CONG WANG (王聪)

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

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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 & Zhiwu Li

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

- 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),** Postdoctoral Innovation Talents Support Program (博士后创新人才支持计划, 630,000 RMB).

Mar. 2019– Jun. 2019 **Host (1/1),** 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

(主持江苏省普通高校学术学位研究生创新计划项目等 6 项，参与国家自然科学基金等 4 项)

Dec. 2020– Dec. 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),** The 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),** The 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),** The 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 27 篇。其中，待投稿 4 篇，正在审 3 篇，已发表 20 篇，其中包括 SCI 期刊一作长文 8 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, 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. (Submitted)

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

Published Journal Papers:

[1] **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. (SCI Q1, IF: 9.518, Full Paper)

[2] **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: 5.129, Regular Paper)

[3] **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: 9.34, Regular Paper)

[4] **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: 11.079, Regular Paper)

[5] **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)

[6] **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)

[7] 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)

[8] 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)

[9] **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)

[10] **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)

[11] 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)

[12] 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)

[13] 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)

[14] 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)

[15] 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**, 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***, **to be published**, doi: 10.1109/TFUZZ.2020.3029296. (SCI Q1, IF: 9.518, Full Paper)

[2] **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***, **to be published**, doi: 10.1109/TFUZZ.2020.3029285. (SCI Q1, IF: 9.518, Full Paper)

Submitted and Under Review:

[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***, 2020. (**Under Review**, SCI Q1, IF: 11.079, Regular Paper)

[2] **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***, 2020. (**Under Review**, SCI Q1, IF: 11.079, Regular Paper)

[3] Tailong Jing, **Cong Wang**, Witold Pedrycz, Zhiwu Li*, Giancarlo Succi, and Mengchu Zhou, "Granular models as networks of associations of information granules: A development through augmented principle of justifiable granularity," ***Applied Soft Computing***, 2020. (**Under Review**, SCI Q1, IF: 5.472, Full Paper)

To Be Submitted:

[1] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, and Zhiwu Li*, "G-image segmentation: A residual-driven Fuzzy C-Means clustering framework," ***IEEE Transactions on Pattern Analysis and Machine Intelligence***, **to be submitted**, 2020. (SCI Q1, IF: 17.861, Regular Paper)

[2] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, and Zhiwu 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**, 2020. (SCI Q1, IF: 9.518, Full Paper)

[3] **Cong Wang**, Mengchu Zhou*, Witold Pedrycz, and Zhiwu Li*, "G-image segmentation: Partition-sparse Fuzzy C-Means clustering incorporating spatial information and wavelet frame," ***IEEE Transactions on Cybernetics***, **to be submitted**, 2020. (SCI Q1, IF: 11.079, Regular Paper)

[4] Jianbin Yang*, Hui Hou, and **Cong Wang**, "A feature-driven variational model for mesh denoising," ***IEEE Transactions on Visualization and Computer Graphics***, **to be submitted**, 2020. (SCI Q1, IF: 3.78, Regular 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, doi: 10.1109/SIPROCESS.2019.8868564. (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, doi: 10.1109/CISP-BMEI.2018.8633099. (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, 2013, pp. 361–364, doi: 10.1109/CSA.2013.91. (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 Activities

Journal Reviewer

- ACM Transactions on Internet Technology
- Anais da Academia Brasileira de Ciências
- Applied Mathematical Modelling
- Applied Soft Computing
- Mechanical Systems and Signal Processing
- Ecological Indicators
- Electronics
- ETRI Journal

- Frontiers in Environmental Science
- Granular Computing
- IEEE Access
- IEEE Internet of Things Journal
- IEEE Photonics Journal
- IEEE Systems Journal
- IEEE Transactions on Fuzzy Systems
- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Power Delivery
- IEEE/CAA Journal of Automatica Sinica
- International Journal of Communication Systems

Conference Reviewer

- 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)
- 2020 IEEE International Conference on Systems, Man and Cybernetics (SMC)
- 2021 IEEE International Conference on Systems, Man and Cybernetics (SMC)

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