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University of Padua - MSc in Cybersecurity
Advanced Topics in Computer and Network Security
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Lecturer: *Mauro Conti*

Topics

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The topic covers the following macro areas:

- **Android:** security in mobile.
- **Blockchain:** security in blockchain.
- **CPS:** security on Cyber-Physical Systems such as Industrial Control Systems, Vehicular Networks, Internet of Things, and so on.
- **ICN:** security on network paradigms, such as Information-centric networking and Named Data Networking.
- **Malware Detection:** strategies to detect malware.
- **MLS:** Machine Learning for Security.
- **Social Networks:** security and privacy on social networks.
- **Software Security:** security of software and techniques of analysis such as fuzzing or reverse engineering.
- **5G Security:** security of 5G technology and other novel telecommunication systems.
- **MISC:** Other popular cyber-security topics.

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Topic 1 (Android): Android Virtualization Technique

Primary:

- Shi, L., Fu, J., Guo, Z., & Ming, J. (2019, June). "Jekyll and Hyde" is Risky: Shared-Everything Threat Mitigation in Dual-Instance Apps. In Proceedings of the 17th Annual International Conference on Mobile Systems, Applications, and Services (pp. 222-235).

Secondary:

- Zhang, L., Yang, Z., He, Y., Li, M., Yang, S., Yang, M., ... & Qian, Z. (2019). App in the middle: Demystify application virtualization in Android and its security threats. Proceedings of the ACM on Measurement and Analysis of Computing Systems, 3(1), 1-24.
- Luo, T., Zheng, C., Xu, Z., & Ouyang, X. (2017). Anti-plugin: Don't let your app play as an Android plugin. Proceedings of Blackhat Asia.
- Dai, D., Li, R., Tang, J., Davanian, A., & Yin, H. (2020, June). Parallel Space Traveling: A Security Analysis of App-Level Virtualization in Android. In Proceedings of the 25th ACM Symposium on Access Control Models and Technologies (pp. 25-32).

Topic 2 (Android): Security and Privacy Vulnerabilities Detection in Android Apps

Primary:

- Nguyen, D. C., Wermke, D., Acar, Y., Backes, M., Weir, C., & Fahl, S. (2017, October). A stitch in time: Supporting android developers in writing secure code. In Proceedings of the 2017 ACM SIGSAC Conference on Computer and Communications Security (pp. 1065-1077).

Secondary:

- Portokalidis, G., Homburg, P., Anagnostakis, K., & Bos, H. (2010, December). Paranoid android: versatile protection for smartphones. In Proceedings of the 26th annual computer security applications conference (pp. 347-356).
- Qian, C., Luo, X., Le, Y., & Gu, G. (2015). Vulhunter: toward discovering vulnerabilities in android applications. IEEE Micro, 35(1), 44-53.
- Ghafari, M., Gadiant, P., & Nierstrasz, O. (2017, September). Security smells in android. In 2017 IEEE 17th international working conference on source code analysis and manipulation (SCAM) (pp. 121-130). IEEE.

Topic 3 (Android): Taint Analysis

Primary:

- Enck, W., Gilbert, P., Han, S., Tendulkar, V., Chun, B. G., Cox, L. P., ... & Sheth, A. N. (2014). Taintdroid: an information-flow tracking system for realtime privacy monitoring on smartphones. ACM Transactions on Computer Systems (TOCS), 32(2), 1-29.

Secondary:

- Wei, F., Roy, S., & Ou, X. (2014, November). Amandroid: A precise and general inter-component data flow analysis framework for security vetting of android apps. In

Proceedings of the 2014 ACM SIGSAC conference on computer and communications security (pp. 1329-1341).

- Arzt, S., Rasthofer, S., Fritz, C., Bodden, E., Bartel, A., Klein, J., ... & McDaniel, P. (2014). Flowdroid: Precise context, flow, field, object-sensitive and lifecycle-aware taint analysis for android apps. *Acm Sigplan Notices*, 49(6), 259-269.
- Sun, M., Wei, T., & Lui, J. C. (2016, October). Taintart: A practical multi-level information-flow tracking system for android runtime. In *Proceedings of the 2016 ACM SIGSAC Conference on Computer and Communications Security* (pp. 331-342).

Topic 4 (Blockchain): Distributed key management systems in blockchains

Primary:

- de Ree, M., Mantas, G., Rodriguez, J., Otung, I. E., & Verikoukis, C. (2021). DISTANT: DISTRibuted Trusted Authority-based key management for beyond 5G wireless mobile small cells. *Computer Communications*.

Secondary:

- Pal, O., Alam, B., Thakur, V., & Singh, S. (2019). Key management for blockchain technology. *ICT Express*.
- Matsumoto, S., & Reischuk, R. M. (2017, May). IKP: Turning a PKI around with decentralized automated incentives. In *2017 IEEE Symposium on Security and Privacy (SP)* (pp. 410-426). IEEE.

Topic 5 (Blockchain): Isogeny-based cryptography for PKI in blockchains

Primary:

- Fernández-Carames, T. M., & Fraga-Lamas, P. (2020). Towards post-quantum blockchain: A review on blockchain cryptography resistant to quantum computing attacks. *IEEE access*, 8, 21091-21116.

Secondary:

- de Kock, B., Gjøsteen, K., & Veroni, M. (2020). Practical Isogeny-Based Key-exchange with Optimal Tightness. *IACR Cryptol. ePrint Arch.*, 2020, 1165.

Topic 6 (Blockchain): Task offloading in mobile blockchains

Primary:

- Xiao, K., Gao, Z., Shi, W., Qiu, X., Yang, Y., & Rui, L. (2020). EdgeABC: An architecture for task offloading and resource allocation in the Internet of Things. *Future Generation Computer Systems*, 107, 498-508.

Secondary:

- Dou, W., Tang, W., Liu, B., Xu, X., & Ni, Q. (2020). Blockchain-based Mobility-aware Offloading mechanism for Fog computing services. *Computer Communications*, 164, 261-273.

Topic 7 (Blockchain): Distributed oracle networks truth discovery

Primary:

- Adler, J., Berryhill, R., Veneris, A., Poulos, Z., Veira, N., & Kastania, A. (2018, July). Astraea: A decentralized blockchain oracle. In *2018 IEEE international conference on internet of things (IThings) and IEEE green computing and communications (GreenCom) and IEEE cyber, physical and social computing (CPSCoM) and IEEE smart data (SmartData)* (pp. 1145-1152). IEEE.

Secondary:

- Peterson, J., & Krug, J. (2015). Augur: a decentralized, open-source platform for

prediction markets. arXiv preprint arXiv:1501.01042.

- Nelaturu, K., Adler, J., Merlini, M., Berryhill, R., Veira, N., Poulos, Z., & Veneris, A. (2020). On public crowdsourcing-based mechanisms for a decentralized blockchain oracle. *IEEE Transactions on Engineering Management*, 67(4), 1444-1458.

Topic 8 (Blockchain): Intergration of Federated learning and Blockchain for data sharing

Primary:

- Mothukuri, V., Khare, P., Parizi, R. M., Pouriyeh, S., Dehghantanha, A., & Srivastava, G. (2021). Federated Learning-based Anomaly Detection for IoT Security Attacks. *IEEE Internet of Things Journal*.

Secondary:

- Briggs, C., Fan, Z., & Andras, P. (2021). A review of privacy-preserving federated learning for the Internet-of-Things. *Federated Learning Systems*, 21-50.
- Popoola, S. I., Ande, R., Adebisi, B., Gui, G., Hammoudeh, M., & Jogunola, O. (2021). Federated Deep Learning for Zero-Day Botnet Attack Detection in IoT Edge Devices. *IEEE Internet of Things Journal*.

Topic 9 (CPS): Anomaly Detection in Industrial Systems

Primary:

- Kus, D., Wagner, E., Pennekamp, J., Wolsing, K., Fink, I. B., Dahlmanns, M., ... & Henze, M. (2022, May). A False Sense of Security? Revisiting the State of Machine Learning-Based Industrial Intrusion Detection. In *Proceedings of the 8th ACM on Cyber-Physical System Security Workshop* (pp. 73-84).

