

# Hanzhou WU

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## EDUCATION

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<b>Southwest Jiaotong University</b> <i>Ph.D. in Information Security</i>	2011 – 2017 <i>Chengdu 611756, Sichuan, China</i>
<b>Southwest Jiaotong University</b> <i>B.Sc. in Information Security (with Mao Yisheng Honors Class)</i>	2007 – 2011 <i>Chengdu 611756, Sichuan, China</i>

## PROFESSIONAL EXPERIENCE

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<b>Adjunct Professor</b> <i>School of Big Data and Computer Science, Guizhou Normal University</i>	2024 – <i>Guiyang 550025, China</i>
<b>Associate Professor</b> <i>School of Communication and Information Engineering, Shanghai University</i>	2021 – <i>Shanghai 200444, China</i>
<b>Assistant Professor</b> <i>School of Communication and Information Engineering, Shanghai University</i>	2019 – 2021 <i>Shanghai 200444, China</i>
<b>Research Scientist</b> <i>Institute of Automation, Chinese Academy of Sciences</i>	2017 – 2019 <i>Beijing 100190, China</i>
<b>Visiting Scholar</b> <i>Dept. of Electrical and Computer Engineering, New Jersey Institute of Technology</i>	2014 – 2016 <i>Newark 07102, NJ, USA</i>

## TEACHING

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<b>Matrix Theory and Methods</b> <i>linear space, norms, spectral theory, matrix factorizations, generalized inverses, etc.</i>	Spring
<b>Information Networks and Security</b> <i>cryptography, firewall, intrusion detection, network security protocols, etc.</i>	Spring
<b>Computer Programming (C Language)</b> <i>pointer, array, queue, structure, tree, graph, file input and output, etc.</i>	Fall
<b>Multimedia Security</b> <i>multimedia watermarking, steganography, steganalysis, and forensics, etc.</i>	Fall

## RESEARCH INTERESTS

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*steganography, steganalysis, digital watermarking, digital forensics and security topics related to AI.*

## KEY WORDS OF RESEARCH

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image/video/audio signal processing, natural language processing, information hiding, data hiding, digital watermarking, steganography, steganalysis, covert communication, deep learning, computer security, artificial intelligence, intellectual property protection, deep neural networks, backdooring, digital forensics, tamper detection and localization, quantum computing, language model, large language model, linguistic steganography, linguistic steganalysis, reversible data hiding, reversible watermarking, authentication, data embedding, graph neural networks, adversarial examples, ownership verification, data poisoning, quantum artificial intelligence, anomaly detection, machine learning, explainability, game theory, cryptography, network security, wireless communication, etc.

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## SELECTED AWARDS AND HONORS

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<b>Outstanding Paper Award</b> <i>co-author, in China Media Forensics and Security Workshop</i>	2023
<b>CCF-Tencent Rhino-Bird Young Faculty Open Research Fund</b> <i>Principal Investigator, supported by Tencent Inc.</i>	2022
<b>Best Presentation Award</b> <i>first author, in China Media Forensics and Security Workshop</i>	2021
<b>Outstanding Paper Award</b> <i>first author, in China Information Hiding and Multimedia Security Workshop</i>	2019
<b>Shanghai “Chenguang” Program</b> <i>Principal Investigator, supported by Shanghai Municipal Education Commission</i>	2019
<b>Silver Medal</b> <i>contestant, 36th ACM-ICPC Asia Regional Programming Contest (Chengdu Site)</i>	2011
<b>Silver Medal</b> <i>contestant, 36th ACM-ICPC Beijing Invitational Programming Contest</i>	2011
<b>Silver Medal</b> <i>contestant, “Google Cup” ACM-ICPC Fudan Invitational Programming Contest</i>	2011
<b>Bronze Medal</b> <i>contestant, 35th ACM-ICPC Asia Regional Programming Contest (Hangzhou Site)</i>	2010
<b>Bronze Medal</b> <i>contestant, 35th ACM-ICPC Asia Regional Programming Contest (Tianjin Site)</i>	2010

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## SELECTED ACTIVITIES AND SERVICES

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<b>Associate Editor</b> <i>IEEE Signal Processing Letters</i>	2025 –
<b>Editorial Board Member</b> <i>Scientific Reports, Springer Nature</i>	2025 –
<b>Technical Committee Member</b> <i>APSIPA Multimedia Security and Forensics (MSF)</i>	2023 –
<b>Local Organization Chair</b> <i>14th IEEE International Workshop on Information Forensics and Security (Shanghai, China)</i>	2022
<b>Reviewer</b> <i>for influential journals and conferences covering information forensics and security, e.g., IEEE SPL, TIFS, etc. Always</i>	

