CONG WANG (王聪)

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Gender: Male   **Date of Birth:** July 5, 1992

Address: 127 West Youyi Road, Beilin District   **Telephone:** 86-29-88495713

Xi'an, Shaanxi Province, China, 710072

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EDUCATION EXPERIENCE

Sept. 2017–
Jun. 2021
Doctor of Philosophy, Xidian University (西安电子科技大学)
Thesis: Fuzzy clustering algorithms for image segmentation in generic domains
Supervisor: Profs. Mengchu Zhou (IEEE Fellow) & Zhiwu Li (IEEE Fellow)

Sept. 2014–
Jun. 2017
Master of Science, Mathematics, Hohai University (河海大学)
Thesis: Tight wavelet frames based mesh surface denoising
Supervisor: Prof. Jianbin Yang

Sept. 2010–
Jun. 2014
Bachelor of Engineering, Automation, Hohai University (河海大学)
Thesis: Maximum power point tracking for photovoltaic off-grid system based on particle swarm optimization algorithm
Supervisor: Prof. Yuncan Xue

RESEARCH EXPERIENCE

May 2020–
Nov. 2020
Visiting Ph.D. Student, Department of Electrical and Computer Engineering, National University of Singapore (NUS), Singapore
Co-advisor: Prof. Shuzhi Sam Ge (IEEE Fellow, IFAC Fellow)

Oct. 2019–
Apr. 2020
Research Assistant, School of Computer Science and Engineering, Nanyang Technological University (NTU), Singapore
Co-advisor: Dr. Jun Zhao

Mar. 2019–
Jun. 2019
Visiting Ph.D. Student, Department of Electrical and Computer Engineering, University of Alberta (UA), Canada
Co-advisor: Prof. Witold Pedrycz (IEEE Fellow)

PROFESSION EXPERIENCE

Jul. 2021–
Present
Assistant Professor, School of Artificial Intelligence, OPtics and ElectroNics Northwestern Polytechnical University (NWPU), China
Co-advisor: Prof. Xuelong Li (IEEE Fellow, ACM Fellow)

Jul. 2021–
Jul. 2023
Post-doctoral Fellow, School of Artificial Intelligence, OPtics and ElectroNics Northwestern Polytechnical University (NWPU), China
Co-advisor: Prof. Xuelong Li (IEEE Fellow, ACM Fellow)

RESEARCH INTERESTS

- Information Computation
- Fuzzy Theory and Its Applications
- Wavelet Analysis and Its Applications
- Pattern Recognition
- Image Processing
- Computer Vision
- Granular Computing
- 3D Medical Image Analysis

RESEARCH PROGRAMS
(获批博士后创新人才支持计划、中国科协优秀中外青年交流计划各 1 项)

Jul. 2021– Jul. 2023	**Host (1/1),** Grant No: BX2021249 China National Postdoctoral Program for Innovative Talents (中国博士后创新人才支持计划, 630,000 RMB).
Mar. 2019– Jun. 2019	**Host (1/1),** Grant No: 2018CASTQNJL42 The Excellent Chinese and Foreign Youth Exchange Program of the China Association for Science and Technology (中国科协优秀中外青年交流计划项目, 50,000 RMB).

RESEARCH FUNDINGS
(主持国家自然科学基金项目等 9 项，参与国家自然科学基金等 4 项)