Secondary:

- Wolsing, K., Thiemt, L., Sloun, C. V., Wagner, E., Wehrle, K., & Henze, M. (2022). Can Industrial Intrusion Detection Be SIMPLE?. In *European Symposium on Research in Computer Security* (pp. 574-594). Springer, Cham.
- Umer, M. A., Ahmed, C. M., Jilani, M. T., & Mathur, A. P. (2021, November). Attack rules: an adversarial approach to generate attacks for Industrial Control Systems using machine learning. In *Proceedings of the 2th Workshop on CPS&IoT Security and Privacy* (pp. 35-40).
- Castellanos, J. H., Ochoa, M., Cardenas, A. A., Arden, O., & Zhou, J. (2021, October). AttkFinder: Discovering attack vectors in PLC programs using information flow analysis. In *24th International Symposium on Research in Attacks, Intrusions and Defenses* (pp. 235-250).

Topic 10 (CPS): Industrial Honeypot

Primary:

- Lpez-Morales, E., Rubio-Medrano, C., Doup, A., Shoshitaishvili, Y., Wang, R., Bao, T., & Ahn, G. J. (2020, October). HoneyPLC: A next-generation honeypot for industrial control systems. In *Proceedings of the 2020 ACM SIGSAC Conference on Computer and Communications Security* (pp. 279-291).

Secondary:

- Wilhoit, K., & Hilt, S. (2015). The gaspot experiment: Unexamined perils in using.
- Conti, M., Trolese, F., & Turrin, F. (2022, July). ICSpot: A High-Interaction Honeypot for Industrial Control Systems. In *2022 International Symposium on Networks, Computers and Communications (ISNCC)* (pp. 1-4). IEEE.

Topic 11 (CPS): Air - Ground communication

Primary:

- Strohmeier, M., Martinovic, I., & Lenders, V. (2020). Securing the air-ground link in aviation. In *The Security of Critical Infrastructures* (pp. 131-154). Springer, Cham.

Secondary:

- Smith, M., Strohmeier, M., Lenders, V., & Martinovic, I. (2022). Understanding realistic attacks on airborne collision avoidance systems. *Journal of Transportation Security*, 15(1), 87-118.
- Strohmeier, M., Smith, M., Lenders, V., & Martinovic, I. (2021). Classi-fly: Inferring aircraft categories from open data. *ACM Transactions on Intelligent Systems and Technology (TIST)*, 12(6), 1-23.
- Baselt, G., Strohmeier, M., Pavur, J., Lenders, V., & Martinovic, I. (2022, May). Security and Privacy Issues of Satellite Communication in the Avlatlon Domain. In *2022 14th International Conference on Cyber Conflict: Keep Moving!(CyCon)* (Vol. 700, pp. 285-307). IEEE.

Topic 12 (CPS): IoT security

Primary:

- Ambrosin, M., Conti, M., Ibrahim, A., Neven, G., Sadeghi, A. R., & Schunter, M. (2016, October). SANA: Secure and scalable aggregate network attestation. In *Proceedings of the 2016 ACM SIGSAC Conference on Computer and Communications Security* (pp. 731-742).

Secondary:

- Dorri, A., Kanhere, S. S., Jurdak, R., & Gauravaram, P. (2017, March). Blockchain for IoT security and privacy: The case study of a smart home. In *2017 IEEE international conference on pervasive computing and communications workshops (PerCom workshops)* (pp. 618-623). IEEE.
- Mahmoud, R., Yousuf, T., Aloul, F., & Zualkernan, I. (2015, December). Internet of things (IoT) security: Current status, challenges and prospective measures. In *2015 10th International Conference for Internet Technology and Secured Transactions (ICITST)* (pp. 336-341). IEEE.
- Xiao, L., Wan, X., Lu, X., Zhang, Y., & Wu, D. (2018). IoT security techniques based on machine learning: How do IoT devices use AI to enhance security?. *IEEE Signal Processing Magazine*, 35(5), 41-49.

Topic 13 (CPS): Identity of Things

Primary:

- Mahalle, P., Babar, S., Prasad, N. R., & Prasad, R. (2010, July). Identity management framework towards internet of things (IoT): Roadmap and key challenges. In *International Conference on Network Security and Applications* (pp. 430-439). Springer, Berlin, Heidelberg.

Secondary:

- Salman, O., Abdallah, S., Elhajj, I. H., Chehab, A., & Kayssi, A. (2016, June). Identity-based authentication scheme for the Internet of Things. In *2016 IEEE Symposium on Computers and Communication (ISCC)* (pp. 1109-1111). IEEE.
- Lam, K. Y., & Chi, C. H. (2016, November). Identity in the Internet-of-Things (IoT): New challenges and opportunities. In *International Conference on Information and Communications Security* (pp. 18-26). Springer, Cham.
- Zhu, X., & Badr, Y. (2018). Identity management systems for the internet of things: a survey towards blockchain solutions. *Sensors*, 18(12), 4215.

Topic 14 (CPS): Cyber-Physical Anomaly Detection

Primary:

- Marchetti, M., & Stabili, D. (2017, June). Anomaly detection of CAN bus messages through analysis of ID sequences. In 2017 IEEE Intelligent Vehicles Symposium (IV) (pp. 1577-1583). IEEE.

Secondary:

- Luo, Y., Xiao, Y., Cheng, L., Peng, G., & Yao, D. (2021). Deep learning-based anomaly detection in cyber-physical systems: Progress and opportunities. ACM Computing Surveys (CSUR), 54(5), 1-36.
- Xu, Q., Ali, S., & Yue, T. (2021, April). Digital Twin-based Anomaly Detection in Cyber-physical Systems. In 2021 14th IEEE Conference on Software Testing, Verification and Validation (ICST) (pp. 205-216). IEEE.

Topic 15 (CPS): Advanced security on Industrial Control System

Primary:

- Tychalas, D., Benkraouda, H., & Maniatakos, M. (2021). ICSFuzz: Manipulating I/Os and Repurposing Binary Code to Enable Instrumented Fuzzing in {ICS} Control Applications. In 30th {USENIX} Security Symposium ({USENIX} Security 21).

Secondary:

- Sarkar, E., Benkraouda, H., & Maniatakos, M. (2020, October). I came, I saw, I hacked: Automated Generation of Process-independent Attacks for Industrial Control Systems. In Proceedings of the 15th ACM Asia Conference on Computer and Communications Security (pp. 744-758).
- Wang, X., Konstantinou, C., Maniatakos, M., Karri, R., Lee, S., Robison, P., ... & Kim, S. (2016). Malicious firmware detection with hardware performance counters. IEEE Transactions on Multi-Scale Computing Systems, 2(3), 160-173.

Topic 16 (CPS): Private Information Retrieval (PIR) for healthcare

Primary:

- Lai, J., Mu, Y., Guo, F., Jiang, P., & Susilo, W. (2018). Privacy-enhanced attribute-based private information retrieval. Information sciences, 454, 275-291.

Secondary:

- Domingo-Ferrer, J., Bras-Amor³s, M., Wu, Q., & Manj³n, J. (2009). User-private information retrieval based on a peer-to-peer community. Data & Knowledge Engineering, 68(11), 1237-1252.

Topic 17 (CPS): Privacy for Vehicular Networks - Ride-Hailing Service

Primary:

- Pham, A., Dacosta, I., Endignoux, G., Pastoriza, J. R. T., Huguenin, K., & Hubaux, J. P. (2017). ORide: A privacy-preserving yet accountable ride-hailing service. In 26th {USENIX} Security Symposium ({USENIX} Security 17) (pp. 1235-1252).