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## FUNDING / SPONSORS

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<b>Nanning Science and Technology Bureau</b> <i>Principal Investigator for Shanghai University, CNY 450,000</i>	2025 – 2028
<b>Science and Technology Department of Guizhou Province</b> <i>Principal Investigator, CNY 200,000</i>	2025 – 2028
<b>Science and Technology Commission of Shanghai Municipality</b> <i>Principal Investigator, CNY 200,000</i>	2024 – 2027
<b>National Natural Science Foundation of China</b> <i>Principal Investigator for Shanghai University, CNY 2,560,000</i>	2024 – 2027
<b>Science and Technology Department of Tibet</b> <i>Principal Investigator for Shanghai University, CNY 3,000,000</i>	2024 – 2025

**CCF-Tencent Rhino-Bird Young Faculty Open Research Fund**

*Principal Investigator, CNY 150,000*

2022 – 2023

**Shanghai “Chen Guang” Program**

*Principal Investigator, CNY 60,000*

2020 – 2022

**National Natural Science Foundation of China**

*Principal Investigator, CNY 280,000*

2020 – 2022

**China Scholarship Council**

*Principal Investigator, USD 40,800*

2014 – 2016

**BOOKS AND BOOK CHAPTERS**

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- Elsevier’20 H. Wu. Unsupervised steganographer identification via clustering and outlier detection. In: *Digital Media Steganography (Chapter 13)*, Elsevier, 2020.
- IOP Science’21 H. Wu. Recent advances in reversible watermarking in an encrypted domain. In: *Advanced Security Solutions for Multimedia (Chapter 4)*, IOP Science, 2021.
- IntechOpen’21 H. Wu. Graph models in information hiding. In: *Recent Applications in Graph Theory (Chapter 1)*, IntechOpen, 2021.
- Springer’24 H. Wu, T. Yang, X. Zheng, Y. Fang. Linguistic steganography and linguistic steganalysis. In: *Adversarial Multimedia Forensics (Chapter 7)*, Springer, 2024.

**SELECTED JOURNAL ARTICLES**

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- SPL’16 G. Xu, H. Wu, Y. Shi. Structural design of convolutional neural networks for steganalysis. *IEEE Signal Processing Letters*, vol. 23, no. 5, pp. 708-712, 2016.
- TCSVT’17 H. Wu, Y. Shi, H. Wang, L. Zhou. Separable reversible data hiding for encrypted palette images with color partitioning and flipping verification. *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 27, no. 8, pp. 1620-1631, 2017.
- TCSVT’20 F. Ding, H. Wu, G. Zhu, Y. Shi. METEOR: Measurable energy map toward the estimation of resampling rate via a convolutional neural network. *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 30, no. 12, pp. 4715-4727, 2020.
- SP’21 Y. Qin, H. Wu, G. Feng. Structured subspace learning-induced symmetric nonnegative matrix factorization. *Signal Processing*, vol. 186, p. 108115, 2021.
- TR’21 H. Wu, X. Zhang. Game-theoretic analysis to parameterized reversible watermarking. *IETE Technical Review*, vol. 38, no. 1, pp. 26-35, 2021.
- CIM’21 Z. Wang, G. Feng, H. Wu, X. Zhang. Data hiding in neural networks for multiple receivers. *IEEE Computational Intelligence Magazine*, vol. 16, no. 4, pp. 70-84, 2021.
- TDSC’21 Y. Chen, H. Wang, H. Wu, Z. Wu, T. Li, A. Malik. Adaptive video data hiding through cost assignment and STCs. *IEEE Transactions on Dependable and Secure Computing*, vol. 18, no. 3, pp. 1320-1335, 2021.
- SPL’21 H. Wu, B. Yi, F. Ding, G. Feng, X. Zhang. Linguistic steganalysis with graph neural networks. *IEEE Signal Processing Letters*, vol. 28, pp. 558-562, 2021.

