

Boyang Wang Ph.D.

PRESENT APPOINTMENT	Associate Professor Program Director for Cybersecurity Engineering Department of Electrical and Computer Engineering (primary) Department of Computer Science (secondary) University of Cincinnati Cincinnati, Ohio 45221 Office: 806A Rhodes Hall Phone: 513-556-4785 Email: boyang.wang@uc.edu Web: http://homepages.uc.edu/~wang2ba/ Lab GitHub: https://github.com/UCdasec	August 2023 - Present
RESEARCH INTERESTS	Side-channel attacks, machine learning, network security, wireless network security, embedded system security, binary analysis, data privacy and security, and applied cryptography Google Scholar Citations: 3,900; h-index: 24 (as of December 2023)	
EDUCATION	<ul style="list-style-type: none">• The University of Arizona, Tucson, Arizona Ph.D. in Electrical and Computing Engineering, August 2017<ul style="list-style-type: none">– Dissertation Title: “<i>Secure Geometric Search on Encrypted Spatial Data</i>”– Advisor: Dr. Ming Li• Xidian University, Xi’an, China Ph.D. in Cryptography, June 2014<ul style="list-style-type: none">– Dissertation Title: “<i>The Study of Public Auditing for Shared Data in the Cloud</i>”– Advisor: Dr. Hui Li• Xidian University, Xi’an, China B.S. in Information Security, July 2007	
HONORS AND AWARDS	<ul style="list-style-type: none">◇ NSF CRII Award 2020◇ William E. Restemeyer Teaching Excellence Award, Dept. of ECE, 2021◇ William H. Middendorf Research Excellence Award, Dept. of ECE, 2019, 2023◇ Best Paper Award Runner-up, SecureComm 2020.◇ OCRI (Ohio Cyber Range Institute) Fellow, 2021 – 2024◇ Distinguished TPC Member IEEE INFOCOM 2020, 2022, 2023◇ CEAS Faculty Development Award, University of Cincinnati, 2018◇ IEEE CNS 2019 Junior Faculty Travel Grant (funded by NSF), 2019◇ Presidential Doctoral Research Fellowship, Utah State University, 2014◇ Outstanding Ph.D. Dissertation Award, Xidian University, 2014	
FUNDING	Total \$1,486,845 (My Share: \$1,186,848, External: \$1,129,357 and Internal: \$57,491) ◇ NSF IUCRC CHEST (Center for Hardware and Embedded System Security and Trust), “ <i>Secure Coding against Hardware Attacks (Year 1)</i> ,” PI: Boyang Wang , Co-PIs: John (Marty) Emmert	

and Nan Niu, \$50,000, 2023-2024, Federal.

◇ NSF IUCRC CHEST (Center for Hardware and Embedded System Security and Trust), “*Towards Robust Cross-Device Side-Channel Attacks (Year 3)*,” **PI: Boyang Wang**, Co-PI: John (Marty) Emmert, \$50,000, 2023-2024, Federal.

◇ National Science Foundation, “*Collaborative Research: SaTC: CORE: Small: Towards Robust, Scalable, and Resilient Radio Fingerprinting*,” **Lead PI: Boyang Wang**, PI: Nirnimesh Ghose (University of Nebraska-Lincoln), Total \$586,681 (UC Share: \$286,684), 2023-2026, Federal.

◇ National Science Foundation, “*REU Site: Research Experiences for Undergraduates in Hardware and Embedded Systems Security and Trust (RHEST)*,” **PI: Boyang Wang**, Co-PI: John (Marty) Emmert, REU Mentors: Ranga Vemuri, Rashmi Jha, Nan Niu, Anca Ralescu, William Hawkins \$414,939 (including \$10,000 RET supplement), 2022-2024, Federal.

◇ NSF IUCRC CHEST (Center for Hardware and Embedded System Security and Trust), “*Towards Robust Cross-Device Side-Channel Attacks (Year 2)*,” **PI: Boyang Wang**, Co-PI: John (Marty) Emmert, \$50,000, 2022-2023, Federal.

◇ NSF IUCRC CHEST (Center for Hardware and Embedded System Security and Trust), “*Towards Robust Cross-Device Side-Channel Attacks (Year 1)*,” **PI: Boyang Wang**, Co-PI: John (Marty) Emmert, \$50,000, 2021-2022, Federal.

◇ National Science Foundation, “*CRII: SaTC: Fingerprinting Encrypted Voice Traffic on Smart Speakers*,” **PI: Boyang Wang**, \$217,000, 2020-2022 (including \$32,000 REU supplements and \$10,000 CloudBank credits), Federal.

◇ Hyperconnect Lab Inc (IoTeX), “*Optimizing Verification Overhead for Privacy-Preserving Cryptocurrency*,” **PI: Boyang Wang**, \$10,734, 2018-2019, Industry.

◇ UC Office of Research (Pilot Program), “*Efficient Cryptocurrency Malware Detection*,” **PI: Boyang Wang**, Co-PIs: Nan Niu and Xuetao Wei, \$24,962, 2019-2020, Internal.

◇ CEAS Faculty Development Award , “*Building the Next Generation of Blockchain*,” **PI: Boyang Wang**, \$2,400, 2018-2019, Internal.

◇ Ohio Cyber Range at UC, “*Secure Learning from Private Data*,” **PI: Boyang Wang**, Co-PI: Gowtham Atluri, \$30,129, 2018-2019, Internal.

