching Effectiveness Committee, University of Tampa   2024, 2023, 2022, 2021
- Undergraduate Research Committee, University of Tampa   2022, 2021
- Informatics and Computer Science Faculty Search, Committee Member, Indiana University Kokomo   2019, 2018
- IU Science Symposium 2019, Committee Member, Indiana University Kokomo 2019
- IUK Science Fair, Task Force Member, Indiana University Kokomo 2018, 2017
- Math Faculty Search, Committee Member, Indiana University Kokomo   2018
- Computer Science Faculty Search, Committee Member, Indiana University Kokomo 2017
- Faculty Development and Grants, Committee Member, Indiana University Kokomo 2017
- Informatics Club, Advisor, Indiana University Kokomo   2019-2017
- Women of Technology Club, Advisor, Indiana University Kokomo   2019, 2018

Student Involvement

- Advisor, Root@UT CTF club   2020-present
- Advisor, Crypto Student Club   2021-2022
- Advisor, IUK Informatics Club   2017-2020
- Advisor, IUK Women in Technology (WiTS)   2018-2020
- Coach, National Cyber League, IUK team   2018-2020

PROFESSIONAL SERVICES AND MEMBERSHIP

Committee

- NSF SaTC EDU panelist (2025)
- AMCIS Mini-Track Co-Chair (AMCIS 2024, AMCIS 2025)
- Editorial Board Member, Journal of Information Systems Education (JISE)
- Program Committee, Silicon Valley Cybersecurity Conference (SVCC 2022)
- Program Committee, the IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA 2024, CogSIMA2022, CogSIMA2021, CogSIMA2020, CogSIMA 2019, CogSIMA 2018).
- Program Committee, the Special Issue on the NICE Framework of the Cybersecurity Skills Journal, 2020
- Panelist, National CyberWatch Center Curriculum Standards Panel for Information Security Fundamentals, 2019
- Program Committee, Women in Cybersecurity Conference (Wicys 2019).
- Program Committee, the International Conference on Software Security (ICSS 2019).
- Program Committee, the Tenth International Conference on Emerging Networks and Systems Intelligence (EMERGING 2018).
- Judge, ChinaViz Visual Analytics Challenges, 2018
- ACM Poster Judge, ACM Student Research Competition Graduate Finals, GHC, 2017
- Program Committee, The International Conference of Technology Innovation, Management and Entrepreneurship (TIME), 2017
- Session Chair, IEEE International Conference on Intelligence and Security Informatics (IEEE ISI), 2019
- Session Chair, IEEE International Conference on Intelligent Data and Security (IEEE IDS), 2015

Community

- Speaker, "Unlocking AI: Meeting Analysts' Dynamic Needs for Explainability in Cyber Defense", Sunshine Cyber Conference 2024
- Training Workshop Organizer, BSide Tampa 2024

Reviewer

- Information & Management
- Computers & Security
- IEEE Transactions on Dependable and Secure Computing Journal (2016-present)
- IEEE Systems Journal
- Organizational Behavior and Human Decision Processes, Elsevier

- Frontiers of Computer Science
- International Journal of Information Security
- Cybersecurity Journal, SpringerOpen
- ICIS 2024
- AMCIS 2024
- IJCNN 2024 (Special Session: Computational Intelligence in Transactive Energy Management and Smart Energy Network (CITESEN 2024))
- IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA 2019)
- IEEE International Conference on Multimedia and Expo (ICME 2019)
- 14th EAI International Conference on Security and Privacy in Communication Networks (SecureComm)
- Information Discovery and Delivery Journal (2017-present)
- IET Information Security Journal (2017-present)
- Security and Safety Journal (ICST) (2017-present)
- The 12th IEEE International Conference On Big Data Science And Engineering (IEEE BigDataSE-18)
- IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA 2018)
- 14th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2018)
- International Conference on Computing, Networking and Communications (ICNC 2018, 2017)
- 10th International Conference On Education Technology And Computers (ICETC 2018)
- 13th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2017)
- The 13th China International Conference on Information Security and Cryptology (INSCRYPT 2017), 2 reviews
- The 3rd International Workshop on Digital Crime and Forensics (IWDCF 2017)
- The 11th Chinese Conference on Trusted Computing and Information Security (CTCIS 2017)
- The 36th IEEE Performance Computing and Communications Conference (IPCCC 2017)
- International Conference for Military Communications (MILCOM 2017)
- The 14th International Conference on Security and Cryptography (SECRYPT 2017)
- The 36th IEEE International Performance Computing and Communications Conference (IPCCC 2016)
- The 10th IEEE International Conference on Open Source Systems and Technologies (ICOSST 2016)

Membership

- Association for Information Systems (AIS)

- Women in Cybersecurity (WiCyS)
- Membership of ACM Science of Security VO