Jan. 2023– Dec. 2024	**Host (1/1),** Grant No: 62206220 National Natural Science Foundation of China (国家自然科学基金青年项目, 200,000 RMB).
Oct. 2021– Sep. 2024	**Host (1/1),** Grant No: 2021A1515110019 Guangdong Basic and Applied Basic Research Foundation (广东省基础与应用基础研究基金联合基金-青年基金项目, 100,000 RMB).
Nov. 2021– Jul. 2023	**Host (1/1),** Grant No: 2021M702678 Fellowship of China Postdoctoral Science Foundation (中国博士后科学基金第 70 批面上资助二等, 80,000 RMB).
Jan. 2021– Jun. 2021	**Host (1/1),** Funds for the Excellent Dissertations of Top Graduate Students in School of Electro-Mechanical Engineering, Xidian University (西安电子科技大学机电工程学院拔尖研究生优秀学位论文资助基金, 20,000 RMB).
Oct. 2019– Nov. 2020	**Host (1/1),** Doctoral Students' Short Term Study Abroad Scholarship Fund of Xidian University (西安电子科技大学博士生短期出国访学项目, 100,000 RMB).
Sept. 2019– Jul. 2021	**Host (1/1),** Excellent Doctoral Dissertations Fund of Xidian University (西安电子科技大学秋

季优秀博士学位论文资助基金, 100,000 RMB).

May 2018– May 2019	**Host (1/1),** Innovation Fund of Xidian University (西安电子科技大学研究生创新基金项目, 5,000 RMB).
Oct. 2015– Oct. 2016	**Host (1/1),** Grant No: 2015B38014 Fundamental Research Funds for the Central Universities (江苏省普通高校学术学位研究生创新计划项目, 依托中央高校基本科研业务费, 5,000 RMB).
Nov. 2011– Nov. 2012	**Host, (1/1)** Undergraduate Science and Technology Funds of Hohai University (河海大学学生科技基金项目, 400 RMB).
Jan. 2021– Dec. 2024	**Major Participant (3/7),** Grant No: 62076189 National Natural Science Foundation of China (国家自然科学基金面上项目, 640,000 RMB).
Jan. 2018– Dec. 2021	**Major Participant (8/10),** Grant No: 11771120 National Natural Science Foundation of China (国家自然科学基金面上项目, 480,000 RMB).
Jun. 2015– Jun. 2017	**Major Participant (3/4),** Grant No: 2015B19514 Fundamental Research Funds for the Central Universities (中央高校基本科研业务费, 100,000 RMB).
May 2015– Apr. 2016	**Major Participant (4/4)** Undergraduate Innovation and Entrepreneurship Training Program of Hohai University (河海大学大学生创新创业训练项目, 10,000 RMB)

PUBLICATIONS

(完成专著、Book Chapter 各一部，学术论文 33 篇。其中，待投稿 3 篇，正在审 6 篇，待刊出 2 篇，已发表 22 篇，其中包括 SCI 期刊一作长文 10 篇，导师一作长文 1 篇，EI 期刊一作或通讯 2 篇，中文核心一作或通讯 6 篇, SCI 期刊合著 1 篇, EI 会议合著 3 篇)

Monographs and Book Chapters: (The asterisk * represents the corresponding author)

[1] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, and Zhiwu Li*, "Residual-driven Fuzzy C-Means clustering for image segmentation," Intelligent Video Analytics: Clustering and Classification Applications (Edited by El-Sayed M El-Alfy, George Bebis and Mengchu Zhou), CRC Press, Taylor & Francis Group, Boca Raton, FL, U.S.A., 2021. (To Be Published)

[2] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, and Zhiwu Li*, "Fuzzy clustering for image segmentation," 2021. (To Be Submitted)

Published Journal Papers:

[1] **Cong Wang**, Witold Pedrycz, Zhiwu Li*, and Mengchu Zhou*, "Kullback-Leibler divergence-based Fuzzy C-Means clustering incorporating morphological reconstruction and wavelet frames for image segmentation," *IEEE Transactions on Cybernetics*, vol. 52, no. 8, pp. 7612–7623, Aug. 2022. (WOS: 000733503200001, SCI Q1, IF: 19.118, Regular

Paper)

[2] Tailong Jing, **Cong Wang**, Witold Pedrycz, Zhiwu Li*, Giancarlo Succi, and Mengchu Zhou, "Granular models as networks of associations of information granules: A development scheme via augmented principle of justifiable granularity," *Applied Soft Computing*, vol. 115, p. 108062, Jan. 2022. (WOS: 000736968800002, SCI Q1, IF: 8.263, Regular Paper)