PROFESSIONAL
EXPERIENCE

- **University of Cincinnati, Cincinnati, Ohio** August 2023 - Present
Associate Professor (tenured), Dept. of ECE
- **University of Cincinnati, Cincinnati, Ohio** August 2017 - August 2023
Assistant Professor (tenure-track), Dept. of ECE
- **The University of Arizona, Tucson, Arizona** August 2015 - August 2017
Research Assistant, Advisor: Dr. Ming Li
- **Bosch Research & Technology Center, Pittsburgh, PA** June 2015 - August 2015
Research Intern, Advisors: Dr. Jorge Guajardo and Dr. Xinxin Fan
- **Utah State University, Logan, Utah** January 2014 - August 2015
Research Assistant, Advisor: Dr. Ming Li
- **University of Toronto, Toronto, Ontario, Canada** September 2010 - August 2012
Visiting Student, Advisor: Dr. Baochun Li
- **Xidian University, Xi'an, Shaanxi, China** March 2009 - December 2013
Research Assistant, Advisor: Dr. Hui Li

TEACHING

• Dept. of ECE & CS, University of Cincinnati

CS 1100 Intro. to Computer Science (with Dr. Raj Rhatnagar)

◊ Fall 2020, No of Students: 115, Evaluation: 3.9/5 Response Rate 32%

CS 2071 Discrete Structures

◊ Spring 2023, No of Students: 38, Evaluation: 4.2/5 Response Rate 71%

◊ Spring 2022, No of Students: 33, Evaluation: 4.2/5 Response Rate 73%

◊ Spring 2021, No of Students: 42, Evaluation: 4.6/5 Response Rate 83%

CS 5158/6058 Data Security and Privacy

◊ Fall 2022, No of Students: 41, Evaluation: 4.7/5 Response Rate 69%

◊ Fall 2021, No of Students: 40, Evaluation: 4.6/5 Response Rate 83%

◊ Fall 2020, No of Students: 42, Evaluation: 4.8/5 Response Rate 83%

◊ Fall 2019, No. of Students: 36, Evaluation: 4.8/5 Response Rate 89%

◊ Fall 2018, No. of Students: 30, Evaluation: 5.0/5 Response Rate 73%

◊ Spring 2018, No. of Students: {47, 7, 9}, Evaluation: {4.7, 4.7, 4.3}/5 Response Rate {94%, 100%, 100%}

CS 5153/6053 Network Security

◊ Spring 2023, No. of Students: 35, Evaluation: 4.6/5 Response Rate 80%

◊ Spring 2022, No. of Students: 57, Evaluation: 4.7/5 Response Rate 68%

◊ Spring 2021, No. of Students: 61, Evaluation: 4.7/5 Response Rate 72%

◊ Spring 2020, No. of Students: 24, Evaluation: 4.7/5 Response Rate 79%

CS 8035 Advanced Topics in Data Security and Privacy

◊ Spring 2020, No. of Students: 13, Evaluation: 4.6/5 Response Rate 62%

◊ Spring 2019, No. of Students: 4, Evaluation: 5.0/5 Response Rate 100%

• Dept. of ECE, The University of Arizona

ECE 275 Computer Programming II, Teaching Assistant,

Spring 2016

PUBLICATIONS

Conference Papers (Names with underlines are/were students advised by Dr. Wang; names with * are/were undergrads)

1. Haipeng Li, Mabon Ninan*, **Boyang Wang**, John M. Emmert, “TinyPower: Side-Channel Attacks with Tiny Neural Networks,” IEEE International Symposium on Hardware Oriented Security and Trust (**IEEE HOST 2024**), Washington DC, May 5-9, 2024. (Acceptance rate: TBD) [Code & Datasets released]
2. Andrew Kosikowki*, Daniel Cho*, Mabon Ninan*, Anca Relascu, **Boyang Wang**, “EvilELF: Evasion Attacks on Deep-Learning Malware Detection over ELF Files,” IEEE 22nd International Conference on Machine Learning and Applications (ICMLA 2023), Jacksonville, FL, December 15–17, 2023. [Code & Datasets released]
3. Hemanth Gudaparthi, Nan Niu, **Boyang Wang**, Tanmay Bhowmik, Hui Liu, Jiangzhang Zhang, Juha Savolainen, Glen Horton, Sean Crow, Thomas Scherz and Lisa Haitz, “Prompting Creative Requirements via Traceable and Adversarial Examples in Deep Learning,” 31st IEEE International Requirements Engineering Conference (RE), Hannover, Germany, September 4–8, 2023.
4. Chenggang Wang, Mabon Ninan*, Shane Reilly*, Joel Ward*, William Hawkins, **Boyang Wang**, John M. Emmert, “Portability of Deep-Learning Side-Channel Attacks against Software Discrepancies,” ACM Conference on Security and Privacy in Wireless and Mobile Network (**ACM WiSec 2023**), Guildford, Surrey, United Kingdom, May 29 – June 01, 2023. (Acceptance rate: $34/134 = 25\%$) [Code & Datasets released]
5. Chenggang Wang, Jimmy Dani, Shane Reilly*, Austen Brownfield*, **Boyang Wang**, John