- TCSVT'21 H. Wu, G. Liu, Y. Yao, X. Zhang. Watermarking neural networks with watermarked images. *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 31, no. 7, pp. 2591-2601, 2021.
- PR'22 Y. Qin, H. Wu, J. Zhao, G. Feng. Enforced block diagonal subspace clustering with closed form solution. *Pattern Recognition*, vol. 130, p. 108791, 2022.
- TIP'22 Y. Qin, H. Wu, X. Zhang, G. Feng. Semi-supervised structured subspace learning for multi-view clustering. *IEEE Transactions on Image Processing*, vol. 31, pp. 1-14, 2022.
- CL'22 L. Zhou, C. Zhang, Q. Zeng, X. Liu, H. Wu. Optimal low-hit-zone frequency-hopping sequence sets with wide-gap for FHMA systems under follower jamming. *IEEE Communications Letters*, vol. 26, no. 5, pp. 969-973, 2022.
- SPL'22 B. Yi, H. Wu, G. Feng, X. Zhang. ALiSa: Acrostic linguistic steganography based on BERT and Gibbs sampling. *IEEE Signal Processing Letters*, vol. 29, pp. 687-691, 2022.
- CS'23 T. Qiao, Y. Ma, N. Zheng, H. Wu, Y. Chen, M. Xu, X. Luo. A novel model watermarking for protecting generative adversarial network. *Computers & Security*, vol. 127, p. 103102, 2023.
- ESWA'23 J. Wang, D. Wu, L. Li, J. Zhao, H. Wu, Y. Tang. Robust periodic blind watermarking based on sub-block mapping and block encryption. *Expert Systems with Applications*, vol. 224, p. 119981, 2023.
- SJ'23 L. Xiong, T. Peng, F. Li, S. Zeng, H. Wu. Privacy-preserving authentication scheme with revocability for multi-WSN in industrial IoT. *IEEE Systems Journal*, vol. 17, no. 1, pp. 38-49, 2023.
- PRL'23 H. Wu, C. Li, G. Liu, X. Zhang. Hiding data hiding. *Pattern Recognition Letters*, vol. 165, pp. 122-127, 2023.
- TCSVT'23 S. Chen, A. Malik, X. Zhang, G. Feng, H. Wu. A fast method for robust video watermarking based on Zernike moments. *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 33, no. 12, pp. 7342-7353, 2023.
- InfoSci'24 Y. Liu, C. Li, Z. Wang, H. Wu, X. Zhang. Transferable adversarial attack based on sensitive perturbation analysis in frequency domain. *Information Sciences*, vol. 678, p. 120971, 2024.
- TDSC'24 T. Yang, H. Wu, B. Yi, G. Feng, X. Zhang. Semantic-preserving linguistic steganography by pivot translation and semantic-aware bins coding. *IEEE Transactions on Dependable and Secure Computing*, vol. 21, no. 1, pp. 139-152, 2024.
- TKDE'24 Y. Qin, N. Pu, H. Wu. Elastic multi-view subspace clustering with pairwise and high-order correlations. *IEEE Transactions on Knowledge and Data Engineering*, vol. 36, no. 2, pp. 556-568, 2024.
- IoT'24 X. Zhao, H. Wu, X. Zhang. Effective backdoor attack on graph neural networks in spectral domain. *IEEE Internet of Things Journal*, vol. 11, no. 7, pp. 12102-12114, 2024.
- TKDE'24 Y. Qin, Z. Tang, H. Wu, G. Feng. Flexible tensor learning for multi-view clustering with markov chain. *IEEE Transactions on Knowledge and Data Engineering*, vol. 36, no. 4, pp. 1552-1565, 2024.

- TMM'24 Y. Qin, N. Pu, H. Wu. EDMC: Efficient multi-view clustering via cluster and instance space learning. *IEEE Transactions on Multimedia*, vol. 26, pp. 5273-5283, 2024.
- IoT'24 Y. Liu, L. Zhang, H. Wu, Z. Wang, X. Zhang. Reducing high-frequency artifacts for generative model watermarking via wavelet transform. *IEEE Internet of Things Journal*, vol. 11, no. 10, pp. 18503-18515, 2024.
- IoT'24 D. Wu, J. Wang, J. Zhao, L. Li, Z. Wang, H. Wu. Adaptive robust watermarking for resisting multiple distortions in real scenes. *IEEE Internet of Things Journal*, vol. 11, no. 10, pp. 33229-33246, 2024.
- TCSVT'24 L. Lin, D. Wu, J. Wang, Y. Chen, X. Zhang, H. Wu. Automatic, robust and blind video watermarking resisting camera recording. *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 34, no. 12, pp. 13413-13426, 2024.
- IoT'24 J. Wang, J. Zhao, L. Li, Z. Wang, H. Wu, D. Wu. Robust blind video watermarking based on ring tensor and BCH coding. *IEEE Internet of Things Journal*, vol. 11, no. 24, pp. 40743-40756, 2024.
- TMM'25 Y. Qin, N. Pu, H. Wu, N. Sebe. Discriminative anchor learning for efficient multi-view clustering. *IEEE Transactions on Multimedia*, vol. 27, pp. 1386-1396, 2025.
- TKDD'25 Y. Qin, N. Pu, H. Wu, N. Sebe. Margin-aware noise-robust contrastive learning for partially view-aligned problem. *ACM Transactions on Knowledge Discovery from Data*, vol. 19, no. 1, pp. 1-20, 2025.
- TCE'25 L. Xiong, J. Wang, L. Yu, N. Xiong, H. Wu. An efficient privacy-preserving access control scheme for cloud computing services. *IEEE Transactions on Consumer Electronics*, vol. 71, no. 2, pp. 6642-6658, 2025.
- IoT'25 L. Li, X. Zhang, H. Wu, G. Feng, W. Zhang. FareMark: Model-watermark-driven free-rider detection in federated learning model. *IEEE Internet of Things Journal*, 2025.
- IoT'25 X. Ren, H. Liu, H. Wu, Y. Wang, X. Lu, G. Sun. StegGuard: Secrets encoder and decoder act as fingerprint of self-supervised pre-trained model. *IEEE Internet of Things Journal*, 2025.