[3] **Cong Wang**, Witold Pedrycz, Zhiwu Li*, Mengchu Zhou*, and Jun Zhao, "Residual-sparse Fuzzy C-Means clustering incorporating morphological reconstruction and wavelet frame," *IEEE Transactions on Fuzzy Systems*, vol. 29, no. 12, pp. 3910–3924, Dec. 2021. (WOS: 000724479300032, SCI Q1, IF: 12.253, Full Paper)

[4] **Cong Wang**, Witold Pedrycz, Zhiwu Li*, Mengchu Zhou*, and Shuzhi Sam Ge, "G-image segmentation: Similarity-preserving Fuzzy C-Means with spatial information constraint in wavelet space," *IEEE Transactions on Fuzzy Systems*, vol. 29, no. 12, pp. 3887–3898, Dec. 2021. (WOS: 000724479300030, SCI Q1, IF: 12.253, Full Paper)

[5] **Cong Wang**, Witold Pedrycz, Mengchu Zhou*, and Zhiwu Li*, "Sparse regularization-based Fuzzy C-Means clustering incorporating morphological grayscale reconstruction and wavelet frames," *IEEE Transactions on Fuzzy Systems*, vol. 29, no. 7, pp. 1826–1840, Jul. 2021. (WOS: 000670553100011, SCI Q1, IF: 12.253, Full Paper)

[6] **Cong Wang**, Witold Pedrycz, Zhiwu Li*, and Mengchu Zhou*, "Residual-driven Fuzzy C-Means clustering for image segmentation," *IEEE/CAA Journal of Automatica Sinica*, vol. 8, no. 4, pp. 876–889, Apr. 2021. (WOS: 000628913100012, SCI Q1, IF: 7.847, Regular Paper)

[7] **Cong Wang**, Ziyue Yan, Witold Pedrycz, Mengchu Zhou*, and Zhiwu Li*, "A weighted fidelity and regularization-based method for mixed or unknown noise removal from images on graphs," *IEEE Transactions on Image Processing*, vol. 29, no. 1, pp. 5229–5243, Dec. 2020. (WOS: 000522185800001, SCI Q1, IF: 10.856, Regular Paper)

[8] **Cong Wang**, Witold Pedrycz, Jianbin Yang, Mengchu Zhou*, and Zhiwu Li*, "Wavelet frame-based Fuzzy C-Means clustering for segmenting images on graphs," *IEEE Transactions on Cybernetics*, vol. 50, no. 9, pp. 3938–3949, Sept. 2020. (WOS: 000562306000010, SCI Q1, IF: 11.448, Regular Paper)

[9] **Cong Wang***, Jixing Chen, Zhiwu Li, Emad S. Abouel Nasr, and Abdulaziz Mohammed El-Tamimi, "An indicator system for evaluating the development of land-sea coordination systems: A case study of Lianyungang port," *Ecological Indicators*, vol. 98, pp. 112–120, Mar. 2019. (WOS: 000464891100013, SCI Q1, IF: 4.229, Regular Paper)

[10] **Cong Wang** and Jianbin Yang*, "Poisson noise removal of images on graphs using tight wavelet frames," *The Visual Computer*, vol. 34, no. 10, pp. 1357–1369, Oct. 2018. (WOS: 000442204400007, SCI Q3, IF: 1.415, Regular Paper)

[11] Jianbin Yang* and **Cong Wang**, "A wavelet frame approach for removal of mixed Gaussian and impulse noise on surfaces," *Inverse Problems and Imaging*, vol. 11, no. 5, pp. 783–798, Oct. 2017. (*Note: Master's supervisor is the first author*, WOS: 000411945300001, SCI Q1, IF: 1.465, Regular Paper)