- M. Emmert, “TripletPower: Deep-Learning Side-Channel Attacks over Few Traces,” IEEE International Symposium on Hardware Oriented Security and Trust (**IEEE HOST 2023**), San Jose, May 1-5, 2023. (Acceptance rate: 29/110 = **26%**) [Code & Datasets released]
6. Kaustubh Gupta, Nirnimesh Ghose, **Boyang Wang**, “RADTEC: Re-authentication of IoT Devices with Machine Learning,” IEEE Consumer Communications and Networking Conference (**IEEE CCNC**), Las Vegas, NV, Jan. 08 - 11, 2023.
 7. Logan Reichling*, Ikran Warsame*, Shane Reilly*, Austen Brownfield*, Nan Niu, **Boyang Wang** “FaultHunter: Automatically Detecting Vulnerabilities in C against Fault Injection Attacks,” 2022 Symposium for Undergraduate Research in Data Science, Systems, and Security (**REU Symposium 2022**), Portland, Oregon, December 6-9, 2022. [Code & Datasets released]
 8. Hao Liu, Wenhai Sun, Nan Niu, and Boyang Wang “MultiEvasion: Evasion Attacks Against Multiple Malware Detectors,” The 10th IEEE Conference on Communication and Network Security (**IEEE CNS 2022**), Austin, TX, October 3–5, 2022. (Acceptance rate: 43/122 = **35%**) [Code & Datasets released]
 9. Haipeng Li, Kaustubh Gupta, Chenggang Wang, Nirnimesh Ghose, and **Boyang Wang** “RadioNet: Robust Deep-Learning Based Radio Fingerprinting,” The 10th IEEE Conference on Communication and Network Security (**IEEE CNS 2022**), Austin, TX, October 3–5, 2022. (Acceptance rate: 43/122 = **35%**) [Code & Datasets released]
 10. Hao Liu, Jimmy Dani, Hongkai Yu, Wenhai Sun, and Boyang Wang “AdvTraffic: Obfuscating Encrypted Traffic with Adversarial Examples,” The 30th IEEE/ACM International Symposium on Quality of Service (**IEEE/ACM IWQoS 2022**), Virtual, June 10–12, 2022. (Acceptance rate: 64/263 = **24%**) [Code & Datasets released]
 11. Haipeng Li, Nan Niu, and **Boyang Wang**, “Cache Shaping: An Effective Defense Against Cache-Based Website Fingerprinting,” The 12th ACM Conference on Data and Application Security and Privacy (**ACM CODASPY 2022**), Baltimore-Washington, April 24-26, 2022. [Code & Datasets released]
 12. Hemanth Gudaparth, Nan Niu, **Boyang Wang**, Juha Savolainen, “Reliability of Convolutional Neural Networks: Failure Metrics with Metamorphic Test Cases,” IEEE Conference on Information Reuse and Integration for Data Science (**IEEE IRI 2021**), Virtual, August 10-12, 2021. (Acceptance rate: **29%**)
 13. Jimmy Dani and **Boyang Wang**, “HiddenText: Cross-Trace Website Fingerprinting over Encrypted Traffic,” IEEE Conference on Information Reuse and Integration for Data Science (**IEEE IRI 2021**), Virtual, August 10-12, 2021. (Acceptance rate: **29%**)
 14. Chenggang Wang, Jimmy Dani, Xiang Li, Xiaodong Jia, and **Boyang Wang**, “Adaptive Fingerprinting: Website Fingerprinting over Few Encrypted Traffic,” The 11th ACM Conference on Data and Application Security and Privacy (**ACM CODASPY 2021**), Virtual, April 26-28, 2021. (Acceptance rate: 26/106=**25%**) [Code & Datasets released]
 15. Ben Niu, Yahong Chen, **Boyang Wang**, Zhibo Wang, Fenghua Li and Jin Cao, “AdaPDP: Adaptive Personalized Differential Privacy,” IEEE International Conference on Computer Communications (**IEEE INFOCOM**), Virtual, May 10-13, 2021. (Acceptance rate: 252/1,266 = **20%**).
 16. Haipeng Li, Ben Niu and **Boyang Wang**, “SmartSwitch: Efficient Traffic Obfuscation against Stream Fingerprinting,” International Conference on Security and Privacy in Communication Networks (**SecureComm 2020**), Virtual, October 21-23, 2020. (Acceptance rate: 27/74=**36%**, **best paper award runner-up**). [Code & Datasets released]
 17. Yanjun Pan, Alon Efrat, Ming Li, **Boyang Wang**, Hanyu Quan, Joseph Mitchell, Esther Arkin, and Jie Gao, “Data Inference from Encrypted Databases: A Multi-dimensional Order-Preserving Matching Approach,” International Symposium on Theory, Algorithmic Founda-

