Dr. Tong Liu

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EDUCATION

Macao Polytechnic University, Macau, China 09/2022 – 11/2025
Ph.D. in Computer Applied Technology (Dual Degree)
Supervisor: Assoc. Prof. Xiaochen Yuan

University of Coimbra, Coimbra, Portugal
Ph.D. in Informatics Engineering (Dual Degree), *with Distinction and Honors (summa cum laude)*
Supervisor: Assoc. Prof. Pedro Martins

Macau University of Science and Technology, Macau, China 09/2018 – 06/2020
M.Sc. in Computer Information Systems
Supervisor: Assoc. Prof. Xiaochen Yuan
GPA: 3.74 /4.0

Communication University of Zhejiang, China 09/2014 – 06/2018
B.Eng. in Telecommunication Engineering
GPA: 3.38/5.0

WORKING EXPERIENCE

- ***Research Assistant,*** University of Macau 09/2021 – 08/2022
  Supervisor: Prof. Chi-Man Pun
- ***Teaching Assistant,*** Macau University of Science and Technology 10/2018 – 01/2020

RESEARCH INTERESTS

- Multimedia Forensics and Security;
- AI Model Security;
- Digital Watermarking.

PUBLICATIONS

Journal Papers

1. **Tong Liu**, Lihao Zhuang, Guoheng Huang, Chi-Man Pun, Xiaochen Yuan, "Decoding Coefficients Recovery Based on Modified Gauss-Jordan Elimination for Tampered Content Reconstruction," *Expert Systems With Applications, p. 131166, Jan. 2026, doi:* https://doi.org/10.1016/j.eswa.2026.131166. (JCR Q1, IF = 7.5)

2. **Tong Liu**, Xiaochen Yuan, Wei Ke, Chan-Tong Lam, Sio-Kei Im, Pedro Martins, "A Symmetric Self-Embedding Mechanism for High-Fidelity Image Recovery Against Tampering," *IEEE Transactions on Information Forensics and Security*, vol. 20, pp. 12857-12870, 2025, doi: 10.1109/TIFS.2025.3638170. (JCR Q1, IF = 8.0)

3. **Tong Liu**, Xiaochen Yuan, Wei Ke, Chan-Tong Lam, Sio-Kei Im, Xiuli Bi, "GHCW: A novel Guarded High-fidelity Compression-based Watermarking scheme for AI model protection and self-recovery," *Applied Soft Computing*, vol. 183, p. 113576, Nov. 2025, doi: 10.1016/j.asoc.2025.113576. (JCR Q1, IF = 6.6)

4. **Tong Liu**, Xiaochen Yuan, Zhiyao Xie, Kaiqi Zhao, Guoheng Huang, Chi-Man Pun, "A Two-Phase Scheme by Integration of Deep and Corner Feature for Balanced Copy-Move Forgery Localization," *IEEE Transactions on Industrial Informatics*, vol. 21, no. 2, pp. 1299–1308, Feb. 2025, doi: 10.1109/TII.2024.3476541. (JCR Q1, IF = 9.9)

5. **Tong Liu**, Xiaochen Yuan, "Adaptive feature calculation and diagonal mapping for successive recovery of tampered regions," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 31, no. 7, pp. 2617–2630, July 2021, doi: 10.1109/TCSVT.2020.3032455. (JCR Q1, IF = 11.1)

6. **Tong Liu**, Si-Nga Lai, Xiaochen Yuan, Yue Liu, Chan-Tong Lam, "A novel blockchain-watermarking mechanism utilizing interplanetary file system and fast walsh hadamard transform," *iScience*, vol. 27, no. 9, p. 110821, Sept. 2024, doi: 10.1016/j.isci.2024.110821. (JCR Q1)

7. **Tong Liu**, Xiaochen Yuan, "Paralinguistic and spectral feature extraction for speech emotion classification using machine learning techniques," *EURASIP Journal on Audio, Speech, and Music Processing*, vol. 2023, no. 1, p. 23, May 2023, doi: 10.1186/s13636-023-00290-x. (JCR Q2)

8. **Tong Liu**, Xiaochen Yuan, "A dual-tamper-detection method for digital image authentication and content self-recovery," *Multimedia Tools and Applications*, vol. 80, no. 19, pp. 29805–29826, Aug. 2021, doi: 10.1007/s11042-021-11179-2. (JCR Q2)

9. Qin Zhao, **Tong Liu,** Xiaochen Yuan, Guoheng Huang, Wei Wang, "The Latent Seal: Robust Model Watermarking for Latent Diffusion Model," *Machine Intelligence Research,* 2025. ***Accepted***. (JCR Q1, IF = 8.7)

10. Qiutong Li, **Tong Liu**, and Xiaochen Yuan, "RNPM: Neural-Guided Embedding Region Selection and Error Correction for Robust Audio Multi-Watermarking," *IEEE Transactions on Audio, Speech and Language Processing*, pp. 1–12, 2025, doi: 10.1109/TASLPRO.2025.3624964. (JCR Q1)