[12] Dongmei Ma and **Cong Wang***, "Removal of mixed Gaussian and impulse noise using

data-driven tight frames," ***Journal of Engineering Science and Technology Review***, vol. 11, no. 2, pp. 26–31, 2018. (EI No. 20182405313426)

[13] **Cong Wang**, Jianbin Yang*, and Ying Deng. Application of mathematical modeling methods in wind-power prediction. ***Acta Energiae Solaris Sinica***, 2015, 36(5): 1081–1087. (EI No. 20153001062255)

王聪, 杨建斌*, 邓颖. 数学建模方法在风电功率预测中的应用[J]. 太阳能学报, 2015, 36(5): 1081–1087. (EI 检索, 中文核心)

[14] **Cong Wang***. Data-driven tight frame based image restoration with Poisson noise. ***Information Technology***, 2017, 9: 71–75.

王聪*. 基于数据驱动紧框架的含泊松噪声的图像恢复[J]. 信息技术, 2017, 41(9): 71–75. (中文核心)

[15] Xiaohui Li and **Cong Wang***. Wavelet frame based nonlocal surface fairing. ***Electronic Design Engineering***, 2017, 20(5): 178–181.

李晓慧, 王聪*. 基于小波框架的非局部曲面去噪[J]. 电子设计工程, 2017, 25(10): 178–181, 185. (中文核心)

[16] Ying Deng and **Cong Wang***. Applications on maximum power point tracking for photovoltaic off-grid system based on particle swarm optimization algorithm under partial shaded conditions. ***Journal of Nanjing University of Information Science and Technology***, 2017, 9(1): 106–112.

邓颖, 王聪*. 局部遮阴下粒子群算法在光伏离网系统最大功率点跟踪中的应用[J]. 南京信息工程大学学报: 自然科学版, 2017, 9(1): 106–112. (中文核心)

[17] Yu Feng and **Cong Wang***. Research on combination forecasting model in outstanding of deposits forecast. ***Economic Research Guide***, 2018, 14: 146–150.

冯宇, 王聪*. 金融机构存款预测的组合预测模型研究[J]. 经济研究导刊, 2018, 14: 146–150. (中文核心)

[18] Lijing Fan and **Cong Wang***. Application of data-driven tight frame in gray image denoising. ***Electronic Design Engineering***, 2017, 25(15): 180–183.

范立静, 王聪*. 数据驱动紧框架在灰色图像去噪中的应用[J]. 电子设计工程, 2017 (15): 180–183. (中文核心)

[19] Lin Du and **Cong Wang***. Data-driven tight frame based image restoration. ***Electronic Design Engineering***, 2017, 25(22): 178–181.

杜淋, 王聪*. 基于数据驱动紧框架的图像恢复[J]. 电子设计工程, 2017, 22: 184–187. (中文核心)

Accepted and To Be Published:

[1] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, and Zhiwu Li*, "Comparative study on noise-estimation-based Fuzzy C-Means clustering for image segmentation," ***IEEE Transactions on Cybernetics***, 2022. (**Accepted**, SCI Q1, IF: 19.118, Regular Paper)

[2] Xin Tan and **Cong Wang***, "Accurate implantation estimation of implantable cardioverter defibrillators via three-stage segmentation strategy," in *Proceedings of IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Shanghai, China, **Accepted**, 2022.

Submitted and Under Review:

[1] **Cong Wang*** and Xin Tan, "Accurate implantation estimation of implantable cardioverter defibrillators via three-stage segmentation strategy," *IEEE Transactions on Medical Imaging*, **Submitted**, 2022. (SCI Q1, IF: 11.037, Regular Paper)

[2] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, Zhiwu Li, and Xuelong Li*, "G-image segmentation: Partition-sparse Fuzzy C-Means clustering incorporating spatial information and Graph wavelet," *IEEE Transactions on Fuzzy Systems*, **Under Review**, 2022. (SCI Q1, IF: 12.253, Full Paper)