- tions, and Protocol Design for Mobile Networks and Mobile Computing (**ACM Mobihoc 2020**), Virtual, October 11-14, 2020. (Acceptance rate: 30/196=15%)
18. Chenggang Wang, Sean Kennedy, Haipeng Li, King Hudson*, Gowtham Atluri, Xuetao Wei, Wenhai Sun, and **Boyang Wang**, “Fingerprinting Encrypted Voice Traffic on Smart Speakers with Deep Learning,” ACM Conference on Security and Privacy in Wireless and Mobile Network (**ACM WiSec 2020**), Virtual, July 8-10, 2020. (Acceptance rate: 27/104=26%) (The first two authors contribute equally in this paper) [Code & Datasets released]
 19. Ben Niu, Yahong Chen, **Boyang Wang**, Jin Cao, and Fenghua Li, “Utility-aware Exponential Mechanism for Personalized Differential Privacy,” in Proceedings of the 2020 IEEE Wireless Communications and Networking Conference (**IEEE WCNC 2020**), Seoul, South Korea, April 6–9, 2020. (Acceptance rate: 400/1,093=37%)
 20. Xuetao Wei, Can Lu, Fatma Rana Ozcan, Ting Chen, **Boyang Wang**, Di Wu and Qiang Tang, “A Behavior-Aware Profiling of Smart Contracts,” in Proceedings of International Conference on Security and Privacy in Communication Networks (**SecureComm 2019**), Orlando, FL, October 23–25, 2019. (Acceptance rate: 56/149=38%)
 21. Sean Kennedy, Haipeng Li, Chenggang Wang, Hao Liu, **Boyang Wang** and Wenhai Sun, “I Can Hear Your Alexa: Voice Command Fingerprinting on Smart Home Speakers,” in Proceedings of IEEE Conference on Communication and Security Networks (**IEEE CNS 2019**), Washington D.C., June 10-12, 2019 (Acceptance rate: 32/112=28%; The first three authors contribute equally in this paper.) [Code & Datasets released]
 22. Hao Liu, **Boyang Wang**, Nan Niu, Shomir Wilson and Xuetao Wei, “Vaccine: Obfuscating Access Pattern Against File-Injection Attacks,” in Proceedings of IEEE Conference on Communication and Security Networks (**IEEE CNS 2019**), Washington D.C., June 10-12, 2019 (Acceptance rate: 32/112=28%) [Code & Datasets released]
 23. Hanyu Quan, Hao Liu, **Boyang Wang**, Ming Li and Yuqing Zhang, “Randex: Mitigating Range Injection Attacks on Searchable Encryption,” in Proceedings of IEEE Conference on Communication and Security Networks (**IEEE CNS 2019**), Washington D.C., June 10-12, 2019 (Acceptance rate: 32/112=28%)
 24. **Boyang Wang** and Xinxin Fan, “Lightweight Verification for Searchable Encryption,” the Proceedings of the 17th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (**IEEE TrustCom 2018**), New York, NY, August, 2018
 25. Boris Aronov, Alon Efrat, Ming Li, Jie Gao, Joseph S. B. Mitchell, Valentin Polishchuk, **Boyang Wang**, Hanyu Quan and Jiaxin Ding, “Are Friends of My Friends Too Social? Limitations of Location Privacy in a Socially-Connected World,” in the Proceedings of the 19th International Symposium on Mobile Ad Hoc Networking and Computing (**MobiHoc 2018**), Los Angeles, CA, June, 2018 (Acceptance rate: 30/178=17%).
 26. Hanyu Quan, **Boyang Wang**, Iraklis Leontiadis, Ming Li and Yuqing Zhang, “SecReach: Secure Reachability Computation on Encrypted Location Check-in Data,” in the Proceedings of the 15th International Conference on Cryptology and Network Security (**CANS 2016**), Milan, Italy, November, 2016 (Acceptance rate: 30/116=26%).
 27. **Boyang Wang**, Yantian Hou, and Ming Li, “Practical and Secure Nearest Neighbor Search on Encrypted Large-Scale Data,” in Proceedings of the 35th IEEE International Conference on Computer Communications (**IEEE INFOCOM 2016**), pp.1-9, San Francisco, California, April 10-15, 2016 (Acceptance rate: 300/1644=18%).
 28. **Boyang Wang**, Ming Li, Haitao Wang and Hui Li, “Circular Range Search on Encrypted Spatial Data,” in Proceedings of the 3rd IEEE Conference on Communication and Security Networks (**IEEE CNS 2015**), pp.182-190, Florence, Italy, September 28-30, 2015 (Acceptance rate: 48/171=28%).

29. **Boyang Wang**, Ming Li, Sherman S.M. Chow and Hui Li, “A Tale of Two Clouds: Computing on Data Encrypted under Multiple Keys,” in Proceedings of the 2nd IEEE Conference on Communication and Security Networks (**IEEE CNS 2014**), pp.337-345, San Francisco, California, October 29-31, 2014 (Acceptance rate: 38/130=**29%**).
30. **Boyang Wang**, Yantian Hou, Ming Li, Haitao Wang, Hui Li and Fenghua Li, “Tree-based Multi-Dimensional Range Search on Encrypted Data with Enhanced Privacy,” in Proceedings of the 10th International Conference on Security and Privacy in Communication Networks (**SecureComm 2014**), pp.374-394, Beijing, China, September 24-26, 2014. (Acceptance rate: **28%**).
31. **Boyang Wang**, Yantian Hou, Ming Li, Haitao Wang and Hui Li, “Maple: Scalable Multi-Dimensional Range Search over Encrypted Cloud Data with Tree-based Index,” in Proceedings of the 9th ACM Symposium on Information, Computer and Communication Security (**ACM ASIACCS 2014**), pp.111-122, Kyoto, Japan, June 3-6, 2014 (Acceptance rate: 52/260=**20%**).
32. **Boyang Wang**, Baochun Li, Hui Li and Fenghua Li, “Certificateless Public Auditing for Data integrity in the Cloud,” in Proceedings of the First IEEE Conference on Communications and Network Security (**IEEE CNS 2013**), pp.276-284, Washington D.C., October 14-16, 2013 (Acceptance rate: 40/141=**28%**).
33. **Boyang Wang**, Sherman S.M. Chow, Ming Li and Hui Li, “Storing Shared Data on the Cloud via Security-Mediator,” in Proceedings of the 33rd International Conference on Distributed Computing Systems (**ICDCS 2013**), pp.124-133, Philadelphia, Pennsylvania, July 8-11, 2013 (Acceptance rate: 61/464=**13%**).
34. **Boyang Wang**, Hui Li and Ming Li, “Privacy-Preserving Public Auditing for Shared Cloud Data Supporting Group Dynamics,” in Proceedings of the IEEE International Conference on Communications (IEEE ICC 2013), pp.539-543, Budapest, Hungary, June 9-13, 2013.
35. **Boyang Wang**, Baochun Li and Hui Li, “Public Auditing for Shared Data with Efficient User Revocation in the Cloud,” in Proceedings of the 32nd IEEE International Conference on Computer Communications (**IEEE INFOCOM 2013**), pp.2904-2912, Turin, Italy, April 14-19, 2013 (Acceptance rate: 280/1613=**17%**).
36. **Boyang Wang**, Baochun Li and Hui Li, “Gmatch: Secure and Privacy-Preserving Group Matching in Social Networks,” in Proceedings of the IEEE Globecom 2012, pp.744-749, Anaheim, California, December 3-7, 2012.
37. **Boyang Wang**, Baochun Li and Hui Li, “Knox: Privacy-Preserving Auditing for Shared Data with Large Groups in the Cloud,” in Proceedings of the 10th International Conference on Applied Cryptography and Network Security (**ACNS 2012**), pp.507-525, Singapore, June 26-29, 2012 (Acceptance rate: 33/192=**17%**).
38. **Boyang Wang**, Baochun Li and Hui Li, “Oruta: Privacy-Preserving Public Auditing for Shared Data in the Cloud,” in Proceedings of the 5th IEEE International Conference on Cloud Computing (**IEEE Cloud 2012**), pp.295–302, Honolulu, Hawaii, June 24-29, 2012 (Acceptance rate: 48/282=**17%**).