Secondary:

- Luo, Y., Jia, X., Fu, S., & Xu, M. (2018). pRide: Privacy-preserving ride matching over road networks for online ride-hailing service. IEEE Transactions on Information Forensics and Security, 14(7), 1791-1802.
- Xie, H., Guo, Y., & Jia, X. (2021). A Privacy-Preserving Online Ride-Hailing System Without Involving a Third Trusted Server. IEEE Transactions on Information Forensics and Security, 16, 3068-3081.

Topic 18 (CPS): Privacy for Vehicular Networks - Traffic Monitoring

Primary:

- Hoh, B., Gruteser, M., Herring, R., Ban, J., Work, D., Herrera, J. C., ... & Jacobson, Q. (2008, June). Virtual trip lines for distributed privacy-preserving traffic monitoring. In Proceedings of the 6th international conference on Mobile systems, applications, and services (pp. 15-28).

Secondary:

- Li, M., Zhu, L., & Lin, X. (2019). Privacy-preserving traffic monitoring with false report filtering via fog-assisted vehicular crowdsensing. IEEE Transactions on Services Computing.
- Li, M., Zhu, L., & Lin, X. (2019). Privacy-preserving traffic monitoring with false report filtering via fog-assisted vehicular crowdsensing. IEEE Transactions on Services Computing.

Topic 19 (CPS): Privacy for Vehicular Networks - Smart Parking

Primary:

- Lu, R., Lin, X., Zhu, H., & Shen, X. (2009, April). SPARK: A new VANET-based smart parking scheme for large parking lots. In IEEE INFOCOM 2009 (pp. 1413-1421). IEEE.

Secondary:

- Zhu, L., Li, M., Zhang, Z., & Qin, Z. (2018). ASAP: An anonymous smart-parking and payment scheme in vehicular networks. IEEE Transactions on Dependable and Secure Computing, 17(4), 703-715.
- Ni, J., Lin, X., & Shen, X. (2019). Toward privacy-preserving valet parking in autonomous driving era. IEEE Transactions on Vehicular Technology, 68(3), 2893-2905.

Topic 20 (CPS): Vehicular Security - Automotive Keyless Entry

Primary:

- Garcia, F. D., Oswald, D., Kasper, T., & Pavlidis, P. (2016). Lock it and still lose it: on the (in) security of automotive remote keyless entry systems. In 25th {USENIX} Security Symposium ({USENIX} Security 16).

Secondary:

- Benadjila, R., Renard, M., Lopes-Esteves, J., & Kasmi, C. (2017). One car, two frames: attacks on hitag-2 remote keyless entry systems revisited. In 11th {USENIX} Workshop on Offensive Technologies ({WOOT} 17).
- Glocker, T., Mantere, T., & Elmusrati, M. (2017, April). A protocol for a secure remote keyless entry system applicable in vehicles using symmetric-key cryptography. In 2017 8th International Conference on Information and Communication Systems (ICICS) (pp. 310-315). IEEE.
- Wouters, L., Gierlichs, B., & Preneel, B. (2021). My other car is your car: compromising the Tesla Model X keyless entry system. IACR Transactions on Cryptographic Hardware and Embedded Systems, 149-172.

Topic 21 (CPS): Vehicular Security - Charging-While-Driving

Primary:

- Roman, L. F., & Gondim, P. R. (2020). Authentication protocol in CTNs for a CWD-WPT charging system in a cloud environment. Ad Hoc Networks, 97, 102004.

Secondary:

- Li, H., D jn, G., & Nahrstedt, K. (2013, October). FADEC: Fast authentication for dynamic electric vehicle charging. In 2013 IEEE Conference on Communications and

Network Security (CNS) (pp. 369-370). IEEE.

- Li, H., Dǎjn, G., & Nahrstedt, K. (2016). Portunes+: Privacy-preserving fast authentication for dynamic electric vehicle charging. *IEEE Transactions on Smart Grid*, 8(5), 2305-2313.

Topic 22 (CPS): Vehicular Security - CAN Security

Primary:

- Groza, B., Popa, L., Murvay, P. S., Elovici, Y., & Shabtai, A. (2021). {CANARY}-a reactive defense mechanism for Controller Area Networks based on Active RelaYs. In 30th {USENIX} Security Symposium ({USENIX} Security 21).

Secondary:

- Humayed, A., & Luo, B. (2017, April). Using ID-hopping to defend against targeted DoS on CAN. In *Proceedings of the 1st International Workshop on Safe Control of Connected and Autonomous Vehicles* (pp. 19-26).
- Checkoway, S., McCoy, D., Kantor, B., Anderson, D., Shacham, H., Savage, S., ... & Kohno, T. (2011, August). Comprehensive experimental analyses of automotive attack surfaces. In *USENIX Security Symposium* (Vol. 4, No. 447-462, p. 2021).
- Islam, R., & Refat, R. U. D. (2020). Improving CAN bus security by assigning dynamic arbitration IDs. *Journal of Transportation Security*, 13(1), 19-31.

Topic 23 (CPS): Privacy protection of Electric Vehicles Owners

Primary:

- Brighente, A., Conti, M., Donadel, D., & Turrin, F. (2021). EVScout2. 0: Electric Vehicle Profiling Through Charging Profile. *arXiv preprint arXiv:2106.16016*.

Secondary:

- Leukam Lako, F., Lajoie-Mazenc, P., & Laurent, M. (2021). Privacy-Preserving Publication of Time-Series Data in Smart Grid. *Security and Communication Networks*, 2021.
- Saxena, N., Grijalva, S., Chukwuka, V., & Vasilakos, A. V. (2017). Network security and privacy challenges in smart vehicle-to-grid. *IEEE Wireless Communications*, 24(4), 88-98.

Topic 24 (CPS): Machine learning techniques for lightweight continuous authentication

Primary:

- Hou, W., Wang, X., Chouinard, J. Y., & Refaey, A. (2014). Physical layer authentication for mobile systems with time-varying carrier frequency offsets. *IEEE Transactions on Communications*, 62(5), 1658-1667.

Secondary:

- Brighente, A., Formaggio, F., Di Nunzio, G. M., & Tomasin, S. (2019). Machine learning for in-region location verification in wireless networks. *IEEE Journal on Selected Areas in Communications*, 37(11), 2490-2502.
- Ihsan, U., Malaney, R., & Yan, S. (2019, August). Machine learning and location verification in vehicular networks. In *2019 IEEE/CIC International Conference on Communications in China (ICCC)* (pp. 91-95). IEEE.

Topic 25 (CPS): Vehicular Security - CAN Attacks to error handling

Primary:

- Serag, K., Bhatia, R., Kumar, V., Celik, Z. B., & Xu, D. (2021). Exposing New Vulnerabilities of Error Handling Mechanism in {CAN}. In 30th {USENIX} Security

Symposium ({USENIX} Security 21).

Secondary:

- Cho, K. T., & Shin, K. G. (2016, October). Error handling of in-vehicle networks makes them vulnerable. In Proceedings of the 2016 ACM SIGSAC Conference on Computer and Communications Security (pp. 1044-1055).
- Kulandaivel, S., Jain, S., Guajardo, J., & Sekar, V. (2021, May). CANNON: Reliable and Stealthy Remote Shutdown Attacks via Unaltered Automotive Microcontrollers. In 2021 IEEE Symposium on Security and Privacy (SP) (pp. 195-210). IEEE.

Topic 26 (CPS): Physical side-channel attacks in mobile charging

Primary:

- Wang, Y., Guo, H., & Yan, Q. (2022). GhostTalk: Interactive Attack on Smartphone Voice System Through Power Line. arXiv preprint arXiv:2202.02585.

Secondary:

- Wang, K., Mitev, R., Yan, C., Ji, X., Sadeghi, A. R., & Xu, W. (2022). GhostTouch: Targeted Attacks on Touchscreens without Physical Touch. In 31st USENIX Security Symposium (USENIX Security 22). USENIX Association, Boston, MA. <https://www.usenix.org/conference/usenixsecurity22/presentation/wang-kai>.
- Spolaor, R., Abudahi, L., Moonsamy, V., Conti, M., & Poovendran, R. (2017, July). No free charge theorem: A covert channel via usb charging cable on mobile devices. In International Conference on Applied Cryptography and Network Security (pp. 83-102). Springer, Cham.
- Liu, J., Zou, X., Zhao, L., Tao, Y., Hu, S., Han, J., & Ren, K. (2022). Privacy Leakage in Wireless Charging. IEEE Transactions on Dependable and Secure Computing.