[3] Jianbin Yang, **Cong Wang***, Hui Hou, and Xuelong Li, "A feature-driven variational model for mesh denoising," *IEEE Transactions on Image Processing*, **Submitted**, 2022. (SCI Q1, IF: 11.041, Regular Paper)

[4] TaiLong Jing, **Cong Wang***, Witold Pedrycz, Giancarlo Succi, and **ZhiWu Li***, "Time series classification based on image transformation and wavelet convolutional neural networks," *Expert Systems With Applications*, **Submitted**, 2022. (SCI Q1, IF: 8.665, Regular Paper)

[5] Xin Tan, **Cong Wang***, and **XueLong Li***, "Re-enhancing fuzzy clustering for medical image segmentation," in *Proceedings of 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Rhodes Island, Greece, **Under Review**, 2022.

[6] Heng Wang, **Cong Wang**, and Yuan Yuan*, "Asymmetric dual-direction quasi-recursive network for single hyperspectral image super-resolution," *IEEE Transactions on Geoscience and Remote Sensing*, **Under Review**, 2022. (SCI Q1, IF: 8.125, Regular Paper)

To Be Submitted:

[1] **Cong Wang** and Xuelong Li*, "Graph bilateral filtering," *IEEE Transactions on Image Processing*, **to be submitted**, 2022. (SCI Q1, IF: 10.856, Regular Paper)

[2] **Cong Wang** and Xuelong Li*, "G-image segmentation: A residual-driven Fuzzy C-Means clustering framework," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, **to be submitted**, 2022. (SCI Q1, IF: 16.389, Regular Paper)

[3] **Cong Wang** and Xuelong Li*, "Residual-driven Fuzzy C-Means clustering for image segmentation with Poisson and mixed Poisson-Gaussian noise," *IEEE Transactions on Fuzzy Systems*, **to be submitted**, 2021. (SCI Q1, IF: 12.029, Full Paper)

International Conference Proceedings Papers:

[1] Jianbin Yang*, Enlin Zhang, and **Cong Wang**, "Color image segmentation via wavelet frames," in *Proceedings of the 2019 IEEE 4th International Conference on Signal and Image Processing (ICSIP)*, Wuxi, China, 2019, pp. 975–979. (EI: 8868564)

[2] Jianbin Yang* and **Cong Wang**, "A developed Fuzzy C-Means algorithm for mesh segmentation," in *Proceedings of the 2018 11th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics (CISP-BMEI)*, Beijing, China, 2018, pp. 1–5. (EI: 8633099)

[3] Jianyong Zhang* and **Cong Wang**, "Application of ARMA model in ultra-short term prediction of wind power," in *Proceedings of 2013 International Conference on Computer Sciences and Applications*, Wuhan, China, 2013, pp. 361–364. (EI No. 20143017964633)

SELECTED HONORS & REWARDS

(获得国家奖学金 2 次、西电校长奖学金 1 次、江苏省三好学生 1 次、全国大学生数学建模竞赛国家二等奖 1 次和江苏省三等奖 1 次、西安电子科技大学研究生学术年会优秀论文奖和学院特等奖等)

- Postgraduate "President Scholarship" of Xidian University (3‰), Dec. 2020
- National Scholarship (2.5%), China, Dec. 2019
- Outstanding Graduates Prize (10%), Hohai University, Jun. 2017
- Merit Student (1‰), Jiangsu Province, May 2017
- National Scholarship (2.5%), China, Dec. 2016
- First Prize in the 2014's Young Academic Forum, Hohai Univerity, Jan. 2015
- Second Prize in the 2011's National Undergraduate Mathematic Modeling Competition, China, Nov. 2011

PROFESSIONAL SKILLS

- Hardware Description Languages: VHDL, Verilog
- High-level Languages: C, C++
- Algorithm Development Environments: Python, Matlab, Mathematica
- College English Test Band 6
- College English Test Band 4
- Jiangsu Computer Rank Examination 3
- Jiangsu Computer Rank Examination 2
- Literature Searching Online

PROFESSIONAL AFFILIATIONS

- Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, China Society for Industrial and Applied Mathematics (CSIAM)
- Member, Chinese Institute of Electronics (CIE)
- Member, China Computer Federation (CCF)

PROFESSIONAL ACTIVITIES

Associate Editor

- IEEE SMC 2022, 2022 IEEE International Conference on Systems, Man and Cybernetics (SMC), Prague, Czech Republic, October 9–12, 2022.

