

Xiaowei Xu

(Curriculum Vitae)

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I. RESEARCH INTERESTS

My research interests focus on AI including segmentation, and medical image processing for cardiovascular diseases. I have several papers about hardware optimization and deep learning on top conferences including CVPR, AAAI, MICCAI, MIDL, ISBI, DAC, ICCAD, and top-journals including TPAMI, TCAD, TBioCAS, Nature Electronics, and Nature Machine Intelligence.

II. EDUCATION

Ph.D.	Electronic Science & Engineering Huazhong University of Science and Technology	09/2013 - 06/2016
M.Sc.	Electronic Science & Engineering Huazhong University of Science and Technology	09/2011 - 04/2014
B.Sc.	Electronic Science & Engineering Huazhong University of Science and Technology	09/2007 - 06/2011

III. EXPERIENCE

Humboldt research fellow , Leibniz Institute for Analytical Sciences, Dortmund, Germany	03/2025 - 08/2026
Associate Professor , Guangdong Provincial People's Hospital, Guangzhou, China	02/2022 - Now
Assistant Professor , Guangdong Provincial People's Hospital, Guangzhou, China	11/2019 - 01/2022
Post-Doc Researcher , University of Notre Dame, US	09/2016 - 10/2019
Visiting Researcher , Zhejiang University, Hangzhou, China	06/2017 - 12/2017
Visiting Researcher , State University of New York, Buffalo, US	03/2015 - 03/2016
Visiting Researcher , University of Alberta, Edmonton, CA	05/2013 - 08/2013

IV. AWARDS & HONORS

- Humboldt Research Fellowship for Experienced Researchers, Alexander von Humboldt Foundation, Germany, 2023.
- “Call to Arms” award, 26th European Conference on Artificial Intelligence ECAI 2023.
- Best Student Paper Award, Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, Long Beach, CA, 2019.
- ACM/SIGDA Meritorious Service Award, 2019 (<https://www.sigda.org/awards/service/>)

- DAC system design contest special service recognition reward, 2018
- Outstanding contribution in reviewing, Integration, the VLSI journal, 2017
- Outstanding undergraduate thesis of Hubei Province, 2011 (1%)
- Intel Cup 2010 *National* Embedded Systems Undergraduate Electronic Design Contest Special, Invitational Contest, Third place, 2010
- Hubei Undergraduate Electronic Design Contest Special Contest ALTERA SOPC Cup, Third place, 2010
- UDC *National* University Design Competition, Third place, 2010

V. Dissertation

D3. PhD Dissertation

Title: Research on Acceleration of Similarity Metric for Big Data

Abstract: Since the 21st century, with the rapid development of information technology, the volume of data has grown exponentially, ushering in the era of big data and bringing about comprehensive changes in people's lives. Image data and streaming data are two of the most significant forms of data in the realm of big data. The vast amount of data presents new challenges for data mining, particularly in similarity measurement, including high throughput, high energy efficiency, and multi-source considerations. As Complementary Metal-Oxide-Semiconductor (CMOS) technology is unable to continue providing improvements in Central Processing Unit (CPU) throughput and energy efficiency, enhancing the performance of similarity measurement has become an urgent issue facing the challenges of big data. This paper addresses the performance acceleration of similarity measurement through the study of two typical similarity metrics: Dynamic Time Warping (DTW) for streaming data processing and Earth Mover's Distance (EMD) for image processing, from three perspectives: architecture-oriented (digital circuits), device-oriented (analog circuits), and application-oriented (application domains). Firstly, to meet the requirements of multi-source data and high throughput in streaming data mining, we propose a scalable, configurable, and energy-efficient FPGA-based DTW streaming data processing architecture. This architecture can handle multi-source streaming data with high efficiency and performance simultaneously. In this architecture, we employ the k-nearest neighbors (kNN) algorithm for tasks such as classification and anomaly detection. The architecture utilizes data representation methods and precision reduction techniques. By designing two ring-like PE structures, we achieve scalability and configurability for DTW and kNN. Secondly, to achieve high-performance and energy-efficient streaming data mining on embedded devices with transaction and file management capabilities, we propose a CPU+FPGA heterogeneous platform-based DTW streaming data acceleration architecture. By fully exploiting the parallelism of the DTW algorithm, we realize a configurable acceleration architecture. Software optimization for upper-layer applications is mainly implemented on the hard-core CPU, while DTW acceleration is implemented on programmable logic. Through software-hardware co-design, the entire system achieves optimal performance and energy efficiency. Thirdly, combining with emerging devices such as memristors, we accelerate DTW calculation through analog circuits. In this acceleration circuit, memristors are used for both computation and configuration simultaneously. Since memristor-based computation is a continuous and asynchronous process, we propose two optimization methods based on result prediction to further accelerate DTW calculation. We improve the lower bound optimization method and propose an early termination optimization algorithm for DTW calculation. Fourthly, based on the CPU+FPGA heterogeneous platform, we propose an instruction set extension-based EMD acceleration architecture. We first analyze the EMD algorithm and design specialized extension instructions to accelerate its bottleneck parts. Compared to existing hardware accelerations, this EMD acceleration architecture supports a significant increase in the number of variables in

the histogram features. Fifthly, for the application of sleep posture monitoring, we optimize the EMD algorithm for specific applications. We propose a similarity measurement tailored for sleep posture, termed Body-Earth Mover's Distance (BEMD), to classify sleep postures based on pressure sensor data of sleep posture pressure maps. In the sleep posture classification process, BEMD does not extract any features. BEMD transforms the sleep posture pressure map into a histogram using shape descriptors and then calculates the similarity of histograms using EMD and Euclidean distance. We propose a classifier based on slope to handle the similarity between histograms, thereby achieving sleep posture classification. This paper delves into the in-depth research of two widely used similarity metrics, DTW and EMD, in data mining, providing a theoretical foundation for optimizing similarity measurement in digital circuits, analog circuits, and application domains. The research outcomes of this paper can enhance the processing performance of the entire data mining process to address the challenges of data explosion in the era of big data.

D2. Masters Dissertation

Title: Research on the Simulation Platform and Application of Vehicular Ad Hoc Networks Based on VISSIM and OMNeT++

Abstract: In recent years, traffic congestion has become a global issue. Due to the significant energy consumption, efficiency wastage, and environmental pollution it causes, traffic congestion has emerged as a critical factor constraining urban development. Since the late 20th century, research efforts aimed at improving traffic efficiency, safety, and environmental friendliness in the field of intelligent transportation have flourished, becoming a solution with immense industrial prospects. Vehicular Ad Hoc Networks (VANETs), centered around wireless communication, are among the most important branches of intelligent transportation. However, conducting field tests for VANETs is costly and carries certain risks. Therefore, VANET simulation has become a hot topic in current VANET research. VANET simulation relies on VANET simulation platforms, and currently, there are three types of VANET simulation platform schemes: separated, embedded, and joint. Separated schemes lack coupling between traffic simulators and wireless communication simulators; embedded schemes lack mature simulation models; joint schemes lack sufficient support for simulation speed and large-scale simulation. Therefore, existing VANET simulation platforms have limited support for simulation accuracy, precision, simulation protocols, and large-scale simulation, greatly hindering the progress of VANET research. This thesis combines the excellent traffic simulator VISSIM and the open-source wireless communication simulator OMNeT++, establishing a joint simulation platform called SimIVC suitable for large-scale VANET application simulation. It conducts simulation studies on two widely researched traffic applications—dangerous information broadcasting and recommended driving speeds—in VANET environments. Simulation results indicate that in the dangerous information broadcasting traffic application, the delay of dedicated short-range communication protocols is an order of magnitude smaller than WiFi. When the network load is high, dedicated short-range communication protocols perform better due to their use of dedicated channels. In the recommended driving speed traffic application, the VANET environment introduces numerous new features that significantly enhance traffic performance.

D1. Bachelors Dissertation

Title: Research on Predictive Calculation of Coupling Coefficient Between On-chip Small-area Multilayer Inductors

Abstract: On-chip inductors play a significant role in modern CMOS wireless and wireline transceivers, and the small-area multi-layer inductors have the potential to minimize the total chip area and cost, and therefore used intensively in some designs. As the modern integrated circuits achieve an impressively high integration level and become more compact, the crosstalk between on-chip inductors, which is usually represented by the coupling effect, will be a possible limit to the functionality and performance of the circuits. The general method to analyze crosstalk is using electromagnetic (EM) simulation or silicon measurement and extracting coupling coefficient from S-parameters. The obvious disadvantages of EM simula-

tion or measurement are time-consuming and lack of flexibility. In contrast, the Greenhouse method is an analytical physics-based method and prone to be used to calculate the coupling coefficient in circuit design stage. However, duo to the diversity and complexity of small-area multilayer inductors, it becomes less effective and applicable to use the Greenhouse method directly. Thus, there is a need for fast and accurate methods for the calculation of coupling coefficient. In this paper, a physics-based method employing the symmetric approximation is proposed, and its accuracy and effectiveness is verified by EM simulation.

VI. PROPOSALS

- P4.** High-precision cardiac segmentation algorithm for congenital heart disease based on CT images and its application in 3D printing surgical planning, National Science Foundation of China, 62276071, 530,000 RMB, 2023-2026, PI, **Xiaowei Xu**.

Abstract: Surgery of congenital heart diseases (CHD) is difficult and has a long learning curve, and is known as the "jewel in the crown" of medicine. At present, 3D printing technology has been widely used in surgical planning of CHD, but its heart model needs to be manually segmented, which is time-consuming and has poor repeatability. Therefore, automated high-precision heart segmentation of computed tomography (CT) in CHD has important clinical value. However, existing heart segmentation algorithms based on CT images lack targeted optimization for CHD, and their accuracy cannot meet the needs of clinical applications. This project intends to imitate the segmentation attentions of professionals (attention on CT models, attention on the application characteristics of 3D printing based surgical planning, and attention on diagnostic information) on the basis of previous research on segmentation algorithms and preliminary exploration of clinical applications. The method of embedding domain knowledge in deep learning can improve the accuracy of the heart segmentation algorithm of CTs in CHD. Correspondingly, there are three main research contents: a generalizable high-precision segmentation model (which can be used for multiple CT models), segmentation model optimization based on the application characteristics of 3D printing based surgery planning, and segmentation model optimization based on diagnostic information. This project provides a theoretical basis for intelligent segmentation of cardiovascular images, and also provides new ideas for the application of artificial intelligence-assisted 3D printing technology in cardiovascular diseases.

- P3.** Construction of high-precision cardiac segmentation model based on artificial intelligence and its clinical application in structural heart disease surgery, Special Support Plan for High-Level Talents of Guangdong Province, 879098, 1,000,000 RMB, 2023-2025, PI, **Xiaowei Xu**.

Abstract: Cardiac surgery is one of the most common treatment modalities for structural heart disease, particularly in congenital heart disease and hypertrophic cardiomyopathy, playing a crucial role. However, cardiac surgery, hailed as the "crown jewel" of medicine, is challenging with a steep learning curve. Currently, 3D visualization technology (including 3D printing and virtual reality (VR), among others) has seen extensive clinical application in the planning of structural heart disease surgery, effectively enhancing the success rate of surgical procedures. In our collaborative clinical practice, we have identified two main issues with current 3D visualization technology in clinical application: 1. Manual construction and annotation of 3D heart models are time-consuming and lack repeatability. 2. There is a lack of standardized clinical application guidelines for the preoperative planning, intraoperative navigation, and postoperative efficacy assessment of visualization models. Therefore, it is of paramount importance to automatically construct high-precision cardiac segmentation models for structural heart disease and establish corresponding clinical application standards for preoperative planning, intraoperative navigation, and postoperative efficacy assessment. However, existing research mainly focuses on generic cardiac structures without integrating domain knowledge for targeted research on structural heart disease, resulting in overall poor accuracy. To address the above issues, this project aims to construct high-precision cardiac segmentation models for structural heart disease using artificial intelligence methods,

building on preliminary segmentation algorithm research and initial exploration of clinical applications. Specifically, we mimic the manual segmentation process performed by professional modelers, extract important domain knowledge, and embed this domain knowledge into deep learning using a "deep learning + domain knowledge" research approach to enhance segmentation accuracy.

- P2.** AI-based Algorithm Research for Automatic Diagnosis of Computed Tomography Images in Congenital Heart Disease, National Science Foundation of China, 62006050, 240,000 RMB, 2022-2024, PI, **Xiaowei Xu**.

Abstract: Congenital heart disease (CHD) is the most common birth defect, and is also one of the main causes of death or disability in infants and young children, which seriously affects the quality of the population and the quality of life. Computed Tomography (CT) is one of the most widely used technique for CHD diagnosis. Due to the high complexity of CHD, the manual diagnosis of CT in CHD suffers from long time analysis, poor repeatability and low accuracy. Based on our previous research about rough segmentation of CT in CHD, this project aims to study clinically usable automatic diagnosis algorithms for CT in CHD using artificial intelligence (AI). Motivated by the "deep learning + domain knowledge" idea, we imitate the actual diagnosis process of experienced radiologists, and convert the classification of CHD into two sub-tasks: fine segmentation of whole heart and great vessels, and segmentation-based automatic diagnosis to tackle the challenges of lacking of medical images, and interpretability in clinical diagnosis. We further combine deep learning and traditional machine learning methods to fulfill the two tasks to tackle the challenges of large tissue and structure variations in CHD, and confidence scores in clinical diagnosis. Our research content includes: the construction of a large-scale CHD dataset covering 16 types of CHD; the algorithm design of high-precision fine segmentation of whole heart and great vessels; the automatic diagnosis of CHD based on segmentation features. This project aims to design a clinically usable diagnosis algorithm for CHD, thus to improve the medical quality and efficiency, and to alleviate the problem of unbalanced and inadequate medical resources in China to a certain extent.

- P1.** AI-based Algorithm Research for Automatic Segmentation, Diagnosis and prognosis of Computed Tomography Images in Cardiovascular Disease, High-level talent introduction fund project of Guangdong Provincial People's Hospital, 3,000,000 RMB, 2019-2024, PI, **Xiaowei Xu**.

Abstract: The incidence and mortality rates of cardiovascular diseases (CVD) are increasing annually, making it the leading cause of death globally. Currently, the level of prevention and treatment of CVD in China is insufficient and unbalanced, with significant disparities between different regions and levels of hospitals. There is an urgent need to focus on the prevention and treatment of CVD, particularly in high-incidence areas of our province, by prioritizing independent innovation and addressing national needs. This initiative aims to promote technological breakthroughs and enhance the innovative driving force for CVD prevention and control, as well as to improve the standardization of medical care across all levels of hospitals. Artificial intelligence (AI) represents a forefront direction in today's technological development and has a significant impact on current scientific and societal production methods. The integration of medical imaging with AI is considered one of the most promising fields. Cardiovascular imaging technology, as one of the rapidly advancing areas in cardiovascular medicine, is an indispensable foundation and basis for the diagnosis and treatment of cardiovascular diseases, guiding and optimizing their management. Various imaging techniques (X-ray, cardiovascular catheterization and angiography, ultrasound, CT, MRI) play important roles in the diagnosis and treatment of cardiovascular diseases, each with its own advantages and limitations. By applying AI to the field of cardiovascular medical imaging, it is possible to integrate various medical imaging data, complementing each other's strengths, and construct advanced machine learning models that integrate various imaging data with clinical information, enabling more accurate predictions of short-term treatment outcomes and long-term treatment effects for patients. Therefore, this project aims to provide technical

support for intelligent analysis, diagnosis, decision assistance, and optimization of treatment plans in the field of cardiovascular disease imaging through research on deep transfer learning techniques, deep model search, and adaptive hyperparameter definition technologies. This will drive the integration and automation of prognosis in CVD prevention and treatment.

VII. PUBLICATIONS

Google Scholar Citations: 2515; h-index¹: 26; i10-index²: 51

JOURNAL AND MAGAZINE ARTICLES

- J58. Jiawei Zhang, Jialin Wang, Yanchun Zhang, Hailong Qiu, Wen Xie, Zeyang Yao, Tianchen Wang, Yiyu Shi, Chu Han, Xiaomeng Li, Meiping Huang, Jian Zhuang, and **Xiaowei Xu**, "QDD-Ens: Quantization-based Deep Diversified Ensemble for Biomedical Image Segmentation", *Journal of Biomedical and Health Informatics (JBHI, IF=5.8)*, **under review**.
- J57. Jiawei Zhang, Yanchun Zhang*, Hailong Qiu, Tianchen Wang, Xiaomeng Li, Shanfeng Zhu, Meiping Huang*, Jian Zhuang*, Yiyu Shi, **Xiaowei Xu***, "Constrained Multi-scale Dense Connections for Biomedical Image Segmentation", *Pattern Recognition (PR, IF=7.7)*, **Online**.
- J56. Jiawei Zhang*, Xiaodong Wang*, Hailong Qiu*, Yanchun Zhang, Lanying Zhang, Wen Xie, Zeyang Yao, Tianchen Wang, Chu Han, Peijian Wei, Jian Liu, Yiyu Shi, Xiaomeng Li, Meiping Huang, Huiming Guo, Jian Zhuang, **Xiaowei Xu**, "HCM-Net: Structure-aware Excised Myocardium Segmentation Network for the Surgical Planning of Hypertrophic Cardiomyopathy", *Expert Systems With Applications (ESWA, IF=7.5)*, **online**.
- J55. Li, Shuhan, Xiaomeng Li*, **Xiaowei Xu***, and Kwang-Ting Cheng. "Dynamic subcluster-aware network for few-shot skin disease classification." *IEEE Transactions on Neural Networks and Learning Systems*, 2023, online.
- J54. Zhenge Jia, Dawei Li, Cong Liu, Liqi Liao, **Xiaowei Xu**, Lichuan Ping, Yiyu Shi "TinyML Design Contest for Life-Threatening Ventricular Arrhythmia Detection", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD, CCF-A)*, 2023.
- J53. **Xiaowei Xu**, Jia Q., Qiu H., Yuan H., Dong Y., Xie W., Yao Z., Zhang J., Nie Z., , Li X., Shi Y., Zou James*, Huang M.*, Zhuang J.* "A Clinically Applicable AI System for Diagnosis of Congenital Heart Diseases based on Computed Tomography Images", *Medical Image Analysis (MIA, IF=14)*, 2023.
- J52. Zeng, A., Wu, C., Huang, M., Zhuang, J., Bi, S., Pan, D., **Xiaowei Xu***, "ImageCAS: A Large-Scale Dataset and Benchmark for Coronary Artery Segmentation based on Computed Tomography Angiography Images", *Computerized Medical Imaging and Graphics (CMIG, IF=7.4)*, 2023.
- J51. Peijian, W. E. I., W. U. Hongxiang, T. A. N. Tong, Q. I. U. Hailong, X. U. Xiaowei, Z. H. U. Wei, L. U. Guanyu, Jian ZHUANG, L. I. U. Jian, and G. U. O. Huiming. "Totally endoscopic transmitral septal myectomy for the treatment of recurrent left ventricular outflow tract obstruction after alcohol septal ablation." *Chinese Journal of Clinical Thoracic and Cardiovascular Surgery* (2023): 1102-1111.
- J50. Ding, Xinpeng, Xinjian Yan, Zixun Wang, Wei Zhao, Jian Zhuang, Xiaowei Xu, and Xiaomeng Li. "Less is more: Surgical phase recognition from timestamp supervision." *IEEE Transactions on Medical Imaging* 42, no. 6 (2023): 1897-1910.

¹h-index is the largest number h such that h publications have at least h citations.

²i10-index is the number of publications with at least 10 citations.

- J49. Song, Yuhong, Edwin Hsing-Mean Sha, Qingfeng Zhuge, Rui Xu, Xiaowei Xu, Bingzhe Li, and Lei Yang. "Hardware-aware neural architecture search for stochastic computing-based neural networks on tiny devices." *Journal of Systems Architecture* 135 (2023): 102810.
- J48. Xie, Ruiwei, Dan Pan, An Zeng, Xiaowei Xu, Tianchen Wang, Najeeb Ullah, and Yuzhu Ji. "Target area distillation and section attention segmentation network for accurate 3D medical image segmentation." *Health Information Science and Systems* 11, no. 1 (2023): 9.
- J47. Yao, Zeyang, Wen Xie, Jiawei Zhang, Haiyun Yuan, Meiping Huang, Yiyu Shi, Xiaowei Xu, and Jian Zhuang. "Graph matching and deep neural networks based whole heart and great vessel segmentation in congenital heart disease." *Scientific Reports* 13, no. 1 (2023): 7558.
- J46. Liao, Zuwei, Kaikai Liu, Shangwei Ding, Qinhua Zhao, Yong Jiang, Lan Wang, Taoran Huang et al. "Automatic echocardiographic evaluation of the probability of pulmonary hypertension using machine learning." *Pulmonary Circulation* 13, no. 3 (2023): e12272.
- J45. Mingqi Li, Dewen Zeng, Hongwen Fei, Hongning Song, Jinling Chen, Sheng Cao, Bo Hu, Yanxiang Zhou, Yuxin Guo, **Xiaowei Xu**, Kui Huang, Ji Zhang, Qing Zhou (2023). Automatic Myocardial Contrast Echocardiography Image Quality Assessment Using Deep Learning: Impact on Myocardial Perfusion Evaluation. *Ultrasound in Medicine and Biology*, 49(10), 2247-2255. (IF=2.9)
- J44. Jia Zhengge, Jingtong Hu, **Xiaowei Xu***, Yiyu Shi*. "The Importance of Resource Awareness in Artificial Intelligence for Healthcare", *Nature Machine Intelligence* (NMI, IF=25.9), 2023. (accepted!)
- J43. Jia Zhengge, Dawei Li, **Xiaowei Xu***, Jingtong Hu, Yiyu Shi*. "Life-Threatening Ventricular Arrhythmia Detection Challenge in Implantable Cardioverter Defibrillators", *Nature Machine Intelligence* (NMI, IF=25.9), 2023. (accepted!)
- J42. Xinpeng Ding, Xinjian Yan, Zixun Wang, Wei Zhao, Jian Zhuang*, **Xiaowei Xu***, and Xiaomeng Li*, "Less is More: Surgical Phase Recognition from Timestamp Supervision", *IEEE Transactions on Medical Imaging* (TMI, IF=11), 2023, accepted.
- J41. Zhang, Jiawei, Yanchun Zhang, Yuzhen Jin, Jilan Xu, and **Xiaowei Xu**. "Mdu-net: Multi-scale densely connected u-net for biomedical image segmentation." *Health Information Science and Systems* 11, no. 1 (2023): 13. (IF=6)
- J40. Qiu, H., Wen, S., Ji, E., Chen, T., Liu, X., Li, X., Teng, Y., Zhang, Y., Liufu, R., Zhang, J. and **Xu, X.**, A novel 3D visualized Operative Procedure in the single-stage complete repair with unifocalization of Pulmonary Atresia with ventricular septal defect and major aortopulmonary collateral arteries. *Frontiers in Cardiovascular Medicine*, 2022, 9, p.836200.
- J39. Zhou, Shanglin, **Xiaowei Xu***, Jun Bai, and Mikhail Bragin. "Combining multi-view ensemble and surrogate lagrangian relaxation for real-time 3D biomedical image segmentation on the edge." *Neurocomputing* (**IF=5.8**) 512 (2022): 466-481.
- J38. Ren, Qiushi, Juemin Yu, Tianyu Chen, Hailong Qiu, Erchao Ji, Tao Liu, Xiaowei Xu et al. "Long-term outcomes of primary aortic valve repair in children with congenital aortic stenosis–15-year experience at a single center." *Frontiers in Cardiovascular Medicine* 9 (2022): 1029245.
- J37. Zhengge Jia, **Xiaowei Xu**, Jingtong Hu and Yiyu Shi, "Low-power Object-detection Challenge on Unmanned Aerial Vehicles," *Nature Machine Intelligence* (**IF=25.9**), in print, 2022.
- J36. Tianchen Wang, Jiawei Zhang, Jinjun Xiong, Song Bian, Zheyu Yan, Meiping Huang, Jian Zhuang, Takashi Sato, **Xiaowei Xu**, Yiyu Shi, "VisualNet: An End-to-End Human Visual System Inspired Framework to Reduce Inference Latency of Deep Neural Networks", *IEEE Transactions on Computers* (**TC, CCF-A, IF=3.2**), accepted, 2022

- J35. YAO, Zeyang, Wen XIE, Zewen CHEN, Erchao JI, Xiaowei XU, Tao LIU, Shusheng WEN, Gang XU, and Jian ZHUANG. "Twenty-two patients of atrioventricular septal defect repair with prosthetic valve ring implantation: A retrospective cohort study in a single center." *Chinese Journal of Clinical Thoracic and Cardiovascular Surgery* (2022): 1362-1366.
- J34. Li, Dawei, Yang Zhou, Shaopin Chen, and Xiaowei Xu. "A Quasi-digital QPSK modulator design for biomedical devices." *ACM Journal on Emerging Technologies in Computing Systems (JETC)* 18, no. 2 (2022): 1-16.
- J33. YAO, Zeyang, Wen XIE, Zewen CHEN, Xiaodong ZENG, Xiaowei XU, Shusheng WEN, Tao LIU, Gang XU, and Jian ZHUANG. "Real-world research perspective: Evaluation of early follow-up outcomes in patients with partial and transitional atrioventricular septal defects." *Chinese Journal of Clinical Thoracic and Cardiovascular Surgery* (2022): 457-462.
- J32. Wang, Zhenkun, Shuangchun Gui, Xinpeng Ding, Xiaowei Hu*, **Xiaowei Xu***, and Xiaomeng Li. "Spectrum and Style Transformation Framework for Omni-Domain COVID-19 Diagnosis." *IEEE Transactions on Emerging Topics in Computational Intelligence* 7, no. 5 (2022): 1527-1538.
- J31. Yutian Chen, Jiawei Zhang, Dewen Zeng, Yiyu Shi, Yuan Haiyun, Jian Zhuang, Yuhao Dong, Qianjun Jia, Yanchun Zhang, Meiping Huang, **Xiaowei Xu***, "Myocardial Segmentation of Cardiac MRI Sequences with Temporal Consistency for Coronary Artery Disease Diagnosis", *Cardiovascular Medicine (FCM, IF=6.0)*, accepted, 2022.
- J30. Jiawei Zhang, Yanchun Zhang, Hailong Qiu, Wen Xie, Zeyang Yao, Yuan Haiyun, qianjun Jia, Tianchen Wang, Yiyu Shi, Meiping Huang, Jian Zhuang, **Xiaowei Xu***, "Pyramid-Net: Intra-layer Pyramid-scale Feature Aggregation for Retinal Vessel Segmentation", *Frontiers in Medicine (FM, IF=5.1)*, accepted, 2021.
- J29. Guisen Lin, Qile Liu, Yuchen Chen, Xiaodan Zong, Yue Xi, Tingyu Li, Yuelong Yang, An Zeng, Minglei Chen, Chen Liu, Yanting Liang, **Xiaowei Xu***, Meiping Huang*, "Machine learning to predict long-term cardiac-relative prognosis in patients with extra-cardiac vascular disease", *Frontiers in Cardiovascular Medicine (FCM, IF=6.0)*, accepted, 2021.
- J28. Zeyang Yao, Hailong Qiu, Yuan Haiyun, Jian Zhuang, Jiawei Zhang, Qianjun Jia, Yuhao Dong, Tianchen Wang, Yiyu Shi, **Xiaowei Xu***, Meiping Huang*, "ImageTBAD: A 3D Computed Tomography Angiography Image Dataset for Automatic Segmentation of Type-B Aortic Dissection", *Frontiers in Physiology (FP)*, 2021, 12. (**IF=4.1**)
- J27. Hui Liu, Zihua Mo, Hang Yang, ZhengFu Zhang, Dian Hong, Long Wen, MinYin Lin, YingYi Zheng, ZhiWei Zhang, **XiaoWei Xu**, Jian Zhuang, ShuShui Wang, "Automatic Facial Recognition of Williams-Beuren Syndrome Based on Deep Convolutional Neural Networks", *Frontiers in Pediatrics (FP, IF=2.3)*, 2021, 9: 449.
- J26. Zeyang Yao, Xiaobing Liu, Xinrong Hu, Wen Xie, Yuhao Dong, Hailong Qiu, Zewen Chen, Yiyu Shi, **Xiaowei Xu***, Meiping Huang* and Jian Zhuang*, "A machine learning-based pulmonary venous obstruction prediction model using clinical data and CT image", *International Journal of Computer Assisted Radiology and Surgery (IJCARS '21)*, Vol. 29, Iss. 1-2, pp. 1-20, ISSN:1550-4832, 2021. (**IF=2.9**)
- J25. Qiu, Hailong, Huiming Guo, Zeyang Yao, Wen Xie, **Xiaowei Xu**, Meiping Huang, Jianzheng Cen, and Jian Zhuang. "Application of artificial intelligence in cardiovascular medicine." *Chinese Journal of Clinical Thoracic and Cardiovascular Surgery* (2021): 1160-1166.
- J24. **Xiaowei Xu**, Jinglan Liu, Hailong Qiu, Jiawei Zhang, Tianchen Wang, Yukun Ding, Haiyun Yuan, Jian Zhuang, Yuhao Dong, Wen Xie*, Qianjun Jia*, Meiping Huang, Yiyu Shi, "Multi-Cycle-Consistent Adversarial Networks for Edge denoising of Computed Tomography Images", *ACM Journal on Emerging Technologies of Computing Systems (JETC '21 CCF C)*, Vol. 29, Iss. 1-2, pp. 1-20, 2021.

- J23. Wentao Chen, Chutong Zhang, Yu Hu, Tianchen Wang, Qing Lu, Yiyu Shi*, **Xiaowei Xu***, "Quantization of Deep Neural Networks for Accurate Edge Computing", *ACM Journal on Emerging Technologies of Computing Systems*, accepted, 2021. (**Top journal in Embedded System, recommended C by CCF**)
- J22. **Xiaowei Xu*** Hailong Qiu, Haiyun Yuan, Qianjun Jia, Zeyang Yao, Wen Xie, Humming Guo, Meiping Huang, Jian Zhuang, Yiyu Shi, "AI-CHD: An AI-based Framework for Cost-Effective Surgical Telementoring of Congenital Heart Disease", *Communications of the ACM (CACM '21)*, Vol. 29, Iss. 1-2, pp. 1-14, ISSN:1520-9210, 2021. (**IF=14**)
- J21. Mingqi Li, Dewen Zeng, Qiu Xie, Ruixue Xu, Yu Wang, Dunliang Ma, Yiyu Shi, **Xiaowei Xu***, Meiping Huang*, Hongwen Fei*, "A deep learning approach with temporal consistency for automatic myocardial segmentation of quantitative myocardial contrast echocardiography", *The International Journal of Cardiovascular Imaging (IJCAI '21)*, Vol. 29, Iss. 1-2, pp. 1-14, ISSN:1569-5794, 2021.
- J20. Dongxu Wei, **Xiaowei Xu**, Kejie Huang, "AC-GAN: A General Method for Appearance-Controllable Human Video Motion Transfer", *IEEE Transactions on Multimedia (TMM)*, Accepted, 2020. (**Top journal in AI, recommended B by CCF**)
- J19. Xie, Wen, Zeyang Yao, Hailong Qiu, **Xiaowei Xu**, and Jian Zhuang. "Artificial intelligence in congenital cardiology." *Chinese Journal of Clinical Thoracic and Cardiovascular Surgery* (2020): 343-353.
- J18. Yukun Ding, Jinglan Liu, Jingjun Xiong, **Xiaowei Xu*** and Yiyu Shi*, "The Hardware Implication of Neural Networks Competency-Awareness", *Nature Electronics*, Accepted, 2020.
- J17. Jinglan Liu, Jiaxin Zhang, Yukun Ding, Meng Jiang, **Xiaowei Xu**, Yiyu Shi (2020). Binarizing Weights Wisely for Edge Intelligence: Guide for Partial Binarization of Deconvolution-Based Generators. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)* (in print). (**Top journal in CAD, recommended A by CCF**)
- J16. **Xiaowei Xu**, Xinyi Zhang, Bei Yu, Xiaobo Sharon Hu, Christopher Rowen, Jingtong Hu, Yiyu Shi, "DAC-SDC Low Power Object Detection Challenge for UAV Applications", *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, **In print**, 2019. (**Top journal in AI, recommended A by CCF**)
- J15. Li, Dawei, **Xiaowei Xu**, Leibo Liu, Li Zhang, Cheng Zhuo, and Yiyu Shi. "Optimal design of a low-power, phase-switching modulator for implantable medical applications." *Integration* 69 (2019): 289-300. (**Top journal in CAD, recommended C by CCF**)
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- J12. **Xiaowei Xu**, Qing Lu, Tianchen Wang, Yu Hu, Chen Zhuo, Jinglan Liu, and Yiyu Shi. "Efficient hardware implementation of cellular neural networks with incremental quantization and early exit." *ACM Journal on Emerging Technologies in Computing Systems (JETC)* 14, no. 4 (2018): 1-20. (**Top journal in CAD, recommended C by CCF**)
- J11. Liu, Zhongyang, Shaoheng Luo, **Xiaowei Xu**, Yiyu Shi, and Cheng Zhuo. "A multi-level-optimization framework for fpga-based cellular neural network implementation." *ACM Journal on Emerging Technologies in Computing Systems (JETC)* 14, no. 4 (2018): 1-17. (**Top journal in CAD, recommended C by CCF**)

- J10. Zhongyang Liu, Chen Zhuo, **Xiaowei Xu**, "An efficient segmentation method using quantized and non-linear CeNN for breast tumor classification", *Electronics Letters*, 2018. (SCI C)
- J9. Li Zhang, Dawei Li, Xuecheng Zou, Yu Hu, **Xiaowei Xu**, "Scalable and Parameterized Architecture for Efficient Stream Mining", *IEICE transactions on Fundamentals of Electronics, Communications and Computer Sciences*, Vol.E101-A, No.1, pp.219-231, 2018.
- J8. Feng Lin, Chen Song, **Xiaowei Xu**, Lora Cavuoto, Wenyao Xu, "Patient Handling Activity Recognition Through Pressure-Map Manifold Learning Using A Footwear Sensor", *Elsevier Smart Health (SH)*, 1(2), June 2017, Pages 77-92.
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- J6. Li Zhang, **Xiaowei Xu**, Dawei Li, Xiaofei Chen, Xuecheng Zou, "A single phase modulation for pulse-based inductive-coupling connection in 3D stacked chip", *IEICE Electronics Express*, 2017, 14(20).
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- J2. Pu, Lu, **Xiaowei Xu**, Han He, Hanqing Zhou, Zhijun Qiu, and Yu Hu. "A flexible control study of variable speed limit in connected vehicle systems." *International Journal of Embedded Systems* 7, no. 2 (2015): 180-188.
- J1. Jiangchen Li, **Xiaowei Xu**, Junpei Han, Yu Hu, and Xuecheng Zou, "Synchronized pulsed LED algorithm for ambient infrared noise minimization in FTIR-based multitouch system", *Infrared and Laser Engineering*, 42(6), 2013.

CONFERENCE AND WORKSHOP PROCEEDINGS

- C67. Hongyu Cheng, Limin Zheng, Yiyu Shi, Qing Lu, Bo Meng, Xiaowei Xu, "Fusion of Machine Learning and Deep Neural Networks for Pulmonary Arteries and Veins Segmentation in Lung Cancer Surgery Planning", *27th International Conference on Pattern Recognition (ICPR, CCF C)*, Accepted.
- C66. Dewen Zeng, Xinrong Hu, Yawen Wu, Xiaowei Xu, Yiyu Shi, "Contrastive Learning with Synthetic Positives", *ECCV (CCF A)*, online, 2024.
- C65. Jiewen, Yang, **Xiaowei Xu***, Xiaomeng Li*, "CardiacNet: Learning to Reconstruct Abnormalities for Cardiac Disease Assessment from Echocardiogram Videos", *ECCV (CCF A)*, online, 2024.
- C64. Yi Sheng, Junhuan Yang, Jinyang Li, James Alaina, Xiaowei Xu, Yiyu Shi, Jingtong Hu, Weiwen Jiang, Lei Yang, "Data-Algorithm-Architecture Co-Optimization for Fair Neural Networks on Skin Lesion Dataset, *MICCAI'24*, Accepted.

- C63. Zhang, Erlei, Weihao Chen, **Xiaowei Xu**, Zhicheng Zhang, and Jinglei Li. "Breast ultrasound computer-aided diagnosis using structure-aware triplet path networks." In ICASSP 2024-2024 IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP, CCF B**), pp. 1846-1850. IEEE, 2024.
- C62. Zheng, Limin, Hongyu Chen, Lu Qing, Jian Zhuang, Bo Meng, **Xiaowei Xu**. "Automatic Segmentation of Aortic and Mitral Valves for Heart Surgical Planning of Hypertrophic Obstructive Cardiomyopathy." In Asian Conference on Machine Learning (**ACML, CCF C**), pp. 1715-1730. PMLR, 2024.
- C61. Kaikai Liu, Yiyu Shi, Jian Zhuang, Meiping Huang, Hongwen Fei, Boyang Li, Jin Hong, Qing Lu, Erlei Zhang, **Xiaowei Xu**, "Enhance Regional Wall Segmentation by Style Transfer for Regional Wall Motion Assessment", Proc. of British Machine Vision Conference (**BMVC, CCF C**), 2023.
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- C57. Xueyang Li, Hai Xiao, Weixiang Weng, **Xiaowei Xu**, Yiyu Shi, "MPBD-LSTM: A Predictive Model For Colorectal Liver Metastases Using Time Series Multi-phase Contrast-Enhanced CT Scans", 26th International Conference on Medical Image Computing and Computer Assisted Interventions (**MICCAI'23, Top conference in medical imaging**), 2023.
- C56. Ziyang Zheng, Jiewen Yang, Xinpeng Ding, **Xiaowei Xu**, Xiaomeng Li, "GL-Fusion: Global-Local Fusion Network for Multi-view Echocardiogram Video Segmentation", 26th International Conference on Medical Image Computing and Computer Assisted Interventions (**MICCAI'23, Top conference in medical imaging**), 2023.
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- C54. Qing Lu, **Xiaowei Xu**, Shunjie Dong, Callie Hao, Lei Yang, Cheng Zhuo, and Yiyu Shi, "RT-DNAS: Real-time Constrained Differentiable Neural Architecture Search for 3D Cardiac Cine MRI Segmentation", 24th International Conference on Medical Image Computing and Computer Assisted Interventions (**MICCAI'22, Top conference in medical imaging**), 2022.
- C53. Zeng, An, Chenxi Mi, Dan Pan, Qing Lu, and Xiaowei Xu. "ImageALCAPA: A 3D Computed Tomography Image Dataset for Automatic Segmentation of Anomalous Left Coronary Artery from Pulmonary Artery." In 2022 IEEE International Conference on Bioinformatics and Biomedicine (**BIBM, CCF B**), pp. 1800-1803. IEEE, 2022.
- C52. Yawen Wu*, Dewen Zeng* (equal contribution), **Xiaowei Xu**, Yiyu Shi and Jingtong Hu, "FairPrune: Achieving Fairness Through Pruning for Dermatological Disease Diagnosis", 24th International Conference on Medical Image Computing and Computer Assisted Interventions (**MICCAI'22, Top conference in medical imaging**), 2022. Early accept, acceptance rate 13%

- C51. Yu-Jen Chen, Yen-Jung Chang, Shao-Cheng Wen, Yiyu Shi, **Xiaowei Xu**, Tsung-Yi Ho, Meiping Huang, Haiyun Yuan, and Jian Zhuang, "One-Shot" Reduction of Additive Artifacts in Medical Images", IEEE International Conference on Bioinformatics and Biomedicine, 2021 (**BIBM, CCF B**).
- C50. Zeng Dewen, Li Mingqi, Ding Yukun, **Xiaowei Xu**, Xie Qiu, Xu Ruixue, Fei Hongwen, Huang Meiping, Zhuang Jian, Shi Yiyu, "Segmentation with Multiple Acceptable Annotations: A Case Study of Myocardial Segmentation in Contrast Echocardiography", 27th international conference on Information Processing in Medical Imaging (**IPMI'21, Top conference in medical imaging**), Virtual, June 28th – July 2nd, 2021.
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- C47. Dongxu Wei, **Xiaowei Xu**, Haibin Shen, Kejie Huang, "C2F-FWN: Coarse-to-Fine Flow Warping Network for Spatial-Temporal Consistent Motion Transfer", 35th AAAI Conference on Artificial Intelligence (**AAAI'21, CCF A**), Virtual, 2021.
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- C45. Chen, Yu-Jen, Cheng-Yen Tsai, Xiaowei Xu, Yiyu Shi, Tsung-Yi Ho, Meiping Huang, Haiyun Yuan, and Jian Zhuang. "Ct image denoising with encoder-decoder based graph convolutional networks." In 2021 IEEE 18th International Symposium on Biomedical Imaging (**ISBI**), pp. 400-404. IEEE, 2021.
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- C41. Wang, Tianchen, Zhihe Li, Meiping Huang, Jian Zhuang, Shanshan Bi, Jiawei Zhang, Yiyu Shi, Hongwen Fei, and **Xiaowei Xu**. "EchoCP: An Echocardiography Dataset in Contrast Transthoracic Echocardiography for Patent Foramen Ovale Diagnosis." In Medical Image Computing and Computer Assisted Intervention: 24th International Conference (**MICCAI**), Strasbourg, France, September 27–October 1, 2021, Proceedings, Part VI 24, pp. 506-515. Springer International Publishing, 2021.
- C40. Shao-Cheng Wen, Yu-Jen Chen, Zihao Liu, Wujie Wen, **Xiaowei Xu**, Yiyu Shi, Tsung-Yi Ho, Meiping Huang, Haiyun Yuan, and Jian Zhuang, "Do noises bother human and neural networks in the same way? A medical image analysis perspective", IEEE International Conference on Bioinformatics and Biomedicine (**BIBM'2020, CCF B**), 2020.

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- C36. Dewen Zeng, Weiwen Jiang, Tianchen Wang, **Xiaowei Xu**, Haiyun Yuan, Meiping Huang, Jian Zhuang, Jingtong Hu and Yiyu Shi, "Towards Cardiac Intervention Assistance: Hardware-Aware Neural Architecture Exploration for Real-Time 3D Cardiac Cine MRI Segmentation," in Proc. of IEEE/ACM International Conference on Computer-Aided Design, 2020 (Invited Paper)(**Top conference in CAD, recommended B by CCF**)
- C35. **Xiaowei Xu**, Tianchen Wang, Jian Zhuang, Haiyun Yuan, Meiping Huang, Qianjun Jia, Jianzheng Cen, Yuhao Dong, Yiyu Shi (2020). ImageCHD: A 3D Computed Tomography Image Dataset for Classification of Congenital Heart Disease. In Proc. of Medical Image Computing and Computer Assisted Interventions (**MICCAI'20**), Lima, Peru, pp. 8300-8308.
- C34. Tianchen Wang, Jinjun Xiong, **Xiaowei Xu**, Qianjun Jia, Haiyun Yuan, Meiping Huang, Jian Zhuang, Yiyu Shi. ICA-UNet: ICA Inspired Statistical UNet for Real-time 3D Cardiac Cine MRI Segmentation. In Proc. of Medical Image Computing and Computer Assisted Interventions (**MICCAI'20**), Lima, Peru, pp. 8300-8308.
- C33. Zihao Liu, Sicheng Li, Yen-Kuang Chen, Tao Liu, Qi Liu, **Xiaowei Xu**, Yiyu Shi, Wujie Wen (2020). Orchestrating Medical Image Compression and Remote Segmentation Networks. In Proc. of Medical Image Computing and Computer Assisted Interventions (**MICCAI'20**), Lima, Peru, pp. 8300-8308.
- C32. Song Bian, **Xiaowei Xu**, Weiwen Jiang, Yiyu Shi, Takashi Sato (2020). BUNET: Blind Medical Image Segmentation Based on Secure UNET. In Proc. of Medical Image Computing and Computer Assisted Interventions (**MICCAI'20**), Lima, Peru, pp. 8300-8308.
- C31. Yukun Ding, Jinglan Liu, **Xiaowei Xu**, Meiping Huang, Jian Zhuang, Jinjun Xiong, Yiyu Shi. Uncertainty-Aware Training of Neural Networks for Selective Medical Image Segmentation. In Proc. Of Medical imaging with Deep Learning (**MIDL'20**), Montreal, Canada, pp. 8300-8308, 2020.
- C30. Yu-Jen Chen, Yen-Jeng Chang, Shao-Cheng Wen, **Xiaowei Xu**, Tsung-Yi Ho, Qianjun Jia, Meiping Huang, Jian Zhuang, Yiyu Shi. Zero-Shot Medical Image Artifact Reduction. In IEEE International Symposium on Biomedical Imaging (**ISBI'20**), 2020, Iowa city, pp. 8300-8308.
- C29. Qing Lu, Weiwen Jiang, **Xiaowei Xu**, Yiyu Shi, Jingtong Hu (2019). On Neural Architecture Search for Resource-Constrained Hardware Platforms. Proc. of IEEE/ACM 2017 International Conference On Computer-Aided Design (**ICCAD'19**), CA, 2019. (**Top conference in CAD, recommended B by CCF**)
- C28. **Xiaowei Xu**, Tianchen Wang, Yiyu Shi, "Whole heart and great vessel segmentation in congenital heart disease using deep neural networks and graph matching", the 22nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI'19**), 2019.

- C27. **Xiaowei Xu**, Meiping Huang, Qianjun Jia, Hailong Qiu, Haiyun Yuan, Yuhao Dong, Jian Zhuang and Yiyu Shi, "Accurate Congenital Heart Disease Model Generation for 3D Printing," in Proc. of IEEE International Workshop in Signal Processing Systems, Nanjing, China, 2019.
- C26. Boyang Li, Changhao Chenli, **Xiaowei Xu**, Taeho Jung and Yiyu Shi, "Exploiting Computation Power of Blockchain for Biomedical Image Segmentation," in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR'19**) Workshops, Long Beach, CA, 2019. (Best Student Paper Award)
- C25. Tianchen Wang, **Xiaowei Xu**, jingjun, Xiong, Yiyu Shi, "Multiscale SD-Net: Multiscale Statistical Dense Neural Network for Efficient 3D Cardiovascular MRI Segmentation", the 22nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI'19**).
- C24. Zihao Liu, **Xiaowei Xu**, Tao Liu, Qi Liu, Yanzhi Wang, Meiping Huang, Haiyun Yuan, Jian Zhuang, Yiyu Shi, "Machine Vision Guided 3D Medical Image Compression for Efficient Transmission and Accurate Segmentation in the Clouds", IEEE Conference on Computer Vision and Pattern Recognition (**CVPR'19**), Accepted(**Top conference in AI, recommended A by CCF**).
- C23. Tianchen Wang, **Xiaowei Xu**, jingjun, Xiong, Yiyu Shi, "SCNN: A General Distribution based Statistical Convolutional Neural Network with Application to Video Object Detection", The Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI'19**), Honolulu, 2019. Accept (**Top conference in AI, recommended A by CCF**)
- C22. **Xiaowei Xu**, Qing Lu, Lin Yang, Sharon Hu, Danny Chen, Yu Hu, Yiyu Shi, "Quantization of Fully Convolutional Networks for Accurate Biomedical Image Segmentation", IEEE Conference on Computer Vision and Pattern Recognition (**CVPR'18**), Salt lake city, 2018. (**Top conference in AI, recommended A by CCF**)
- C21. **Xiaowei Xu**, Tianchen Wang, Qing Lu, Yiyu Shi, "Resource Constrained Cellular Neural Networks for Real-time Obstacle Detection using FPGAs", The 19th International Symposium on Quality Electronic Design (**ISQED'18**), Santa Clark, USA, 2018.
- C20. Liu, Zhongyang, Shaoheng Luo, **Xiaowei Xu**, and Cheng Zhuo. "Cellular neural network (CeNN) FPGA implementation using multi-level optimization." In 2018 China Semiconductor Technology International Conference (**CSTIC**), pp. 1-3. IEEE, 2018.
- C19. Zeyu Yan, **Xiaowei Xu**, Guangyu Yu, Hu Yu, "Empowering Edge Mining on Smartphones with Reconfigurable Fabrics", China Semiconductor Technology International Conference (**CSTIC'18**), Shanghai, China, 2018.
- C18. Guangyu Yu, **Xiaowei Xu**, Zeyu Yan and Hu Yu, "Accelerating Earth Movers Distance with Instruction Set Extension for Image Retrieval", China Semiconductor Technology International Conference (**CSTIC'18**), Shanghai, China, 2018.
- C17. **Xiaowei Xu**, Dewen Zeng, Wenyao Xu, Yiyu Shi, Yu Hu, "An Efficient Memristor-Based Distance Accelerator for Time Series Data Mining on Data Centers", 54th Design Automation Conference (**DAC'17**), 2017. (**Top conference in CAD, recommended A by CCF**)
- C16. **Xiaowei Xu**, Qing Lu, Tianchen Wang, Jinglan Liu, Yu Hu and Yiyu Shi, "Efficient Hardware Implementation of Cellular Neural Networks with Powers-of-Two Based Incremental Quantization", **Neuromorphic Computing Symposium**, Knoxville, 2017.
- C15. Guanbing Deng, Hanqing Zhou, Guangyu Yu, Zeyu Yan, Yu Hu, **Xiaowei Xu**, "Scalable and parameterized dynamic time warping architecture for efficient vehicle re-identification", In Transportation Information and Safety (**ICTIS'17**), 4th International Conference on, 2017.

- C14. **Xu, Xiaowei**, Qing Lu, Tianchen Wang, Jinglan Liu, Cheng Zhuo, Xiaobo Sharon Hu, and Yiyu Shi. "Edge segmentation: Empowering mobile telemedicine with compressed cellular neural networks." In 2017 IEEE/ACM International Conference on Computer-Aided Design (**ICCAD, CCF B**), pp. 880-887. IEEE, 2017.
- C13. Liu, Zhongyang, Shaoheng Luo, **Xiaowei Xu**, Yiyu Shi, and Cheng Zhuo. "FPGA based cellular neural network optimization: From design space to system." In Proceedings of the Neuromorphic Computing Symposium. 2017.
- C12. Kun Woo Cho, Feng Lin, Chen Song, **Xiaowei Xu**, Fuxing Gu, and Wenyao Xu, "Thermal Handprint Analysis for Forensic Identification using Heat-Earth Mover's Distance", 2016 IEEE International Conference on Identity, Security and Behavior Analysis (**ISBA'16**), Sendai, Japan, February, 2016.
- C11. Feng Lin, Chen Song, **Xiaowei Xu**, Lora Cavuoto, Wenyao Xu, "Sensing from the Bottom: Smart Insole Enabled Patient Handling Activity Recognition Through Manifold Learning", IEEE International Conference on Connected Health: Applications, Systems and Engineering Technologies (**CHASE'16**), Washington D.C., June 2016.
- C10. Feng Lin, **Xiaowei Xu**, Aosen Wang, Lora Cavuoto, Wenyao Xu, "Automated patient handling activity recognition for at-risk caregivers using an unobtrusive wearable sensor", IEEE International Conference on Biomedical and Health Informatics (**BHI'16**), Las Vegas, February 2016.
- C9. Kun Woo Cho, Feng Lin, Chen Song, **Xiaowei Xu**, Michelle Hartley-McAndrew, Kathy Doody, Wenyao Xu, "Gaze-Wasserstein: A Quantitative Screening Approach to Autism Spectrum Disorder", IEEE Annual Wireless Health Conference (**WH'16**), Bethesda, MD, October 2016.
- C8. **Xiaowei Xu**, Feng Lin, Aosen Wang, Chen Song, Yu Hu, and Wenyao Xu, "On-bed Sleep Posture Recognition Based on Body-Earth Movers Distance", IEEE Conference on Circuits and Systems (**BioCAS'15**), Atlanta, Georgia, October, 2015.
- C7. Aosen Wang, Chen Song, **Xiaowei Xu**, Feng Lin, Zhanpeng Jin, and Wenyao Xu, "Selective and Compressed Sensing for Energy-Efficient Implantable Neural Encoding", IEEE Conference on Circuits and Systems (**BioCAS'15**), Atlanta, 2015.
- C6. Hanqing Zhou, **Xiaowei Xu**, Yu Hu, Guangyu Yu, Zeyu Yan, Feng Lin, and Wenyao Xu, "An Energy-efficient Pipelined DTW Architecture on Hybrid Embedded Platform", IEEE Green and Sustainable Computing Conference (**IGSC'15**), Las Vegas, 2015.
- C5. Hanqing Zhou, Lu Pu, Yu Hu, **Xiaowei Xu***, Aosen Wang, and Wenyao Xu, "Energy Characterization and Optimization of Embedded Data Mining Algorithms: a Case Study of the DTW-kNN Framework", International Workshop on Green Programming, Computing, and Data Processing (**GPCDP'14**), Dallas, Texas, 2014.
- C4. Tao Jiang, **Xiaowei Xu**, Lu Pu, Yu Hu, and Zhijun Qiu, "A simulation study of connected vehicle systems using named data network", 4th International Conference on Cloud Computing (**ICCC'14**), Wuhan, China, 2014.
- C3. Jiangchen Li, **Xiaowei Xu**, Hongpeng Zhao, Yu Hu, and Tony Z. Qiu, "An Energy Efficient Sub-Nyquist Sampling Method Based on Compressed Sensing in a Wireless Sensor Network for Vehicle Detection", The 2nd International Conference on Connected Vehicles and Expo (**ICCVE'13**), Las Vegas, Nevada, 2013.
- C2. **Xiaowei Xu**, Tao Jiang, Pengfei Li, Tony Qiu, and Yu Hu, "A High-Level-Architect SimIVC for Simulating Traffic Network", The 2nd International Conference on Transportation Information and Safety (**ICTIS'13**), Wuhan, 2013.

- C1. **Xiaowei Xu**, Wanghui Zou, Jinran Du, Xiaofei Chen, and Xuecheng Zou, Predictive calculation of coupling coefficient between on-chip small-area multilayer inductors”, Solid-State and Integrated Circuit Technology, 2012 IEEE (**ICSICT’12**), Xian, 2012.

Arxiv papers

- A4. Hu, Xinrong, Xiaowei Xu, and Yiyu Shi. ”How to efficiently adapt large segmentation model (sam) to medical images.” arXiv preprint arXiv:2306.13731 (2023).
- A3. Li, Boyang, Changhao Chenli, **Xiaowei Xu**, Yiyu Shi, and Taeho Jung. ”Dlbc: A deep learning-based consensus in blockchains for deep learning services.” arXiv preprint arXiv:1904.07349 (2019).
- A2. **Xiaowei Xu**, ”On the Quantization of Cellular Neural Networks for Cyber-Physical Systems”, TC-CPS-letter, 1(5), February 01, 2018.
- A1. Liu, Jinglan, Jiaxin Zhang, Yukun Ding, **Xiaowei Xu**, Meng Jiang, and Yiyu Shi. ”PBGGen: Partial binarization of deconvolution-based generators for edge intelligence.” arXiv preprint arXiv:1802.09153 (2018).

VIII. TALKS

INVITED TALKS

- **Invited Talk**, *’Artificial Intelligence in Diagnosis and Treatment of Congenital Heart Diseases’*, Online seminar of University of Cincinnati, Cincinnati, US, September 20, **2024**.
- **Invited Talk**, *’Artificial Intelligence and Clinical Translation in Cardiovascular Imaging’*, 2024 West Lake Cardiovascular Conference, Hangzhou, China, March 16, **2024**.
- **Invited Talk**, *’Applications of Artificial Intelligence and 3D Visualization Technology in Cardiovascular Disease Diagnosis and Treatment’*, 2023 Guangdong Pediatric Society Annual Academic Conference, Guangzhou, China, December 4, **2023**.
- **Invited Talk**, *’Applications of Artificial Intelligence and 3D Technology in Structural Heart Disease’*, 28th Congress of Chinese Pediatric Society, Chengdu, China, October 28, **2023**.
- **Invited Talk**, *’Applications of Artificial Intelligence and 3D Technology in Structural Heart Disease.’*, Dushu Lake Forum Dushu Lake Symposium on Medical Image Computing, Suzhou, China, April 2, **2023**.
- **Invited Talk**, *’High-Efficiency Artificial Intelligence Computing and Its Applications’*, Shenzhen University, Shenzhen, China, November 19, **2021**.
- **Invited Talk**, *’Research and Application of Artificial Intelligence in Congenital Heart Disease Imaging’*, Shenzhen Children’s Hospital, Shenzhen, China, November 19, **2021**.
- **Invited Talk**, *’Research on the Application of Artificial Intelligence in the Prevention, Diagnosis, and Treatment of Congenital Heart Disease’*, **Southern Cardiovascular Conference**, Guangzhou, China, August 8, **2021**.
- **Invited Talk**, *’Efficient Machine Learning for IoT Applications’*, **Zhejiang University**, Hangzhou, China, October, **2018**.
- **Invited Talk**, *’Efficient Machine Learning for IoT Applications’*, Shandong University, Qingdao, China, July **2018**.
- **Invited Talk**, *’Hardware Acceleration for Deep Learning’*, Zhejiang University of Technology, Hangzhou, China, June **2017**.

IX. PROFESSIONAL ACTIVITY & MEMBERSHIPS

- **Organizing Committee Member:**

- **TPC Member**, AAAI 2023, 2024: AAAI Conference on Artificial Intelligence
- **TPC Member**, ECAI 2023: European Conference on Artificial Intelligence ECAI
- **TPC Member**, MICCAI 2021, 2022, 2023: International Conference on Medical Image Computing and Computer Assisted Intervention
- **Program Committee Member**, HBAI 2020: Joint Workshop on Human Brain and Artificial Intelligence, Held in Conjunction With **IJCAI-PRICAI, 2020**.
- **TPC Member**, 2019 IEEE Computer Society Annual Symposium on VLSI, **ISVLSI** 2019, Miami, FL, USA, July 15-17, 2019.
- **TPC Member**, 37th IEEE International Conference on Computer Design, **ICCD** 2019, Abu Dhabi, United Arab Emirates, November 17-20, **2019**.
- **TPC Member**, International Symposium on Quality Electronic Design (**ISQED**). **2019, 2020, 2021**.
- **TPC Member**, 2018 IEEE Computer Society Annual Symposium on VLSI, **ISVLSI** 2018, Hong Kong, China, July 8-11, **2018**

- **Professional Memberships:**

- **Member of IEEE** (Institute of Electrical and Electronics Engineers)
- Member of **ACM** (Association for Computing Machinery)
- Member of **MICCAI** (The Medical Image Computing and Computer Assisted Intervention Society)

- **Reviewer:**

- **Nature Method (IF=48)**
- Artificial Intelligence Review (AIR, IF=12)
- IEEE Transactions on Medical Imaging (TMI, IF=10)
- Nature Computational Science (**Nature NCS**, IF=11)
- IEEE Transactions on Neural Networks and Learning Systems (**IEEE TNNLS**, IF=14)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**)
- IEEE Transactions on Very Large Scale Integration (**TVLSI**)
- IEEE Transactions on Computer (**TC**)
- Integration the VLSI Journal (**Integration**)
- IEEE International Conference on Computer Aid Design (**ICCAD**) 2018
- IEEE Design Automation Conference (**DAC**) 2017
- IEEE Computer Society Annual Symposium on VLSI (**ISVLSI**), 2018
- IEEE International Conference on Computer Design (**ICCD**), 2018
- International Symposium on Quality Electronic Design (**ISQED**) 2019
- Medical Image Computing and Computer Assisted Interventions (**MICCAI**), 2020-2023
- MDPI Sensors
- **AAAI** 2022
- **CVPR** 2023