11. Shucheng Ji, Xiaochen Yuan, Junqi Bao, **Tong Liu**, Yang Lian, Guoheng Huang, Guo Zhong, "PFPS: Polymerized Feature Panoptic Segmentation Based on Fully Convolutional Networks," *IEEE Transactions on Emerging Topics in Computational Intelligence*, pp. 1–13, 2024, doi: 10.1109/TETCI.2024.3515004. (JCR Q1, IF = 6.5)

12. Shucheng Ji, Xiaochen Yuan, Junqi Bao, and **Tong Liu**, "LED-Net: A lightweight edge detection network," *Pattern Recognition Letters*, vol. 187, pp. 56–62, Jan. 2025, doi: 10.1016/j.patrec.2024.11.006. (JCR Q2)

13. Yan Xiang, Xiaochen Yuan, Kaiqi Zhao, **Tong Liu**, Zhiyao Xie, Guoheng Huang, Jianqing Li, "Image Manipulation Localization Using Dual-Shallow Feature Pyramid Fusion and Boundary Contextual Incoherence Enhancement," *IEEE Transactions on Emerging Topics in Computational Intelligence*, pp. 1–11, 2024, doi: 10.1109/TETCI.2024.3500025. (JCR Q1, IF = 6.5)

14. Kaiqi Zhao, Xiaochen Yuan, **Tong Liu**, Yan Xiang, Zhiyao Xie, Guoheng Huang, Li Feng, 2024, "CAMU-Net: Copy-move forgery detection utilizing coordinate attention and multi-scale feature fusion-based up-sampling," *Expert Systems with Applications*, vol. 238, p. 121918, Mar. 2024, doi: 10.1016/j.eswa.2023.121918. (JCR Q1, IF = 7.5)

15. Qiyuan Zhang, Xiaochen Yuan, **Tong Liu**, Chan-Tong Lam, Guoheng Huang, Di Lin, Ping Li, "Tampering localization and self-recovery using block labeling and adaptive significance," *Expert Systems with Applications*, vol. 226, p. 120228, Sept. 2023, doi: 10.1016/j.eswa.2023.120228. (JCR Q1, IF = 7.5)

16. Yin Sun, Xiaochen Yuan, **Tong Liu**, Guoheng Huang, Zhaojun Lin, and Jianqing Li, "FRRW: A feature extraction-based robust and reversible watermarking scheme utilizing zernike moments and histogram shifting," *Journal of King Saud University - Computer and Information Sciences*, vol. 35, no. 8, p. 101698, Sept. 2023, doi: 10.1016/j.jksuci.2023.101698. (JCR Q1, IF = 6.1)

17. Qiyuan Zhang, Xiaochen Yuan, **Tong Liu**, "Blind Dual Watermarking Scheme Using Stucki Kernel and SPIHT for Image Self-Recovery," *IEEE Access*, vol. 10, pp. 96100–96111, 2022, doi: 10.1109/ACCESS.2022.3204865. (JCR Q2)

18. Xiaochen Yuan, Xinhang Li, and **Tong Liu**, "Gauss–Jordan elimination-based image tampering detection and self-recovery," *Signal Processing: Image Communication*, vol. 90, p. 116038, Jan. 2021, doi: 10.1016/j.image.2020.116038. (JCR Q2)

Conference Papers

19. **Tong Liu**, Xiaochen Yuan, and Chan-Tong Lam, "An Efficient Mathematical Method for Recovery of Tampered Image Content," *IEEE 11th International Conference on Information, Communication and Networks (ICICN)*, Aug. 2023, pp. 782–786. doi: 10.1109/ICICN59530.2023.10393620.

20. **Tong Liu** and Xiaochen Yuan, "Image Self-Recovery Based on Authentication Feature Extraction," *IEEE 19th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom)*, Dec. 2020, pp. 1222–1227. doi: 10.1109/TrustCom50675.2020.00164.

21. Junqing Huang, **Tong Liu**, Chan-Tong Lam, Xiaochen Yuan, "SAM-FE: Segment Anything Model Guided Feature Enhancement for Semantic Change Detection of Remote Sensing Images," *IEEE International Conference on Multimedia and Expo* (ICME), Nantes, France,: IEEE, July 2025, pp. 1–6. doi: 10.1109/ICME59968.2025.11209043.

PATENTS

- A Method, Apparatus, Device, and Storage Medium for Image Tampering Detection and Self-Recovery. (Granted)
  Chinese Invention Patent, *Application No. 202410040248.4*
  Inventors: Xiaochen Yuan, **Tong Liu**, Chan-Tong Lam, Sio-Kei Im

- A Method, Apparatus, Device, and Storage Medium for Protecting Parameters of Artificial Intelligence Models. (Granted)
  Chinese Invention Patent, *Application No. 202411099630.9*
  Inventors: Xiaochen Yuan, **Tong Liu**, Chan-Tong Lam, Sio-Kei Im

- An Image Tampering Detection Method, Apparatus, Device, and Storage Medium. (Patent Pending)
  Chinese Invention Patent, *Application No. 202410104875.X*
  Inventors: Xiaochen Yuan, **Tong Liu**, Chan-Tong Lam, Sio-Kei Im

SCHOLARSHIPS

- **Full PhD Scholarship** (Éatribuída a Bolsa de Estudo Dr. Ho Chun) of Macao Polytechnic University, 2022-2025
- **Half Scholarship** of Macau University of Science and Technology, 2018-2020