Pengfei Hu

Professor, Shandong University

72 Binhai Rd
Shandong University
Qingdao, Shandong 266237
+86 18661768582
phu@sdu.edu.cn
https://perfecthu.github.io/

Research Interests

Embodied AI Security, Hardware Security

Education

Sep 2013 – Jun 2018 **PhD in CS**, *UC Davis*, CA, US.
- Research: Wireless Security, Wireless Sensing

Sep 2010 – Jun 2013 **MSc in CS**, *University of Science and Technology of China*, Hefei, China.
- Research: Security & Privacy

Sep 2006 – Jun 2010 **BSc in CS**, *Changchun University of Science and Technology*, Changchun, China.

Experience

Jun 2020 – present **Professor**, *Shanodng University*, Qingdao, Shandong.

Jul 2018 – Jun 2020 **Member of Technical Staff**, *VMWare*, Palo Alto, CA.

Academic Service

- Associate Editor: IEEE TDSC, IEEE TWC, IEEE IoTJ
- TPC member: USENIX Security, DSN, INFOCOM, WWW, SenSys, ICDCS, AsiaCCS
- Reviewer for TDSC, TIFS, TC, TWC, TMC, JSAC

Selected Publications

[1] Wenhao Li, Jiarong Yang, Mingda Han, Xiuzhen Cheng, Pengfei Hu, and Cong Wang. Printspy: Pixel-level eavesdropping on commodity laser printers via electromagnetic side channels. In *2026 IEEE Symposium on Security and Privacy (SP)*, pages 4427–4444. IEEE, 2026.

[2] Guoming Zhang, Huiting Zhang, Zhenwei Lu, Heqiang Fu, Xin Gao, Riccardo Spolaor, Yetong Cao, Yanni Yang, and Pengfei Hu. Trojpix: Electromagnetic covert channels via imperceptible pixel modulation. In *35th USENIX Security Symposium (USENIX Security 26)*, pages 2523–2539, 2026.

[3] Wenhao Li, Jiahao Wang, Guoming Zhang, Yanni Yang, Riccardo Spolaor, Xiuzhen Cheng, and Pengfei Hu. Emiris: Eavesdropping on iris information via electromagnetic side channel. In *NDSS Symposium 2025*, San Diego, CA, February 2025.

[4] Guoming Zhang, Xiaohui Ma, Huiting Zhang, Zhijie Xiang, Xiaoyu Ji, Yanni Yang, Xiuzhen Cheng, and Pengfei Hu. LaserAdv: Laser adversarial attacks on speech recognition systems. In *33rd USENIX Security Symposium (USENIX Security 24)*, Philadelphia, PA, August 2024. USENIX Association.

[5] Zhaopeng Xu, Tong Liu, Ruobing Jiang, Pengfei Hu, Zhongwen Guo, and Chao Liu. Aface: Range-flexible anti-spoofing face authentication via smartphone acoustic sensing. *ACM IMWUT/Ubicomp*, 8(1), Mar 2024.

[6] Guoming Zhang, Zhijie Xiang, Heqiang Fu, Yanni Yang, and Pengfei Hu. Echolight:

Sound eavesdropping based on ambient light reflection. In *IEEE INFOCOM 2024-IEEE Conference on Computer Communications*, pages 341–350. IEEE, 2024.

[7] Yanni Yang, Genglin Wang, Zhenlin An, Guoming Zhang, Xiuzhen Cheng, and Pengfei Hu. Rf-parrot: Wireless eavesdropping on wired audio. In *IEEE INFOCOM 2024-IEEE Conference on Computer Communications*, pages 701–710. IEEE, 2024.

[8] Yanni Yang, Zhenlin An, Jiannong Cao, Yanwen Wang, Pengfei Hu, Guoming Zhang, and Xiuzhen Cheng. Jump out of resonance: A practical nfc tag fingerprinting scheme. *IEEE Transactions on Mobile Computing*, 2024.

[9] Huanqi Yang, Mingda Han, Mingda Jia, Zehua Sun, Pengfei Hu, Yu Zhang, Tao Gu, and Weitao Xu. Xgait: Cross-modal translation via deep generative sensing for rf-based gait recognition. In *Proceedings of the 21st ACM Conference on Embedded Networked Sensor Systems*, pages 43–55, 2023.

[10] Guangrong Zhao, Yiran Shen, Ning Chen, Pengfei Hu, Lei Liu, and Hongkai Wen. Ev-tach: A handheld rotational speed estimation system with event camera. *IEEE Transactions on Mobile Computing*, 2023.