Technical Committee Member

- ISCAI 2022, 2022 International Symposium on Computing and Artificial Intelligence, Beijing, China, December 16–18, 2022.

Program Committee Member

- ICNSC 2022, 2022 IEEE International Conference on Networking, Sensing and Control, Shanghai, China, December 15–18, 2022.
- ICABDE 2021, 2021 International Conference on Artificial Intelligence and Big Data in Digital Era, Ho Chi Minh City, Vietnam, December 18–19, 2021.

Invited Speaker

- 2022 3rd International Conference on Computers and Artificial Intelligence Technology

(CAIT 2022), Quzhou, Zhejiang, China, November 04–06, 2022.

- 2021 2nd Workshop for Sino-UK to Promote Development and Application of Artificial Intelligence, University of Leicester, December 10, 2021.

Journal Reviewer

- ACM Computing Surveys
- ACM Transactions on Internet Technology
- Anais da Academia Brasileira de Ciências
- Applied Mathematical Modelling
- Applied Soft Computing
- Circuits, Systems, and Signal Processing
- Digital Communications and Networks
- Ecological Indicators
- Electronics
- Engineering Applications of Artificial Intelligence
- ETRI Journal
- Expert Systems
- Frontiers in Environmental Science
- Granular Computing
- Heritage Science
- IEEE Access
- IEEE Internet of Things Journal
- IEEE Photonics Journal
- IEEE Systems Journal
- IEEE Transactions on Consumer Electronics
- IEEE Transactions on Cybernetics
- IEEE Transactions on Fuzzy Systems
- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Power Delivery
- IEEE Transactions on Systems, Man and Cybernetics: Systems
- IEEE/CAA Journal of Automatica Sinica
- Imaging Science Journal
- International Journal of Communication Systems
- Journal of Classification
- Journal of Experimental & Theoretical Artificial Intelligence
- Mechanical Systems and Signal Processing
- Multimedia Tools and Applications
- Neural Computing and Applications
- Pattern Analysis and Applications

<u>Conference Reviewer</u>
- 2019 IEEE 15th International Conference on Automation Science and Engineering (CASE)
- 2020 IEEE 16th International Conference on Automation Science and Engineering (CASE)
- 2021 IEEE 17th International Conference on Automation Science and Engineering (CASE)
- 2022 IEEE International Conference on Robotics and Automation (ICRA)
- 2023 IEEE International Conference on Robotics and Automation (ICRA)
- 2020 IEEE International Conference on Systems, Man and Cybernetics (SMC)
- 2021 IEEE International Conference on Systems, Man and Cybernetics (SMC)
- 2022 IEEE International Conference on Systems, Man and Cybernetics (SMC)
- 2021 International Conference on Artificial Intelligence and Big Data in Digital Era

ACADEMIC ACTIVITIES

Oct. 2016	XDU Workshop On Brain Computing and Deep Learning of Big Data, Xidian University, Xi'an, China
Aug. 2016	PKU Workshop On Mathematics in Imaging Science and Data Analysis (MISDA), Peking University, Beijing, China
Apr. 2016	NKU Workshop On Wavelet Analysis and Its applications, Nankai University, Tianjin, China
Apr.–May 2015	Open Class: Supervisory Control Theory of Discrete Event System, Xidian University, Speaker: Prof. W. M. Wonham
Dec. 2013	International Conference on Computer Sciences and Applications, Wuhan, China