Topic 27 (CPS): Hyperloop: a cybersecurity challenge

Primary:

- Brighente, A., Conti, M., Donadel, D., & Turrin, F. (2022). Hyperloop: A Cybersecurity Perspective. arXiv preprint arXiv:2209.03095.

Secondary:

- Tavsanoğlu, A., Briso, C., Carmena-Cabanillas, D., & Arancibia, R. B. (2021). Concepts of Hyperloop Wireless Communication at 1200 km/h: 5G, Wi-Fi, Propagation, Doppler and Handover. Energies, 14(4), 983.
- Zhang, J., Liu, L., Han, B., Li, Z., Zhou, T., Wang, K., ... & Ai, B. (2020). Concepts on train-to-ground wireless communication system for hyperloop: Channel, network architecture, and resource management. Energies, 13(17), 4309.
- Hedhly, W., Amin, O., Shihada, B., & Alouini, M. S. (2021). Hyperloop Communications: Challenges, Advances, and Approaches. IEEE Open Journal of the Communications Society, 2, 2413-2435.

Topic 28 (CPS): Maritime Security

Primary:

- Amro, A., & Gkioulos, V. (2022). From Click to Sink: Utilizing AIS for Command and Control in Maritime Cyber Attacks. In European Symposium on Research in Computer Security (pp. 535-553). Springer, Cham.

Secondary:

- Wolsing, K., Saillard, A., Bauer, J., Wagner, E., van Sloun, C., Fink, I. B., ... & Henze, M. (2022, September). Network Attacks Against Marine Radar Systems: A Taxonomy, Simulation Environment, and Dataset. In 2022 IEEE 47th Conference on Local Computer Networks (LCN) (pp. 114-122). IEEE.

- Tam, K., & Jones, K. (2019, June). Factors affecting cyber risk in maritime. In 2019 International Conference on Cyber Situational Awareness, Data Analytics And Assessment (Cyber SA) (pp. 1-8). IEEE.

Topic 29 (ICN): Cache Privacy Attacks

Primary:

- Acs, G., Conti, M., Gasti, P., Ghali, C., Tsudik, G., & Wood, C. A. (2017). Privacy-aware caching in information-centric networking. *IEEE Transactions on Dependable and Secure Computing*, 16(2), 313-328.

Secondary:

- Mohaisen, A., Mekky, H., Zhang, X., Xie, H., & Kim, Y. (2014). Timing attacks on access privacy in information centric networks and countermeasures. *IEEE Transactions on Dependable and Secure Computing*, 12(6), 675-687.
- Acs, G., Conti, M., Gasti, P., Ghali, C., & Tsudik, G. (2013, July). Cache privacy in named-data networking. In 2013 IEEE 33rd International Conference on Distributed Computing Systems (pp. 41-51). IEEE.
- Compagno, A., Conti, M., Losiouk, E., Tsudik, G., & Valle, S. (2020, April). A proactive cache privacy attack on ndn. In NOMS 2020-2020 IEEE/IFIP Network Operations and Management Symposium (pp. 1-7). IEEE.

Topic 30 (ICN): Content Popularity Prediction

Primary:

- Yao, L., Zeng, Y., Wang, X., Chen, A., & Wu, G. (2020). Detection and Defense of Cache Pollution Based on Popularity Prediction in Named Data Networking. *IEEE Transactions on Dependable and Secure Computing*.

Secondary:

- Li, J., Wu, H., Liu, B., Lu, J., Wang, Y., Wang, X., ... & Dong, L. (2012, October). Popularity-driven coordinated caching in named data networking. In 2012 ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS) (pp. 15-26). IEEE.
- Cho, K., Lee, M., Park, K., Kwon, T. T., Choi, Y., & Pack, S. (2012, March). WAVE: Popularity-based and collaborative in-network caching for content-oriented networks. In 2012 Proceedings IEEE INFOCOM Workshops (pp. 316-321). IEEE.
- Zhang, R., Liu, J., Huang, T., & Xie, R. (2017, May). Popularity based probabilistic caching strategy design for named data networking. In 2017 IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS) (pp. 476-481). IEEE.

Topic 31 (ICN): Interest Flooding Attacks

Primary:

- Compagno, A., Conti, M., Gasti, P., & Tsudik, G. (2013, October). Poseidon: Mitigating interest flooding DDoS attacks in named data networking. In 38th annual IEEE conference on local computer networks (pp. 630-638). IEEE.

Secondary:

- Afanasyev, A., Mahadevan, P., Moiseenko, I., Uzun, E., & Zhang, L. (2013, May). Interest flooding attack and countermeasures in named data networking. In 2013 IFIP Networking Conference (pp. 1-9). IEEE.
- Salah, H., Wulfheide, J., & Strufe, T. (2015, October). Coordination supports security: A new defence mechanism against interest flooding in NDN. In 2015 IEEE 40th Conference on Local Computer Networks (LCN) (pp. 73-81). IEEE.
- Benarfa, A., Hassan, M., Compagno, A., Losiouk, E., Yagoubi, M. B., & Conti, M. (2019, June). Chokifa: A new detection and mitigation approach against interest flooding

attacks in ndn. In International Conference on Wired/Wireless Internet Communication (pp. 53-65). Springer, Cham.

Topic 32 (ICN): Coexistence of TCP/IP and ICN/NDN

Primary:

- Conti, M., Gangwal, A., Hassan, M., Lal, C., & Losiouk, E. (2020). The road ahead for networking: A survey on icn-ip coexistence solutions. *IEEE Communications Surveys & Tutorials*, 22(3), 2104-2129.

Secondary:

- Rahman, A., Trossen, D., Kutscher, D., & Ravindran, R. (2018). Deployment considerations for information-centric networking (ICN). Internet Engineering Task Force, Internet-Draft draft-irtf-icnrg-deployment-guidelines-03.

Topic 33 (Malware Detection): Malware Analysis and Detection Methods

Primary:

- Alazab, M., Alazab, M., Shalaginov, A., Mesleh, A., & Awajan, A. (2020). Intelligent mobile malware detection using permission requests and API calls. *Future Generation Computer Systems*, 107, 509-521.

Secondary:

- Zhao, Y., Li, L., Wang, H., Cai, H., BissyandÃ©, T. F., Klein, J., & Grundy, J. (2021). On the Impact of Sample Duplication in Machine-Learning-Based Android Malware Detection. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 30(3), 1-38.
- Surendran, R., Thomas, T., & Emmanuel, S. (2020). A TAN based hybrid model for android malware detection. *Journal of Information Security and Applications*, 54, 102483.

Topic 34 (Malware Detection): Ransomware Detection using Deception Models

Primary:

- Davies, S. R., Macfarlane, R., & Buchanan, W. J. (2021). Differential Area Analysis for Ransomware Attack Detection within Mixed File Datasets. *Computers & Security*, 102377.

Secondary:

- Moussaileb, R., Cuppens, N., Lanet, J. L., & Boudier, H. L. (2021). A Survey on Windows-based Ransomware Taxonomy and Detection Mechanisms. *ACM Computing Surveys (CSUR)*, 54(6), 1-36.
- Min, D., Ko, Y., Walker, R., Lee, J., & Kim, Y. (2021). A Content-based Ransomware Detection and Backup Solid-State Drive for Ransomware Defense. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*.
- Faghihi, F., & Zulkernine, M. (2021). RansomCare: Data-centric detection and mitigation against smartphone crypto-ransomware. *Computer Networks*, 191, 108011.

