Hanzhou Wu

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Shanghai 200444, China

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https://hzwu.github.io

EDUCATION

Southwest Jiaotong University　　　　　　　　　　September 2011 – June 2017
Ph.D. in Information Security　　　　　　　　　　　*Chengdu 611756, Sichuan, China*

Southwest Jiaotong University　　　　　　　　　　September 2007 – June 2011
B.Sc. in Information Security (with Mao Yisheng Honors Class)　*Chengdu 611756, Sichuan, China*

PROFESSIONAL EXPERIENCE

Adjunct Professor　　　　　　　　　　　　　　　January 2024 – Present
School of Big Data and Computer Science, Guizhou Normal University　*Guiyang 550025, Guizhou, China*

Associate Professor　　　　　　　　　　　　　　March 2021 – Present
School of Communication and Information Engineering, Shanghai University　*Shanghai 200444, China*

Assistant Professor　　　　　　　　　　　　　　March 2019 – February 2021
School of Communication and Information Engineering, Shanghai University　*Shanghai 200444, China*

Research Scientist　　　　　　　　　　　　　　July 2017 – February 2019
Institute of Automation, Chinese Academy of Sciences　　*Beijing 100190, China*

Visiting Scholar　　　　　　　　　　　　　　　October 2014 – October 2016
Dept. of Electrical and Computer Engineering, New Jersey Institute of Technology　*Newark 07102, NJ, USA*

TEACHING

- Matrix Theory and Methods (graduate course), Spring
- Information Networks and Security (undergraduate course), Spring
- C Language Programming (undergraduate course), Fall
- Multimedia Security (undergraduate course), Fall

RESEARCH INTERESTS

digital watermarking, steganography, steganalysis, digital forensics and so on.

SELECTED AWARDS AND HONORS

Outstanding Paper Award
co-author, in China Media Forensics and Security Workshop　　　November 2023

CCF-Tencent Rhino-Bird Young Faculty Open Research Fund
Principal Investigator, supported by Tencent Inc.　　　　　　August 2022

Best Presentation Award
first author, in China Media Forensics and Security Workshop　　November 2021

Outstanding Paper Award
first author, in China Information Hiding and Multimedia Security Workshop　　October 2019

Shanghai "Chenguang" Program
Principal Investigator, supported by Shanghai Municipal Education Commission　　December 2019

Silver Medal
contestant, 36th ACM-ICPC Asia Regional Programming Contest (Chengdu Site)　　November 2011

Silver Medal

contestant, 36th ACM-ICPC Beijing Invitational Programming Contest   *June 2011*

Silver Medal

contestant, "Google Cup" ACM-ICPC Fudan Invitational Programming Contest   *May 2011*

Bronze Medal

contestant, 35th ACM-ICPC Asia Regional Programming Contest (Hangzhou Site)   *October 2010*

Bronze Medal

contestant, 35th ACM-ICPC Asia Regional Programming Contest (Tianjin Site)   *September 2010*

SELECTED ACTIVITIES AND SERVICES

Technical Committee Member

APSIPA Multimedia Security and Forensics (MSF)   *November 2023 - Present*

Local Organization Chair

14th IEEE International Workshop on Information Forensics and Security (Shanghai, China)   *December 2022*

Reviewer

for influential journals and conferences covering information forensics and security, e.g., IEEE TIFS.   *Always*

FUNDINGS

Science and Technology Department of Guizhou Province

Principal Investigator, CNY 300,000   *January 2025 - December 2028*

Science and Technology Commission of Shanghai Municipality

Principal Investigator, CNY 200,000   *October 2024 - September 2027*

Science and Technology Department of Tibet

Principal Investigator for Shanghai University, CNY 3,000,000   *June 2024 - May 2026*

National Natural Science Foundation of China

Principal Investigator for Shanghai University, CNY 2,560,000   *January 2024 - December 2027*

CCF-Tencent Rhino-Bird Young Faculty Open Research Fund

Principal Investigator, CNY 150,000   *October 2022 - December 2023*

Shanghai "Chen Guang" Program

Principal Investigator, CNY 60,000   *January 2020 - December 2022*

National Natural Science Foundation of China

Principal Investigator, CNY 280,000   *January 2020 - December 2022*

China Scholarship Council

Principal Investigator, USD 40,800   *October 2014 - October 2016*

BOOKS AND BOOK CHAPTERS

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 PUBLICATIONS

IEEE SPL'16   G. Xu, <u>H. Wu</u>, Y. Shi. Structural design of convolutional neural networks for steganalysis. *IEEE Signal Processing Letters*, vol. 23, no. 5, pp. 708-712, 2016.

IH&MMSec'16   <u>H. Wu</u>, 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, <u>H. Wu</u>, Y. Shi. Ensemble of CNNs for steganalysis: an empirical study. In: *Proc. ACM Workshop on Information Hiding and Multimedia Security*, pp. 103-107, 2016.

IEEE WIFS'16   <u>H. Wu</u>, 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.

IEEE TCSVT'17   <u>H. Wu</u>, 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.