Journal Papers

1. Hanyu Quan, **Boyang Wang**, Ming Li, Iraklis Leontiadis, “FastReach: A System for Privacy-Preserving Reachability Queries over Location Data,” **Computer & Security**, Elsevier, accepted, 2023.
2. **Boyang Wang**, Yantian Hou and Ming Li, “QuickN: Practical and Secure Nearest Neighbor Search on Encrypted Large-Scale Data,” **IEEE Transactions on Cloud Computing (TCC)**, accepted, 2020 (the full version of INFOCOM’16 paper) Impact Factor: 4.85
3. Ben Niu, Yahong Chen, Zhibo Wang, Fenghua Li, **Boyang Wang** and Hui Li, “Eclipse: Preserving Differential Location Privacy Against Long-Term Observation Attacks,” **IEEE**

- Transactions on Mobile Computing (TMC)**, 21(1), pp.125-138, 2022. Impact Factor: 5.11
4. **Boyang Wang**, Ming Li and Li Xiong, “FastGeo: Efficient Geometric Range Queries on Encrypted Spatial Data,” **IEEE Transactions on Dependable and Secure Computing (TDSC)**, 16(2), pp.245-258, 2019. Impact Factor: 6.04
 5. Hanyu Quan **Boyang Wang**, Yuqing Zhang and Gaofei Wu, “Efficient and Secure Top-k Queries with Top Order-Preserving Encryption,” **IEEE Access**, Volume 6, pp.525-540, 2018. Impact Factor: 3.37
 6. **Boyang Wang** and Xinxin Fan, “Search Ranges Efficiently and Compatibly as Keywords over Encrypted Data,” **IEEE Transactions on Dependable and Secure Computing (TDSC)**, 15(6), pp.1027-1040, 2018. Impact Factor: 6.04
 7. Shuo Qiu, **Boyang Wang**, Ming Li, Jiqiang Liu and Yanfeng Shi, “Toward Practical Privacy-Preserving Frequent Itemset Mining on Encrypted Cloud Data,” **IEEE Transactions on Cloud Computing (TCC)**, 8(1), pp.312-323, 2017. Impact Factor: 4.85
 8. **Boyang Wang**, Ming Li and Haitao Wang, “Geometric Range Search on Encrypted Spatial Data,” **IEEE Transactions on Information Forensics and Security (TIFS)**, 11(4), pp.704-719, 2016. Impact Factor: 6.21
 9. Yong Yu, Jiangbing Ni, Man Ho Au, Yi Mu, **Boyang Wang** and Hui Li, “Comments on a Public Auditing Mechanism for Shared Cloud Data Service,” **IEEE Transactions on Services Computing (TSC)**, 8(6), pp.998-999, 2015. Impact Factor: 8.21
 10. **Boyang Wang**, Baochun Li and Hui Li, “Panda: Public Auditing for Shared Data with Efficient User Revocation in the Cloud,” **IEEE Transactions on Services Computing (TSC)**, 8(1), pp.92-106, 2015. (The full version of INFOCOM’13 paper.) Impact Factor: 8.21
 11. **Boyang Wang**, Hui Li, Xuefeng Liu, Fenghua Li and Xiaoqing Li, “Efficient Public Verification on the Integrity of Multi-Owner Data in the Cloud,” **IEEE Journal of Communication and Networks (JCN)**, 16(6), pp.592-599, 2014. Impact Factor: 5.14
 12. **Boyang Wang**, Hui Li, Xuefeng Liu, Xiaoqing Li and Fenghua Li, “Preserving Identity Privacy on Multi-Owner Cloud Data during Public Verification,” *Security and Communication Networks (SCN)*, 7(11), pp.2104-2113, Wiley, 2014. Impact Factor: 1.79
 13. **Boyang Wang**, Baochun Li and Hui Li, “Oruta: Privacy-Preserving Public Auditing for Shared Data in the Cloud,” **IEEE Transactions on Cloud Computing (TCC)**, 1(2), pp.43-56, 2014. (The full version of Cloud’12 paper.) Impact Factor: 4.85
 14. Xuefeng Liu, Yuqing Zhang, **Boyang Wang** and Huaqun Wang, “An Anonymous Data Aggregation Scheme for Smart Grid Systems,” *Security and Communication Networks (SCN)*, 7(3), pp.602-610, Wiley, 2014. Impact Factor: 1.79
 15. Xuefeng Liu, Yuqing Zhang, **Boyang Wang** and Jingbo Yan, “Mona: Secure Multi-Owner Data Sharing for Dynamic Groups in the Cloud,” **IEEE Transactions on Parallel and Distributed Systems (TPDS)**, 24(6), pp.1182-1191, 2013. Impact Factor: 4.18
 16. **Boyang Wang**, Hui Li and Jin Cao, “An Efficient Homomorphic MAC Scheme for Secure Network Coding with Probabilistic Detection,” *Frontier of Computer Science*, 6(4), pp.429-441, Springer, 2012. Impact Factor: 1.06