Topic 35 (Malware Detection): Adversarial Machine Learning on Malware

Primary:

- Maiorca, D., Demontis, A., Biggio, B., Roli, F., & Giacinto, G. (2020). Adversarial detection of flash malware: Limitations and open issues. *Computers & Security*, 96, 101901.

Secondary:

- Demetrio, L., Coull, S. E., Biggio, B., Lagorio, G., Armando, A., & Roli, F. (2020).

Adversarial EXEmples: A survey and experimental evaluation of practical attacks on machine learning for windows malware detection. arXiv preprint arXiv:2008.07125.

- Demetrio, L., & Biggio, B. (2021). Secml-malware: A Python library for adversarial robustness evaluation of windows malware classifiers. arXiv preprint arXiv:2104.12848.

Topic 36 (Malware Detection): PDF Malware Detection

Primary:

- Maiorca, D., Biggio, B., & Giacinto, G. (2019). Towards adversarial malware detection: Lessons learned from PDF-based attacks. ACM Computing Surveys (CSUR), 52(4), 1-36.

Secondary:

- Corum, A., Jenkins, D., & Zheng, J. (2019, June). Robust PDF malware detection with image visualization and processing techniques. In 2019 2nd International Conference on Data Intelligence and Security (ICDIS) (pp. 108-114). IEEE.
- Jordan, A., Gauthier, F., Hassanshahi, B., & Zhao, D. (2019, November). Unacceptable behavior: Robust pdf malware detection using abstract interpretation. In Proceedings of the 14th ACM SIGSAC Workshop on Programming Languages and Analysis for Security (pp. 19-30).

Topic 37 (MLS): Behavioural Biometrics

Primary:

- Eberz, S., Rasmussen, K. B., Lenders, V., & Martinovic, I. (2017, April). Evaluating behavioral biometrics for continuous authentication: Challenges and metrics. In Proceedings of the 2017 ACM on Asia Conference on Computer and Communications Security (pp. 386-399).

Secondary:

- Bhatt, S., & Santhanam, T. (2013, February). Keystroke dynamics for biometric authentication—A survey. In 2013 international conference on pattern recognition, informatics and mobile engineering (pp. 17-23). IEEE.
- Alzubaidi, A., & Kalita, J. (2016). Authentication of smartphone users using behavioral biometrics. IEEE Communications Surveys & Tutorials, 18(3), 1998-2026.

Topic 38 (MLS): Deauthentication

Primary:

- Kaczmarek, T., Ozturk, E., & Tsudik, G. (2018, July). Assentiation: user de-authentication and lunchtime attack mitigation with seated posture biometric. In International Conference on Applied Cryptography and Network Security (pp. 616-633). Springer, Cham.

Secondary:

- Conti, M., Lovisotto, G., Martinovic, I., & Tsudik, G. (2017, June). Fadewich: fast deauthentication over the wireless channel. In 2017 IEEE 37th International Conference on Distributed Computing Systems (ICDCS) (pp. 2294-2301). IEEE.
- Mare, S., Markham, A. M., Cornelius, C., Peterson, R., & Kotz, D. (2014, May). Zebra: Zero-effort bilateral recurring authentication. In 2014 IEEE Symposium on Security and Privacy (pp. 705-720). IEEE.

Topic 39 (MLS): Security of Machine Learning Implementations

Primary:

- Xiao, Q., Chen, Y., Shen, C., Chen, Y., & Li, K. (2019). Seeing is not believing: Camouflage attacks on image scaling algorithms. In 28th {USENIX} Security Symposium

{USENIX} Security 19) (pp. 443-460).

Secondary:

- Xiao, Q., Chen, Y., Shen, C., Chen, Y., & Li, K. (2019). Seeing is not believing: Camouflage attacks on image scaling algorithms. In 28th {USENIX} Security Symposium ({USENIX} Security 19) (pp. 443-460).
- Pajola, L., & Conti, M. (2021). Fall of Giants: How popular text-based MLaaS fall against a simple evasion attack. arXiv preprint arXiv:2104.05996.

Topic 40 (MLS): Hate Speech Detection on Online Platforms

Primary:

- GrÃndahl, T., Pajola, L., Juuti, M., Conti, M., & Asokan, N. (2018, January). All you need is" love" evading hate speech detection. In Proceedings of the 11th ACM workshop on artificial intelligence and security (pp. 2-12).

Secondary:

- Kiela, D., Firooz, H., Mohan, A., Goswami, V., Singh, A., Ringshia, P., & Testuggine, D. (2020). The hateful memes challenge: Detecting hate speech in multimodal memes. arXiv preprint arXiv:2005.04790.
- Schmidt, A., & Wiegand, M. (2017, April). A survey on hate speech detection using natural language processing. In Proceedings of the fifth international workshop on natural language processing for social media (pp. 1-10).

Topic 41 (MLS): The role of generative models in Cybersecurity

Primary:

- Yinka-Banjo, C., & Ugot, O. A. (2020). A review of generative adversarial networks and its application in cybersecurity. Artificial Intelligence Review, 53(3), 1721-1736.

Secondary:

- Zhang, X., Karaman, S., & Chang, S. F. (2019, December). Detecting and simulating artifacts in gan fake images. In 2019 IEEE International Workshop on Information Forensics and Security (WIFS) (pp. 1-6). IEEE.
- Ye, G., Tang, Z., Fang, D., Zhu, Z., Feng, Y., Xu, P., ... & Wang, Z. (2018, October). Yet another text captcha solver: A generative adversarial network based approach. In Proceedings of the 2018 ACM SIGSAC Conference on Computer and Communications Security (pp. 332-348).

Topic 42 (MLS): Continuous Authentication

Primary:

- Feng, H., Fawaz, K., & Shin, K. G. (2017, October). Continuous authentication for voice assistants. In Proceedings of the 23rd Annual International Conference on Mobile Computing and Networking (pp. 343-355).

Secondary:

- Camara, C., Peris-Lopez, P., Gonzalez-Manzano, L., & Tapiador, J. (2018). Real-time electrocardiogram streams for continuous authentication. Applied Soft Computing, 68, 784-794.
- Liang, Y., Samtani, S., Guo, B., & Yu, Z. (2020). Behavioral biometrics for continuous authentication in the internet-of-things era: An artificial intelligence perspective. IEEE Internet of Things Journal, 7(9), 9128-9143.

Topic 43 (MLS): Evaluation of Adversarial Attacks on Privacy Preserving Machine

Learning Models

Primary:

- Zhao, C., Wen, Y., Li, S., Liu, F., & Meng, D. (2021, June). FederatedReverse: A Detection and Defense Method Against Backdoor Attacks in Federated Learning. In Proceedings of the 2021 ACM Workshop on Information Hiding and Multimedia Security (pp. 51-62).

Secondary:

- Liu, X., Li, H., Xu, G., Chen, Z., Huang, X., & Lu, R. (2021). Privacy-Enhanced Federated Learning against Poisoning Adversaries. IEEE Transactions on Information Forensics and Security.
- Costa, G., Pinelli, F., Soderi, S., & Tolomei, G. (2021). Covert Channel Attack to Federated Learning Systems. arXiv preprint arXiv:2104.10561.

Topic 44 (MLS): Adversarial Machine Learning: Evasion Attacks

Primary:

- Biggio, B., Corona, I., Maiorca, D., Nelson, B., Årndt, N., Laskov, P., ... & Roli, F. (2013, September). Evasion attacks against machine learning at test time. In Joint European conference on machine learning and knowledge discovery in databases (pp. 387-402). Springer, Berlin, Heidelberg.

Secondary:

- Su, J., Vargas, D. V., & Sakurai, K. (2019). One pixel attack for fooling deep neural networks. IEEE Transactions on Evolutionary Computation, 23(5), 828-841.
- Gao, J., Lanchantin, J., Soffa, M. L., & Qi, Y. (2018, May). Black-box generation of adversarial text sequences to evade deep learning classifiers. In 2018 IEEE Security and Privacy Workshops (SPW) (pp. 50-56). IEEE.
- Demontis, A., Melis, M., Pintor, M., Jagielski, M., Biggio, B., Oprea, A., ... & Roli, F. (2019). Why do adversarial attacks transfer? explaining transferability of evasion and poisoning attacks. In 28th {USENIX} Security Symposium ({USENIX} Security 19) (pp. 321-338).