[11] Xianglong Zhang, Huanle Zhang, Guoming Zhang, Hong Li, Dongxiao Yu, Xiuzhen Cheng, and Pengfei Hu. Model poisoning attack on neural network without reference data. *IEEE Transactions on Computers*, 72(10):2978–2989, 2023.

[12] Pengfei Hu, Wenhao Li, Riccardo Spolaor, and Xiuzhen Cheng. mmecho: A mmwave-based acoustic eavesdropping method. In *2023 IEEE Symposium on Security and Privacy (SP)*, pages 1840–1856. IEEE, 2023.

[13] Yupeng Yin, Xianglong Zhang, Huanle Zhang, Feng Li, Yue Yu, Xiuzhen Cheng, and Pengfei Hu. Ginver: Generative model inversion attacks against collaborative inference. In *Proceedings of the ACM Web Conference 2023*, pages 2122–2131, 2023.

[14] Zhe Chen, Tianyue Zheng, Chao Cai, Yue Gao, Pengfei Hu, and Jun Luo. Wider is Better? Contact-free Vibration Sensing via Different COTS-RF Technologies. In *IEEE INFOCOM 2023 - IEEE Conference on Computer Communications*, New York, US, May 2023. IEEE.

[15] Yanni Yang, Jiannong Cao, Zhenlin An, Yanwen Wang, Pengfei Hu, and Guoming Zhang. NFChain: A Practical Fingerprinting Scheme for NFC Tag Authentication. In *IEEE INFOCOM 2023 - IEEE Conference on Computer Communications*, New York, US, May 2023. IEEE.

[16] Zheng Fang, Hao Fu, Tianbo Gu, Pengfei Hu, Jinyue Song, Trent Jaeger, and Prasant Mohapatra. Towards system-level security analysis of iot using attack graphs. *IEEE Transactions on Mobile Computing*, 2022.

[17] Pengfei Hu, Wenhao Li, Yifan Ma, Panneer Santhalingam, Parth Pathak, Hong Li, Huanle Zhang, Guoming Zhang, Xiuzhen Cheng, and Prasant Mohapatra. Towards Unconstrained Vocabulary Eavesdropping with mmWave Radar using GAN. *IEEE Transactions on Mobile Computing*, Early Access.

[18] Pengfei Hu, Hui Zhuang, Panneer Selvam Santhalingam, Riccardo Spolaor, Parth Pathak, Guoming Zhang, and Xiuzhen Cheng. AccEar: Accelerometer Acoustic Eavesdropping with Unconstrained Vocabulary. In *2022 IEEE Symposium on Security and Privacy (SP)*, pages 1757–1773, San Francisco, CA, USA, May 2022. IEEE.

[19] Pengfei Hu, Yifan Ma, Panneer Selvam Santhalingam, Parth H Pathak, and Xiuzhen Cheng. MILLIEAR: Millimeter-wave Acoustic Eavesdropping with Unconstrained Vocabulary. In *IEEE INFOCOM 2022 - IEEE Conference on Computer Communications*, pages 11–20, London, United Kingdom, May 2022. IEEE.

[20] Zheng Fang, Hao Fu, Tianbo Gu, Pengfei Hu, Jinyue Song, Trent Jaeger, and Prasant Mohapatra. IOTA: A Framework for Analyzing System-Level Security of IoTs. In *2022 IEEE/ACM Seventh International Conference on Internet-of-Things Design and Implementation (IoTDI)*, pages 143–155, Milano, Italy, May 2022. IEEE.

[21] Minxing Zhang, Zhaochun Ren, Zihan Wang, Pengjie Ren, Zhunmin Chen, Pengfei Hu, and Yang Zhang. Membership Inference Attacks Against Recommender Systems. In *Proceedings of the 2021 ACM SIGSAC Conference on Computer and Communications Security*, pages 864–879, Virtual Event Republic of Korea, November 2021. ACM.

[22] Yifei Zou, Dongxiao Yu, Pengfei Hu, Jiguo Yu, Xiuzhen Cheng, and Prasant Mohapatra. Jamming-Resilient Message Dissemination in Wireless Networks. *IEEE Transactions on Mobile Computing*, pages 1–1, 2021.