Workshop Papers and Posters (Names with underlines are students advised by Dr. Wang)

1. Haipeng Li, Chenggang Wang, Nirnimesh Ghose, **Boyang Wang**, “POSTER: Robust Deep-learning-based Radio Fingerprinting with Fine-Tuning,” *ACM Conference on Security and Privacy in Wireless and Mobile Network (ACM WiSec 2021)*, Virtual, June, 2021. [Code & Datasets released]

2. Siqin Fang, Sean Kennedy, Chenggang Wang, **Boyang Wang**, Qingqi Pei, and Xuefeng Liu, “Sparsr: Secure Nearest Neighbor Search with Space-filling Curves,” The Eighth International Workshop on Security and Privacy in Big Data (BigSecurity 2020), July 6, Toronto, Canada.
3. Chenggang Wang, **Boyang Wang** and Xinxin Fan, “EcoBoost: Efficient Bootstrapping for Confidential Transactions,” IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2020), May 3-6, 2020, Toronto, Canada.
4. Hao Liu, and **Boyang Wang**, “Mitigating File-Injection Attacks with Natural Language Processing,” in Proceedings of the Sixth International Work-shop on Security and Privacy Analytics (IWSPA’20), March 18, 2020, New Orleans, LA.
5. Shuo Qiu, **Boyang Wang**, Ming Li, Jesse Victors, Jiqiang Liu, Yanfeng Shi and Wei Wang, “Fast, Private and Verifiable: Server-aided Approximate Similarity Computation over Large-Scale Datasets,” in Proceedings of the 4th International Workshop on Security in Cloud Computing (SCC in conjunction with ACM ASIACCS 2016).
6. **Boyang Wang**, Ming Li, Haitao Wang, and Hui Li “Circular Range Search on Encrypted Spatial Data,” in Proceedings of the 35th IEEE International Conference on Distributed Computing Systems (ICDCS 2015), two-page poster.
7. **Boyang Wang**, Ming Li, Sherman S. M. Chow, and Hui Li, “Computing Encrypted Cloud Data Efficiently under Multiple Keys,” in Proceedings of the 4th International Workshop on Security and Privacy in Cloud Computing (SPCC in conjunction with IEEE CNS 2013).

Patents

1. Xinxin Fan and **Boyang Wang**, “Method and System for Range Search on Encrypted Data,” U.S. Patent (Patent No. US9971904B2, Granted).
2. Xinxin Fan and **Boyang Wang**, “Method and System for Verifiable Searchable Symmetric Encryption,” U.S. Patent (Patent No. US9977918B2, Granted)

INVITED TALKS

- ◇ “*RHEST: Summer Research Opportunities for Undergrads at University of Cincinnati*,” IEEE/ACM Chapter, Ohio Northern University, November, 2023.
- ◇ “*Deep-Learning Side-Channel Attacks*,” Research Seminar, Ansys, November, 2023.
- ◇ “*Deep-Learning Side-Channel Attacks*,” Graduate Seminar, Department of Electrical and Computer Engineering, University of Louisville, September, 2023.
- ◇ “*Adaptive Fingerprinting: Fingerprinting over Few Encrypted Traffic*,” Seminar, Department of Computer Science, University of Dayton, September, 2022.
- ◇ “*Encrypted Traffic Analysis with AI*,” Ohio Information Security Conference, March 2021
- ◇ “*Fingerprinting on Encrypted Voice Traffic on Smart Speakers with Deep Learning*,” Ohio Information Security Conference, March 2020
- ◇ “*Encrypted Traffic Analysis with Machine Learning*,” Cincinnati Machine Learning Meetups, February 2020
- ◇ “*Fingerprinting Encrypted Voice Commands on Smart Speakers*,” Purdue CERIAS Seminar, December 2019
- ◇ “*Secure Search on Encrypted Data*,” U.S. Air Force Science and Technology 2030 Workshop, May 2018

STUDENT SUPERVISION

Current Ph.D. Students

- ◇ Logan Reichling, August 2023 – present
 - ◇ EAI Smart SP’23 Student Travel Grant

Current Undergraduate Students

- ◇ Mabon Ninan, Class of 2024, August 2022 – Present
 - ◇ Sponsored by CEAS Research Co-op
 - ◇ UC Undergrad Research Fellowship (\$700), 2023
- ◇ Ryan Evans (co-advise with Dr. Will Hawkins), Class of 2024, May 2023 – Present
 - ◇ Sponsored by NSF Supplement & NSF RHEST
 - ◇ Recipient of NSF RHEST 2023 Best Research Poster Award
- ◇ Guillermo Rached (co-advise with Dr. Nan Niu), Class of 2025, May 2023 – Present
 - ◇ Sponsored by NSF Supplement & NSF RHEST
 - ◇ Recipient of NSF CyberCorps Scholar for Service Fellowship
- ◇ Prateek Kharangate, Class of 2024, August 2023 – Present
 - ◇ Sponsored by CEAS Research Co-op