Topic 45 (MLS): GANs for Attack Sample Generation

Primary:

- Trehan, H., & Troia, F. D. (2021, December). Fake Malware Generation Using HMM and GAN. In Silicon Valley Cybersecurity Conference (pp. 3-21). Springer, Cham.

Secondary:

- Andresini, G., Appice, A., De Rose, L., & Malerba, D. (2021). GAN augmentation to deal with imbalance in imaging-based intrusion detection. Future Generation Computer Systems, 123, 108-127.
- Lu, D., Fei, J., Liu, L., & Li, Z. (2022, June). A GAN-based Method for Generating SQL Injection Attack Samples. In 2022 IEEE 10th Joint International Information Technology and Artificial Intelligence Conference (ITAIC) (Vol. 10, pp. 1827-1833). IEEE.

Topic 46 (MLS): Machine Learning in Intrusion Detection Systems

Primary:

- Parkar, P., & Bilimoria, A. (2021, May). A survey on cyber security IDS using ML methods. In 2021 5th International Conference on Intelligent Computing and Control Systems (ICICCS) (pp. 352-360). IEEE.

Secondary:

- Kilincer, I. F., Ertam, F., & Sengur, A. (2021). Machine learning methods for cyber

security intrusion detection: Datasets and comparative study. *Computer Networks*, 188, 107840.

- Pooja, T. S., & Shrinivasacharya, P. (2021). Evaluating neural networks using Bi-Directional LSTM for network IDS (intrusion detection systems) in cyber security. *Global Transitions Proceedings*, 2(2), 448-454.

Topic 47 (Social Networks): Fake Account Detection on Instagram

Primary:

- Sheikhi, S. (2020). An Efficient Method for Detection of Fake Accounts on the Instagram Platform. *Rev. d'Intelligence Artif.*, 34(4), 429-436.

Secondary:

- Akyon, F. C., & Kalfaoglu, M. E. (2019). Instagram fake and automated account detection. In *2019 Innovations in Intelligent Systems and Applications Conference (ASYU)* (pp. 1-7). IEEE.
- Purba, K. R., Asirvatham, D., & Murugesan, R. K. (2020). Classification of instagram fake users using supervised machine learning algorithms. *International Journal of Electrical and Computer Engineering*, 10(3), 2763.

Topic 48 (Social Networks): Social Network Analysis

Primary:

- Rout, D., Bontcheva, K., PreoÅiuc-Pietro, D., & Cohn, T. (2013, May). Where's@ wally? a classification approach to geolocating users based on their social ties. In *Proceedings of the 24th ACM Conference on Hypertext and Social Media* (pp. 11-20).

Secondary:

- Can, U., & Alatas, B. (2019). A new direction in social network analysis: Online social network analysis problems and applications. *Physica A: Statistical Mechanics and its Applications*, 535, 122372.
- Colladon, A. F., & Remondi, E. (2017). Using social network analysis to prevent money laundering. *Expert Systems with Applications*, 67, 49-58.
- Vosecky, J., Hong, D., & Shen, V. Y. (2009, July). User identification across multiple social networks. In *2009 first international conference on networked digital technologies* (pp. 360-365). IEEE.

Topic 49 (Social Networks): Fake Engagement on Instagram

Primary:

- Thejas, G. S., Soni, J., Chandna, K., Iyengar, S. S., Sunitha, N. R., & Prabakar, N. (2019, April). Learning-based model to fight against fake like clicks on instagram posts. In *2019 SoutheastCon* (pp. 1-8). IEEE.

Secondary:

- Zarei, K., Farahbakhsh, R., & Crespi, N. (2020, June). How impersonators exploit Instagram to generate fake engagement?. In *ICC 2020-2020 IEEE International Conference on Communications (ICC)* (pp. 1-6). IEEE.

Topic 50 (Social Networks): Private data inference from Social Networks

Primary:

- Fang, Q., Sang, J., Xu, C., & Hossain, M. S. (2015). Relational user attribute inference in social media. *IEEE Transactions on Multimedia*, 17(7), 1031-1044.

Secondary:

Han, X., Huang, H., & Wang, L. (2019). F-PAD: Private attribute disclosure risk estimation in online social networks. *IEEE Transactions on Dependable and Secure Computing*, 16(6), 1054-1069.

- Mao, J., Tian, W., Yang, Y., & Liu, J. (2019). An efficient social attribute inference scheme based on social links and attribute relevance. *IEEE Access*, 7, 153074-153085.

Topic 51 (Software Security): Understand humans approach to Reverse Engineering

Primary:

- Mantovani, A., Aonzo, S., Fratantonio, Y., & Balzarotti, D. (2022). {RE-Mind}: a First Look Inside the Mind of a Reverse Engineer. In 31st USENIX Security Symposium (USENIX Security 22) (pp. 2727-2745).

Secondary:

- Votipka, D., Rabin, S., Micinski, K., Foster, J. S., & Mazurek, M. L. (2020). An Observational Investigation of Reverse {Engineersâ€™} Processes. In 29th USENIX Security Symposium (USENIX Security 20) (pp. 1875-1892).
- Burk, K., Pagani, F., Kruegel, C., & Vigna, G. (2022). Decomperson: How Humans Decompile and What We Can Learn From It. In 31st USENIX Security Symposium (USENIX Security 22) (pp. 2765-2782).

Topic 52 (Software Security): Find and exploit vulnerabilities

Primary:

- Shoshitaishvili, Y., Wang, R., Salls, C., Stephens, N., Polino, M., Dutcher, A., ... & Vigna, G. (2016, May). Sok:(state of) the art of war: Offensive techniques in binary analysis. In 2016 IEEE Symposium on Security and Privacy (SP) (pp. 138-157). IEEE.

Secondary:

- One, A. (1996). Smashing the stack for fun and profit. *Phrack magazine*, 7(49), 14-16.
- Bao, T., Wang, R., Shoshitaishvili, Y., & Brumley, D. (2017, May). Your exploit is mine: Automatic shellcode transplant for remote exploits. In 2017 IEEE Symposium on Security and Privacy (SP) (pp. 824-839). IEEE.
- Shoshitaishvili, Y., Bianchi, A., Borgolte, K., Cama, A., Corbetta, J., Disperati, F., ... & Vigna, G. (2018). Mechanical phish: Resilient autonomous hacking. *IEEE Security & Privacy*, 16(2), 12-22.

Topic 53 (Software Security): Fuzzing

Primary:

- Fioraldi, A., Maier, D., EiÃƒfeldt, H., & Heuse, M. (2020). {AFL++}: Combining Incremental Steps of Fuzzing Research. In 14th USENIX Workshop on Offensive Technologies (WOOT 20).

Secondary:

- Zhang, Z., Patterson, Z., Hicks, M., & Wei, S. (2022). {FIXREVERTER}: A Realistic Bug Injection Methodology for Benchmarking Fuzz Testing. In 31st USENIX Security Symposium (USENIX Security 22) (pp. 3699-3715).
- Hernandez, G., Muench, M., Maier, D., Milburn, A., Park, S., Scharnowski, T., ... & Butler, K. R. (2022, January). FIRMWIRE: Transparent Dynamic Analysis for Cellular Baseband Firmware. In 29th Annual Network and Distributed System Security Symposium, NDSS.

Topic 54 (5G Security): 5G new radio Handover Security

Primary:

- Giordani, M., Polese, M., Roy, A., Castor, D., & Zorzi, M. (2018). A tutorial on beam management for 3GPP NR at mmWave frequencies. *IEEE Communications Surveys & Tutorials*, 21(1), 173-196.