[23] Tianbo Gu, Zheng Fang, Allaukik Abhishek, Hao Fu, Pengfei Hu, and Prasant Mohapatra. IoTGaze: IoT Security Enforcement via Wireless Context Analysis. In *IEEE INFOCOM 2020 - IEEE Conference on Computer Communications*, pages 884–893, Toronto, ON, Canada, July 2020. IEEE.

[24] Hao Fu, Pengfei Hu, Zizhan Zheng, Aveek K. Das, Parth H. Pathak, Tianbo Gu, Sencun Zhu, and Prasant Mohapatra. Towards Automatic Detection of Nonfunctional Sensitive Transmissions in Mobile Applications. *IEEE Transactions on Mobile Computing*, 20(10):3066–3080, October 2021.

[25] Lingchen Zhao, Shengshan Hu, Qian Wang, Jianlin Jiang, Shen Chao, Xiangyang Luo, and Pengfei Hu. Shielding Collaborative Learning: Mitigating Poisoning Attacks through Client-Side Detection. *IEEE Transactions on Dependable and Secure Computing*, pages 1–1, 2020.

[26] Pengfei Hu, Parth H. Pathak, Huanle Zhang, Zhicheng Yang, and Prasant Mohapatra. High Speed LED-to-Camera Communication using Color Shift Keying with Flicker Mitigation. *IEEE Transactions on Mobile Computing*, 19(7):1603–1617, July 2020.

[27] Zhicheng Yang, Parth H. Pathak, Mo Sha, Tingting Zhu, Junai Gan, Pengfei Hu, and Prasant Mohapatra. On the feasibility of estimating soluble sugar content using millimeter-wave. In *Proceedings of the International Conference on Internet of Things Design and Implementation*, pages 13–24, Montreal Quebec Canada, April 2019. ACM.

[28] Pengfei Hu, Parth H. Pathak, Yilin Shen, Hongxia Jin, and Prasant Mohapatra. PCASA: Proximity Based Continuous and Secure Authentication of Personal Devices. In *2017 14th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)*, pages 1–9, San Diego, CA, USA, June 2017. IEEE.

[29] Hao Fu, Zizhan Zheng, Aveek K. Das, Parth H. Pathak, Pengfei Hu, and Prasant Mohapatra. FlowIntent: Detecting Privacy Leakage from User Intention to Network Traffic Mapping. In *2016 13th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)*, pages 1–9, London, United Kingdom, June 2016. IEEE.

[30] Pengfei Hu, Parth H. Pathak, Xiaotao Feng, Hao Fu, and Prasant Mohapatra. ColorBars: increasing data rate of LED-to-camera communication using color shift keying. In *Proceedings of the 11th ACM Conference on Emerging Networking Experiments and Technologies*, pages 1–13, Heidelberg Germany, December 2015. ACM.

[31] Pengfei Hu, Hongxing Li, Hao Fu, Derya Cansever, and Prasant Mohapatra. Dynamic defense strategy against advanced persistent threat with insiders. In *2015 IEEE Conference on Computer Communications (INFOCOM)*, pages 747–755, Kowloon, Hong Kong, April 2015. IEEE.

[32] Parth H. Pathak, Xiaotao Feng, Pengfei Hu, and Prasant Mohapatra. Visible Light Communication, Networking, and Sensing: A Survey, Potential and Challenges. *IEEE Communications Surveys & Tutorials*, 17(4):2047–2077, 2015.

[33] Pengfei Hu, Kai Xing, Xiuzhen Cheng, Hao Wei, and Haojin Zhu. Information leaks out: Attacks and countermeasures on compressive data gathering in wireless sensor networks. In *IEEE INFOCOM 2014 - IEEE Conference on Computer Communications*, pages 1258–1266, Toronto, ON, Canada, April 2014. IEEE.

[34] Kai Xing, Zhiguo Wan, Pengfei Hu, Haojin Zhu, Yuepeng Wang, Xi Chen, Yang Wang, and Liusheng Huang. Mutual privacy-preserving regression modeling in participatory sensing. In *2013 Proceedings IEEE INFOCOM*, pages 3039–3047, Turin, Italy, April 2013. IEEE.

[35] Kai Xing, Tianbo Gu, Zhengang Zhao, Lei Shi, Yunhao Liu, Pengfei Hu, Yuepeng Wang, Yi Liang, Shuo Zhang, Yang Wang, and Liusheng Huang. Approaching reliable realtime communications? A novel system design and implementation for roadway safety oriented vehicular communications. In *2013 Proceedings IEEE INFOCOM*, pages 115–119, Turin, Italy, April 2013. IEEE.