Alumni

- ◇ Haipeng Li, August 2018 – May 2023
 - ◇ CNS'22, CODASPY'22, SecureComm'20
 - ◇ Robert J. Herold Fellowship 2022
 - ◇ IEEE CNS Travel Grant (sponsored by NSF), 2022
 - ◇ Research Intern at Amazon, May – August, 2022, 2021
 - ◇ SecureComm'20 best paper award runner-up, 2020
 - ◇ Dissertation Title: “*AI-based Fingerprinting over Stream, Cache and RF Signals*”
 - ◇ First Employment: Research Scientist, Amazon, Palo Alto, CA
- ◇ Chenggang Wang, August 2018 – December 2022
 - ◇ Outstanding Ph.D. Dissertation Award, Dept. of ECE, University of Cincinnati, 2023
 - ◇ CODASPY'21, WiSec'20, CNS'19
 - ◇ IEEE CNS Travel Grant (sponsored by NSF), 2022, 2019
 - ◇ Research Intern at Amazon, May – August, 2021
 - ◇ UC GSGA Research Fellowship, 2020
 - ◇ Dissertation Title: “*Towards Robust Side-Channel Attacks with Machine Learning*”
 - ◇ First Employment: Assistant Professor (tenure-track), Department of Computer Science, Auburn University at Montgomery, Montgomery, AL.
- ◇ Hao Liu, January 2018 – August 2022
 - ◇ CNS'22, IWQoS'22, CNS'19
 - ◇ Research Intern at Amazon, May – August, 2021
 - ◇ UC GSGA Research Fellowship, 2019
 - ◇ IEEE CNS Travel Grant (sponsored by NSF), 2019
 - ◇ Dissertation Title: “*Towards Real-World Adversarial Examples in AI-Driven Cybersecurity*”
 - ◇ First Employment: Research Scientist, Amazon, San Diego, CA
- ◇ Jimmy Dani, Ph.D. student, January 2020 – December 2021
 - ◇ IRI'19
 - ◇ Transferred to Texas A&M
- ◇ Jiafeng Hua, Visiting PhD Student from Xidian University, November 2018 – March 2020
- ◇ Rohit Nair, August 2020 – July 2022
 - ◇ MS Thesis Title: “*Defending against Adversarial Malware*”
 - ◇ First Employment: Unknown
- ◇ Sana Rajani, M.S. August 2019 – December 2021
 - ◇ MS Thesis Title: “*Detecting Adversarial Texts in AI Systems*”
 - ◇ First Employment: Data Scientist, SailPoint Technologies, Austin, TX

- ◇ Avinash Nukala, M.S. April 2019 – July 2021
 - ◇ MS Thesis Title: “*Website Cryptojacking Detection Using Machine Learning*”
 - ◇ First Employment: Data Engineer, FIS Global, Cincinnati, OH
- ◇ Shriti Naraparaju, M.S. January 2018 – April 2020
 - ◇ MS Thesis Title: “*Fingerprinting Skills on Smart Speakers using Machine Learning*”
 - ◇ First Employment: Software Engineer, Amazon, Seattle, WA
- ◇ Sean Kennedy, M.S. January 2018 – August 2019
 - ◇ IEEE CNS Travel Grant (sponsored by NSF), 2019
 - ◇ MS Thesis Title: “*Encrypted Traffic Analysis on Smart Speakers with Deep Learning*”
 - ◇ First Employment: AI Engineer, Leidos, Dayton, OH
 - ◇ Current Employment: AI Research Scientist, AFRL, Dayton, OH & Ph.D. student at UW Madison, WI
- ◇ Shane Reilly, UC, Class of 2023, May 2021 – May 2023,
 - ◇ UC Undergrad Research Fellowship (\$700), 2021
- ◇ Austen Brownfield, UC, Class of 2022, September 2021 – April 2022
- ◇ Jacob Hemmerle, UC, Class of 2022, August 2021 – December 2021
- ◇ Patrick Brophy, UC, Class of 2025, January 2022 – April 2022, transferred to UW Madison
- ◇ King Hudson, UC, Class of 2023, May 2019 – July 2019, NSF LSAMP program
- ◇ Channing Smith, College of Charleston (SC), Class of 2024, May 2022 – July 2022
- ◇ Joel Ward, Cedarville University (OH), Class of 2025, May 2022 – July 2022
- ◇ Jacob Humble, University of Dallas, Class of 2023, May 2022 – July 2022
- ◇ Logan Reichling, Ohio Northern University, Class of 2023, May 2022 – July 2022
- ◇ Ikran Warsame, UC, Class of 2026, May 2022 – July 2022, NSF LSAMP program
- ◇ Andrew Kosikowki, Rose-Hulman Institute of Technology (IN), Class of 2024, May 2023 – July 2023
- ◇ Daniel (Jun) Cho, Hamilton College (NY), Class of 2025, May 2023 – July 2023
- ◇ Evan Nimmo, UC, Class of 2025, May 2023 – July 2023
- ◇ Harris Musungu, Ashland University (OH), Class of 2026, May 2023 – July 2023
- ◇ Nyla Williams, UC BlueAsh, Class of 2027, May 2023 – July 2023

Ph.D. Dissertation Committee Member

- ◇ Suriya Srinivasan (Chair: Dr. Ranga Vemuri)
- ◇ Hemanth Gudaparthi (Chair: Dr. Nan Niu, graduated in 2023)
- ◇ Zedong Peng (Chair: Dr. Nan Niu, graduated in 2023)
- ◇ Mona Assarandarban (Chair: Dr. Nan Niu)
- ◇ Eshaan Khanapuri (Chair: Dr. Rajnikant Sharma, Mechanical Engineering, graduated in 2022)
- ◇ Ademola Ikusan (Chair: Dr. Rui (April) Dai, graduated in 2022)
- ◇ Tyler Westland (Chairs: Drs. Rashmi Jha and Nan Niu, graduated in 2022)
- ◇ Vibhor Pandhare (Chair: Dr. Jay Lee, Mechanical Engineering, graduated in 2021)
- ◇ Nawar Obeidat (Chair: Dr. Carla Purdy, graduated in 2021)
- ◇ Wentao Wang (Chair: Dr. Nan Niu, graduated in 2019)
- ◇ Xiaobao Zhu (Chair: Dr. Jing Shi, Mechanical Engineering, graduated in 2019)