Secondary:

- Zhao, D., Yan, Z., Wang, M., Zhang, P., & Song, B. (2021). Is 5G Handover Secure and Private? A Survey. *IEEE Internet of Things Journal*.
- Peltonen, A., Sasse, R., & Basin, D. (2021, May). A Comprehensive Formal Analysis of 5G Handover. In *14th ACM Conference on Security and Privacy in Wireless and Mobile Networks*. ACM.

Topic 55 (5G Security): Open Radio Access Network

Primary:

- Mimran, D., Bitton, R., Kfir, Y., Klevansky, E., Brodt, O., Lehmann, H., ... & Shabtai, A. (2022). Security of Open Radio Access Networks. *Computers & Security*, 122, 102890.

Secondary:

- Mimran, D., Bitton, R., Kfir, Y., Klevansky, E., Brodt, O., Lehmann, H., ... & Shabtai, A. (2022). Evaluating the Security of Open Radio Access Networks. *arXiv preprint arXiv:2201.06080*.
- Abdalla, A. S., Upadhyaya, P. S., Shah, V. K., & Marojevic, V. (2022). Toward Next Generation Open Radio Access Networks--What O-RAN Can and Cannot Do!. *IEEE Network*.
- Polese, M., Bonati, L., D'Oro, S., Basagni, S., & Melodia, T. (2022). Understanding O-RAN: Architecture, interfaces, algorithms, security, and research challenges. *arXiv preprint arXiv:2202.01032*.

Topic 56 (5G Security): Physical layer authentication

Primary:

- Tomasin, S., Zhang, H., Chorti, A., & Poor, H. V. (2022). Challenge-Response Physical Layer Authentication Over Partially Controllable Channels.

Secondary:

- Shoukry, Y., Martin, P., Yona, Y., Diggavi, S., & Srivastava, M. (2015, October). Pycra: Physical challenge-response authentication for active sensors under spoofing attacks. In *Proceedings of the 22nd ACM SIGSAC Conference on Computer and Communications Security* (pp. 1004-1015).
- Chorti, A., Barreto, A. N., K  psell, S., Zoli, M., Chafii, M., Sehier, P., ... & Poor, H. V. (2022). Context-aware security for 6G wireless: the role of physical layer security. *IEEE Communications Standards Magazine*, 6(1), 102-108.

Topic 57 (5G Security): Smart Jamming attacks

Primary:

- Bout, E., Brighente, A., Conti, M., & Loscri, V. (2022, August). FOLPETTI: A Novel Multi-Armed Bandit Smart Attack for Wireless Networks. In *Proceedings of the 17th International Conference on Availability, Reliability and Security* (pp. 1-10).

Secondary:

- Yin, W., Hu, P., Zhou, H., Xing, G., & Wen, J. (2022). Jamming attacks and defenses for fast association in IEEE 802.11 ah networks. *Computer Networks*, 208, 108890.
- Pirayesh, H., & Zeng, H. (2022). Jamming attacks and anti-jamming strategies in wireless networks: A comprehensive survey. *IEEE Communications Surveys & Tutorials*.

Topic 58 (MISC): Video forensics

Primary:

- Lukas, J., Fridrich, J., & Goljan, M. (2006). Digital camera identification from sensor pattern noise. *IEEE Transactions on Information Forensics and Security*, 1(2), 205-214.

Secondary:

- Chen, M., Fridrich, J., Goljan, M., & Lukás, J. (2008). Determining image origin and integrity using sensor noise. *IEEE Transactions on information forensics and security*, 3(1), 74-90.
- Milani, S., Fontani, M., Bestagini, P., Barni, M., Piva, A., Tagliasacchi, M., & Tubaro, S. (2012). An overview on video forensics. *APSIPA Transactions on Signal and Information Processing*, 1.
- Ling, C., Balci, U., Blackburn, J., & Stringhini, G. (2021, May). A first look at zoombombing. In *2021 IEEE Symposium on Security and Privacy (SP)* (pp. 1452-1467). IEEE.

Topic 59 (MISC): Security in Logic-Locking (Logic-Obfuscation)

Primary:

- Yasin, M., & Sinanoglu, O. (2017, October). Evolution of logic locking. In *2017 IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC)* (pp. 1-6). IEEE.

Secondary:

- Yasin, M., Sengupta, A., Nabeel, M. T., Ashraf, M., Rajendran, J., & Sinanoglu, O. (2017, October). Provably-secure logic locking: From theory to practice. In *Proceedings of the 2017 ACM SIGSAC Conference on Computer and Communications Security* (pp. 1601-1618).
- Xie, Y., & Srivastava, A. (2018). Anti-sat: Mitigating sat attack on logic locking. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 38(2), 199-207.

Topic 60 (MISC): Secure key generation in PUF-based Logic-Locking

Primary:

- Enamul Quadir, M. S., & Chandy, J. A. (2019). Key generation for hardware obfuscation using strong PUFs. *Cryptography*, 3(3), 17.

Secondary:

- Suh, G. E., & Devadas, S. (2007, June). Physical unclonable functions for device authentication and secret key generation. In *2007 44th ACM/IEEE Design Automation Conference* (pp. 9-14). IEEE.
- Kareem, H., & Dunaev, D. (2021, June). Physical Unclonable Functions based Hardware Obfuscation Techniques: A State of the Art. In *2021 16th Iberian Conference on Information Systems and Technologies (CISTI)* (pp. 1-6). IEEE.

Topic 61 (MISC): Misuses in Wearable Devices

Primary:

- Naveed, M., Zhou, X. Y., Demetriou, S., Wang, X., & Gunter, C. A. (2014, February). Inside Job: Understanding and Mitigating the Threat of External Device Mis-Binding on Android. In *NDSS*.

Secondary:

- Fereidooni, H., Frassetto, T., Miettinen, M., Sadeghi, A. R., & Conti, M. (2017, July). Fitness trackers: fit for health but unfit for security and privacy. In *2017 IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering*

Technologies (CHASE) (pp. 19-24). IEEE.

- Rahman, M., Carbutar, B., & Topkara, U. (2015). Secure management of low power fitness trackers. *IEEE Transactions on Mobile Computing*, 15(2), 447-459.
- Classen, J., Wegemer, D., Patras, P., Spink, T., & Hollick, M. (2018). Anatomy of a vulnerable fitness tracking system: Dissecting the fitbit cloud, app, and firmware. *Proceedings of the ACM on interactive, mobile, wearable and ubiquitous technologies*, 2(1), 1-24.

Topic 62 (MISC): Cyber-Threat Intelligence

Primary:

- Nasr, T., Torabi, S., Bou-Harb, E., Fachkha, C., & Assi, C. (2022). Power jacking your station: In-depth security analysis of electric vehicle charging station management systems. *Computers & Security*, 112, 102511.

Secondary:

- Cabana, O., Youssef, A. M., Debbabi, M., Lebel, B., Kassouf, M., Atallah, R., & Agba, B. L. (2021). Threat intelligence generation using network telescope data for industrial control systems. *IEEE Transactions on Information Forensics and Security*, 16, 3355-3370.
- Barbieri, G., Conti, M., Tippenhauer, N. O., & Turrin, F. (2021, July). Assessing the Use of Insecure ICS Protocols via IXP Network Traffic Analysis. In *2021 International Conference on Computer Communications and Networks (ICCCN)* (pp. 1-9). IEEE.

Topic 63 (MISC): Lie Detection

Primary:

- Monaro, M., Galante, C., Spolaor, R., Li, Q. Q., Gamberini, L., Conti, M., & Sartori, G. (2018). Covert lie detection using keyboard dynamics. *Scientific reports*, 8(1), 1-10.

Secondary:

- Monaro, M., Gamberini, L., & Sartori, G. (2017). The detection of faked identity using unexpected questions and mouse dynamics. *PloS one*, 12(5), e0177851.
-

Topic 64 (MISC): Security and Privacy in Online Video Games

Primary:

- Conti, M., & Tricomi, P. P. (2020, December). PvP: Profiling Versus Player! Exploiting Gaming Data for Player Recognition. In *International Conference on Information Security* (pp. 393-408). Springer, Cham.