#### SELECTED CONFERENCE PAPERS

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- IH&MMSec'16 H. Wu, H. Wang, Y. Shi. PPE-based reversible data hiding. In: *Proc. ACM Workshop on Information Hiding and Multimedia Security*, pp. 187-188, 2016.
- IH&MMSec'16 G. Xu, H. Wu, Y. Shi. Ensemble of CNNs for steganalysis: an empirical study. In: *Proc. ACM Workshop on Information Hiding and Multimedia Security*, pp. 103-107, 2016.
- WIFS'16 H. Wu, H. Wang, Y. Shi. Dynamic content selection-and-prediction framework applied to reversible data hiding. In: *Proc. IEEE International Workshop on Information Forensics and Security*, pp. 1-6, 2016.
- ICPR'18 H. Wu, W. Wang, J. Dong, H. Wang. Ensemble reversible data hiding. In: *Proc. IEEE International Conference on Pattern Recognition*, pp. 2676-2681, 2018.

- MWSF'19 H. Wu, W. Wang, J. Dong, H. Wang. New graph-theoretic approach to social steganography. In: *Proc. IS&T Electronic Imaging, Media Watermarking, Security and Forensics*, pp. 539-1-539-7, 2019.
- MWSF'20 H. Wu, X. Zhang. Reducing invertible embedding distortion using graph matching model. In: *Proc. IS&T Electronic Imaging, Media Watermarking, Security and Forensics*, pp. 21-1-21-10, 2020.
- MWSF'20 J. Wang, H. Wu, X. Zhang, Y. Yao. Watermarking in deep neural networks via error back-propagation. In: *Proc. IS&T Electronic Imaging, Media Watermarking, Security and Forensics*, pp. 22-1-22-9, 2020.
- MWSF'20 H. Kang, H. Wu, X. Zhang. Generative text steganography based on LSTM network and attention mechanism with keywords. In: *Proc. IS&T Electronic Imaging, Media Watermarking, Security and Forensics*, pp. 291-1-291-8, 2020.
- ICASSP'20 H. Wu. Patch-level selection and breadth-first prediction strategy for reversible data hiding. In: *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 2837-2841, 2020.
- WIFS'21 X. Zhao, Y. Yao, H. Wu, X. Zhang. Structural watermarking to deep neural networks via network channel pruning. In: *Proc. IEEE International Workshop on Information Forensics and Security*, pp. 1-6, 2021.
- ICASSP'22 B. Yi, H. Wu, G. Feng, X. Zhang. Exploiting language model for efficient linguistic steganalysis. In: *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 3074-3078, 2022.
- MWSF'24 H. Wu. Prompting steganography: a new paradigm. In: *Proc. IS&T Electronic Imaging, Media Watermarking, Security and Forensics*, pp. 338-1-338-11, 2024.
- IH&MMSec'24 C. He, D. Wu, X. Zhang, H. Wu. Watermarking text documents with watermarked fonts. *ACM Workshop on Information Hiding and Multimedia Security*, pp. 187-197, 2024.
- IH&MMSec'24 L. Zhang, Y. Liu, X. Zhang, H. Wu. Suppressing high-frequency artifacts for generative model watermarking by anti-aliasing. *ACM Workshop on Information Hiding and Multimedia Security*, pp. 223-234, 2024.
- WIFS'24 X. Zhao, H. Wu, X. Zhang. Transferable watermarking to self-supervised pre-trained graph encoders by trigger embeddings. In: *Proc. IEEE International Workshop on Information Forensics and Security*, pp. 1-6, 2024.
- MM'25 Y. Qin, N. Pu, H. Wu, Z. Fan. Flexible multi-view clustering with dynamic views generation. In: *ACM International Conference on Multimedia*, 2025.

\* Google Scholar: <https://scholar.google.com/citations?user=IdiF7M0AAAAJ&hl=en>

Last update: August 2025