IEEE ICPR'18   <u>H. Wu</u>, W. Wang, J. Dong, H. Wang. Ensemble reversible data hiding. In: *Proc. IEEE International Conference on Pattern Recognition*, pp. 2676-2681, 2018.

EI MWSF'19   <u>H. Wu</u>, 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.

EI MWSF'20   <u>H. Wu</u>, 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.

EI MWSF'20   J. Wang, <u>H. Wu</u>, 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.

EI MWSF'20   H. Kang, <u>H. Wu</u>, 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.

IEEE ICASSP'20   <u>H. Wu</u>. 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.

IEEE TCSVT'20   F. Ding, <u>H. Wu</u>, 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, <u>H. Wu</u>, G. Feng. Structured subspace learning-induced symmetric nonnegative matrix factorization. *Signal Processing*, vol. 186, p. 108115, 2021.

IEEE CIM'21   Z. Wang, G. Feng, <u>H. Wu</u>, X. Zhang. Data hiding in neural networks for multiple receivers. *IEEE Computational Intelligence Magazine*, vol. 16, no. 4, pp. 70-84, 2021.

IEEE TDSC'21   Y. Chen, H. Wang, <u>H. Wu</u>, 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.

IETE TR'21   <u>H. Wu</u>, X. Zhang. Game-theoretic analysis to parameterized reversible watermarking. *IETE Technical Review*, vol. 38, no. 1, pp. 26-35, 2021.

IEEE SPL'21   <u>H. Wu</u>, B. Yi, F. Ding, G. Feng, X. Zhang. Linguistic steganalysis with graph neural networks. *IEEE Signal Processing Letters*, vol. 28, pp. 558-562, 2021.

IEEE TCSVT'21   <u>H. Wu</u>, 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.

IEEE WIFS'21   X. Zhao, Y. Yao, <u>H. Wu</u>, 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.

IEEE TIP'22   Y. Qin, <u>H. Wu</u>, X. Zhang, G. Feng. Semi-supervised structured subspace learning for multi-view clustering. *IEEE Transactions on Image Processing*, vol. 31, pp. 1-14, 2022.

IEEE CL'22   L. Zhou, C. Zhang, Q. Zeng, X. Liu, <u>H. Wu</u>. 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.

PR'22   Y. Qin, <u>H. Wu</u>, J. Zhao, G. Feng. Enforced block diagonal subspace clustering with closed form solution. *Pattern Recognition*, vol. 130, p. 108791, 2022.

IEEE ICASSP'22   B. Yi, <u>H. Wu</u>, 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.

IEEE HPCC'22   <u>H. Wu</u>. Robust and lossless fingerprinting of deep neural networks via pooled membership inference. In: *Proc. IEEE International Conference on High Performance Computing and Communications*, pp. 1042-1049, 2022.

IEEE SPL'22   B. Yi, <u>H. Wu</u>, G. Feng, X. Zhang. ALiSa: Acrostic linguistic steganography based on BERT and Gibbs sampling. *IEEE Signal Processing Letters*, vol. 29, pp. 687-691, 2022.

IEEE SJ'23   L. Xiong, T. Peng, F. Li, S. Zeng, <u>H. Wu</u>. Privacy-preserving authentication scheme with revocability for multi-WSN in industrial IoT. *IEEE Systems Journal*, vol. 17, no. 1, pp. 38-49, 2023.

NeuCom'23   Z. Wang, G. Feng, <u>H. Wu</u>, X. Zhang. Data hiding during image processing using capsule networks. *Neurocomputing*, vol. 537, pp. 49-60, 2023.

CS'23   T. Qiao, Y. Ma, N. Zheng, <u>H. Wu</u>, 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, <u>H. Wu</u>, Y. Tang. Robust periodic blind watermarking based on sub-block mapping and block encryption. *Expert Systems with Applications*, vol. 224, p. 119981, 2023.

NeuCom'23   M. Li, <u>H. Wu</u>, X. Zhang. A novel watermarking framework for intellectual property protection of NLG APIs. *Neurocomputing*, vol. 558, p. 126700, 2023.

PRL'23   <u>H. Wu</u>, C. Li, G. Liu, X. Zhang. Hiding data hiding. *Pattern Recognition Letters*, vol. 165, pp. 122-127, 2023.

IEEE 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.

IEEE 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.

EI 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.

IEEE 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.

IEEE 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.

IEEE 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.

IEEE 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.

IEEE 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*, Early Access, 2024.

IEEE TDSC'24 Y. Liu, H. Wu, X. Zhang. Robust and imperceptible black-box DNN watermarking based on Fourier perturbation analysis and frequency sensitivity clustering. *IEEE Transactions on Dependable and Secure Computing*, Early Access, 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.

IEEE 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*, Early Access, 2024.

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.

IEEE 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*, Early Access, 2024.

IEEE TMM'24 Y. Qin, N. Pu, H. Wu, N. Sebe. Discriminative anchor learning for efficient multi-view clustering. *IEEE Transactions on Multimedia*, Early Access, 2024.

IEEE 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*, Early Access, 2024.

IEEE WIFS'24 X. Zhao, <u>H. Wu</u>, 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.

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

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