Secondary:

- Martinovic, D., Ralevich, V., McDougall, J., & Perklin, M. (2014, July). "You are what you play": Breaching privacy and identifying users in online gaming. In *2014 Twelfth Annual International Conference on Privacy, Security and Trust* (pp. 31-39). IEEE.
- Moon, S., Reidenberg, J. R., & Russell, N. C. (2017). Privacy in Gaming and Virtual Reality Technologies: Review of Academic Literature.

Topic 65 (MISC): Securing microservices architectures during SDLC

Primary:

- Nehme, A., Jesus, V., Mahbub, K., & Abdallah, A. (2019). Securing microservices. *IT Professional*, 21(1), 42-49.

Secondary:

Mohammed, N. M., Niazi, M., Alshayeb, M., & Mahmood, S. (2017). Exploring software security approaches in software development lifecycle: A systematic mapping study. *Computer Standards & Interfaces*, 50, 107-115.

- Combe, T., Martin, A., & Di Pietro, R. (2016). To docker or not to docker: A security perspective. *IEEE Cloud Computing*, 3(5), 54-62.

Topic 66 (MISC): Detecting Wireless Sensors

Primary:

- Singh, A. D., Garcia, L., Noor, J., & Srivastava, M. (2021). I Always Feel Like Somebody's Sensing Me! A Framework to Detect, Identify, and Localize Clandestine Wireless Sensors. In 30th {USENIX} Security Symposium ({USENIX} Security 21).

Secondary:

- Wu, K., & Lagesse, B. (2019, March). Do you see what i see?< subtitle> detecting hidden streaming cameras through similarity of simultaneous observation. In 2019 IEEE International Conference on Pervasive Computing and Communications (PerCom (pp. 1-10). IEEE.
- Cheng, Y., Ji, X., Lu, T., & Xu, W. (2018, May). Dewicam: Detecting hidden wireless cameras via smartphones. In Proceedings of the 2018 on Asia Conference on Computer and Communications Security (pp. 1-13).

Topic 67 (MISC): Textual Captchas

Primary:

- Von Ahn, L., Blum, M., Hopper, N. J., & Langford, J. (2003, May). CAPTCHA: Using hard AI problems for security. In International conference on the theory and applications of cryptographic techniques (pp. 294-311). Springer, Berlin, Heidelberg.

Secondary:

- Bursztein, E., Aigrain, J., Moscicki, A., & Mitchell, J. C. (2014). The end is nigh: Generic solving of text-based CAPTCHAs. In 8th {USENIX} Workshop on Offensive Technologies ({WOOT} 14).
- Chellapilla, K., Larson, K., Simard, P. Y., & Czerwinski, M. (2005, July). Computers beat Humans at Single Character Recognition in Reading based Human Interaction Proofs (HIPs). In CEAS.

Topic 68 (MISC): Covert channel for security and privacy

Primary:

- Zander, S., Armitage, G., & Branch, P. (2007). A survey of covert channels and countermeasures in computer network protocols. *IEEE Communications Surveys & Tutorials*, 9(3), 44-57.

Secondary:

- Ying, X., Bernieri, G., Conti, M., & Poovendran, R. (2019, April). TACAN: Transmitter authentication through covert channels in controller area networks. In Proceedings of the 10th ACM/IEEE International Conference on Cyber-Physical Systems (pp. 23-34).
- Taylor, J. M., & Sharif, H. R. (2017, December). Enhancing integrity of modbus TCP through covert channels. In 2017 11th International Conference on Signal Processing and Communication Systems (ICSPCS) (pp. 1-6). IEEE.

Topic 69 (MISC): PIN and Password security

Primary:

- Cardaioli, M., Conti, M., Balagani, K., & Gasti, P. (2020, September). Your PIN Sounds

Good! Augmentation of PIN Guessing Strategies via Audio Leakage. In European Symposium on Research in Computer Security (pp. 720-735). Springer, Cham.

Secondary:

- Balagani, K., Cardaioli, M., Conti, M., Gasti, P., Georgiev, M., Gurtler, T., ... & Wu, L. (2019). Pilot: Password and pin information leakage from obfuscated typing videos. *Journal of Computer Security*, 27(4), 405-425.
- Kim, H., & Huh, J. H. (2012). PIN selection policies: Are they really effective?. *computers & security*, 31(4), 484-496.

Topic 70 (MISC): Security and privacy of keyboard

Primary:

- Monaco, J. V. (2018, May). Sok: Keylogging side channels. In 2018 IEEE Symposium on Security and Privacy (SP) (pp. 211-228). IEEE.

Secondary:

- Ceconello, S., Compagno, A., Conti, M., Lain, D., & Tsudik, G. (2019). Skype & type: Keyboard eavesdropping in voice-over-IP. *ACM Transactions on Privacy and Security (TOPS)*, 22(4), 1-34.
- Anand, S. A., & Saxena, N. (2018, March). Keyboard emanations in remote voice calls: Password leakage and noise (less) masking defenses. In *Proceedings of the Eighth ACM Conference on Data and Application Security and Privacy* (pp. 103-110).

Topic 71 (MISC): Adversarial attacks on text classification models

Primary:

- Xu, J., & Du, Q. (2020). Texttricker: Loss-based and gradient-based adversarial attacks on text classification models. *Engineering Applications of Artificial Intelligence*, 92, 103641.

Secondary:

- Xu, J., & Du, Q. (2020). Adversarial attacks on text classification models using layer-wise relevance propagation. *International Journal of Intelligent Systems*, 35(9), 1397-1415.

Topic 72 (MISC): Document Anonymization

Primary:

- Han, Q., Molinaro, C., Picariello, A., Sperli, G., Subrahmanian, V. S., & Xiong, Y. (2021). Generating fake documents using probabilistic logic graphs. *IEEE Transactions on Dependable and Secure Computing*.

Secondary:

- Hassan, F., Sanchez, D., & Domingo-Ferrer, J. (2021). Utility-preserving privacy protection of textual documents via word embeddings. *IEEE transactions on knowledge and data engineering*.

Topic 73 (MISC): Metaverse Security

Primary:

- Wang, Y., Su, Z., Zhang, N., Xing, R., Liu, D., Luan, T. H., & Shen, X. (2022). A survey on metaverse: Fundamentals, security, and privacy. *IEEE Communications Surveys & Tutorials*.

Secondary:

- Smaili, N., & de Rancourt-Raymond, A. (2022). Metaverse: welcome to the new fraud

- marketplace. *Journal of Financial Crime*, (ahead-of-print).
- Yarramreddy, A., Gromkowski, P., & Baggili, I. (2018, May). Forensic analysis of immersive virtual reality social applications: a primary account. In *2018 IEEE Security and Privacy Workshops (SPW)* (pp. 186-196). IEEE.
- Valluripally, S., Gulhane, A., Hoque, K. A., & Calyam, P. (2021). Modeling and defense of social virtual reality attacks inducing cybersickness. *IEEE Transactions on Dependable and Secure Computing*.

Topic 74 (MISC): Side-Channel Attacks in PaaS Clouds

Primary:

- Zhang, Y., Juels, A., Reiter, M. K., & Ristenpart, T. (2014, November). Cross-tenant side-channel attacks in PaaS clouds. In *Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security* (pp. 990-1003).

Secondary:

- Van't Hof, A., & Nieh, J. (2022). {BlackBox}: A Container Security Monitor for Protecting Containers on Untrusted Operating Systems. In *16th USENIX Symposium on Operating Systems Design and Implementation (OSDI 22)* (pp. 683-700).
- Fang, C., Wang, H., Nazari, N., Omid, B., Sasan, A., Khasawneh, K. N., ... & Homayoun, H. (2021). Reptack: Exploiting Cloud Schedulers to Guide Co-Location Attacks. *arXiv preprint arXiv:2110.00846*.

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