M.S. Thesis Committee Member

- ◇ Erin Cold (Chair: Dr. Ranga Vemuri, graduated in 2023)
- ◇ Bencheng Su (Chair: Dr. Seokki Lee, graduated in 2022)

- ◇ Moustafa Fall (Chairs: Drs. Carla Purdy and Massoud Rabiee, graduated in 2021)
- ◇ Kristian Synder (Chair: Dr. Rashmi Jha, graduated in 2020)
- ◇ Kendrick Li (Chair: Dr. Gowtham Atluri, graduated in 2020)
- ◇ Arushi Gupta (Chair: Dr. Nan Niu, graduated in 2019)
- ◇ Rana Ozcan (Chair: Dr. Xuetao Wei, School of IT, graduated in 2019)
- ◇ Hedge Suprabha (Chair: Dr. George Purdy, graduated in 2018)
- ◇ Devisha Srivastava (Chair: Dr. George Purdy, graduated in 2018)

EDUCATION
OUTREACH

- ◇ RET Mentor, Benjamin Dougherty, Lakota High School, Cincinnati, OH, Summer 2023.
- ◇ Instructor, ECE Summer Camp 2023
- ◇ Instructor, EECS Cyber Summer School 2022
- ◇ Instructor, EECS Summer Camp 2022
- ◇ Project Co-Advisor, “*Secure Software Development*” Summer 2021 NSF RET Site (Advisor: Dr. Nan Niu)
- ◇ Project Co-Advisor, “*Secure Software Development*” Summer 2019 NSF RET Site (Advisor: Dr. Nan Niu)

PROFESSIONAL
SERVICES

National Science Foundation

- ◇ NSF Panelist, 2024, 2023

University of Cincinnati

- ◇ Program Director, Undergrad Program in Cybersecurity Engineering, ECE Department, 2021 - present
- ◇ Technical Advisor, Undergrad Certificate in Cyber Operations, ECE Department, 2019 - present

Organizing Committee

- ◇ Web Co-Chair, International Conference on Computer Communications (INFOCOM), 2024, 2025
- ◇ Poster Chair, IEEE International Conference on Communication and Network Security (CNS), 2020

Technical Program Committee

- ◇ IEEE International Conference on Computer Communications (INFOCOM), 2024, 2023, 2022, 2021, 2020, 2019
- ◇ IEEE International Conference on Communication and Network Security (CNS), 2023
- ◇ IEEE International Conference on Communications (ICC), 2024, 2023, 2022, 2021, 2020, 2019, 2018
- ◇ IEEE Consumer Communications and Networking Conference (CCNC), 2024, 2023, 2022, 2021
- ◇ The International Conference on Information and Communication Security (ICICS), 2023, 2018
- ◇ IEEE International Conference on Computer Communications and Networks (ICCCN), 2019, 2018
- ◇ The National Workshop for REU Research in Networking and Systems (REUNS) 2023, 2022
- ◇ Symposium for Undergraduate Research in Data Science, Systems, and Security (REU Symposium), 2023, 2022

Session Chairs

- ◇ International Conference on Security and Privacy in Communication Networks (SecureComm), 2019
- ◇ IEEE International Conference on Communications (ICC), 2018

Editorial Board

- ◇ International Journal of Multimedia Intelligence and Security (IJMIS), 2018 – 2019

Journal Reviewers

- ◇ IEEE Access
- ◇ IEEE Internet of Things Journal
- ◇ IEEE Journal on Selected Areas in Communications (JSAC)
- ◇ IEEE Transactions on Cloud Computing (TCC)
- ◇ IEEE Transactions on Computers (TC)
- ◇ IEEE Transactions on Dependable and Secure Computing (TDSC)
- ◇ IEEE Transactions on Information Forensics and Security (TIFS)
- ◇ IEEE Transactions on Industrial Informatics (TII)
- ◇ IEEE Transactions on Knowledge and Data Engineering (TKDE)
- ◇ IEEE Transactions on Mobile Computing (TMC)
- ◇ IEEE Transactions on Parallel and Distributed Systems (TPDS)
- ◇ IEEE Transactions on Wireless Communications (TWC)
- ◇ IEEE Transactions on Services Computing (TSC)
- ◇ IEEE Transactions on Vehicular Technology (TVT)
- ◇ IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)
- ◇ IEEE Wireless Communication Letters (WCL)
- ◇ IEEE/KICS Journal of Communications and Networks (JCN)
- ◇ IET Information Security
- ◇ International Journal of Communication Systems, Wiley
- ◇ Information Sciences, Elsevier
- ◇ KII Transactions on Internet and Information Systems
- ◇ Journal of Network and Computer Applications, Elsevier
- ◇ Journal of Network and Systems Management, Springer
- ◇ Pervasive and Mobile Computing, Elsevier
- ◇ Security and Communication Networks (SCN), Wiley

Conference Reviewers

- ◇ ACM Conference on Computer and Communications Security (CCS)
- ◇ ACM Symposium on Information, Computer and Communications Security (ASIACCS)
- ◇ IEEE International Conference on Computer Communications (INFOCOM)
- ◇ IEEE International Conference on Communications (ICC)
- ◇ IEEE International Conference on Communication and Network Security (CNS)
- ◇ IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS)