Xianglong Wang

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EDUCATION

Doctor of Philosophy in Computer Application Technology Sep 2020 – Jun 2024
College of Computer Science and Technology, Ocean University of China

Master of Engineering in Agricultural Informatics Sep 2017 – Jun 2020
College of Computer Science and Technology, Ocean University of China

Bachelor of Engineering in Internet of Things Engineering Sep 2013 – Jun 2017
School of Information Science and Engineering, Shandong Agricultural University, China

High School Diploma Sep 2010 – Jun 2013
Liaocheng No.1 Senior High School, Shandong, China

SKILLS AND INTERESTS

Interests	Medical Image Processing, AI for Science, Generative Artificial Intelligence
Frameworks	PyTorch, TensorFlow, MONAI
Languages	Python, C++, MATLAB
Tools	CUDA, Git, Linux, Docker

EMPLOYMENT HISTORY

- From Sep, 2024: Assistant Professor, Qingdao University of Science and Techonlogy, China

PUBLICATIONS

Wang, X., An, X., Rigall, E., Zhang, S., Sun, H., Dong, J. (2024). A New Benchmark and Low Computational Cost Localization Method for Cephalometric Analysis. *IEEE Transactions on Circuits and Systems for Video Technology*

Wang, X., An, X., Rigall, E., Zhang, S., Yu, H., Dong, J. (2024). A Method for X-Ray Image Landmarks Localization using Cyclic Coordinate-Guided Strategy. *ICASSP 2024 - 2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*

An, X., **Wang, X.**, Rigall, E., Zhang, S., Yu, H., Dong, J. (2024). Ceph2Style: A method for predicting facial growth direction using StyleGAN latent space editing. *2024 9th International Conference on Image, Vision and Computing (ICIVC)*

Liu, J., **Wang, X.**, Zhang, S., Dong, J. (2023). DESNTC: Transformer-Based Double Shift Network for Breast Histopathological Image Classification. *2023 IEEE Smart World Congress (SWC,UIC)*

Rigall, E., **Wang, X.**, Zhang, S., Dong, J. (2023). A Fast and Accurate RFID Tag Positioning Method Based on AoA Hologram and Hashtables. *Computer Communications*

Wang, X., Rigall, E., Chen, Q., Zhang, S., Dong, J. (2022). Efficient and Stable Cephalometric Landmark Localization Using Two-Stage Heatmaps' Regression. *IEEE Transactions on Instrumentation and Measurement*

Yang, Y., **Wang, X.**, Fan, H., Qin, X., Jian, M., Dong, J. (2022). Calibration of photometric stereo point light source based on standard block. *In International Workshop on Advanced Imaging Technology (IWAIT) 2022*

Rigall, E., **Wang, X.**, Chen, Q., Zhang, S., Dong, J. (2022). An RFID Tag Localization Method Based on Hologram Mask and Discrete Cosine Transform. *IEEE Transactions on Instrumentation and Measurement*

Zhu, Z., **Wang, X.**, Dong, J., Jiang, B., Zhang, S. (2020). Rotation Axis Calibration of Laser Line Rotating-Scan System for 3D Reconstruction. *2020 11th International Conference on Awareness Science and Technology (iCAST)*

Chen, Q., Rigall, E., **Wang, X.**, Fan, H., Dong, J. (2020). Poker Watcher: Playing Card Detection Based on EfficientDet and Sandglass Block. *2020 11th International Conference on Awareness Science and Technology (iCAST)*

GRANTED PATENTS

Wang, X., Dong, J., Yuan, X., Zhang, S., Zhang Q., Fan, H., et al. Multi-channel omnidirectional tensile stress in vitro cell culture device and working method. *China Invention Patent.*

Liu, P., **Wang, X.,** et al. EEG-based wheelchair control method and voice-integrated wheelchair control system. *China Invention Patent.*

Gao, Y., Zhu, L., Zhang, Z., **Wang, X.,** et al. Stereo matching method and device. *China Invention Patent.*

Fan, H., Dong, J., Zhu, Z., Qi, G., Qi, L., Yang, J.,**Wang, X.,** et al. Three-dimensional reconstruction method for rotating underwater objects based on laser triangulation. *China Invention Patent.*

ACADEMIC ACTIVITIES – REVIEWER

Journal: IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Geoscience and Remote Sensing, Transactions on Internet and Information Systems.

Conference: International Conference on Medical Image Computing and Computer Assisted Intervention, International Conference on Acoustics Speech and Signal Processing, IEEE International Conference on Image Processing, IEEE Conference on Multimedia Expo.

ACHIEVEMENTS

Doctoral Academic and Practical Innovation Scholarship, Ocean University of China *April 2024*
Outstanding Graduate Student, Ocean University of China (2021–2022) *November 2022*
Second Prize, 7th "Internet+" College Student Innovation and Entrepreneurship Competition (School Level), Project Leader *July 2021*
Outstanding Graduate, Ocean University of China *June 2020*
First Prize Scholarship, Ocean University of China (2017–2018) *November 2018*
Outstanding Graduate Student, Ocean University of China (2017–2018) *October 2018*
Outstanding Graduate, Shandong Agricultural University *June 2017*
First Prize, Huawei Cup National College Student Innovation and Entrepreneurship Competition, EEG-based Intelligent Wheelchair Control System, Project Leader *September 2016*
First Prize, 3rd National IoT Application Innovation Competition (East China Division), EEG-based Intelligent Wheelchair Control System, Project Leader *May 2016*

PROJECTS

Medical Image Landmark Detection with Multi-scale Iterative Features and Learnable Attack Strategies January 2022 – May 2024
Project Leader

- Proposed a multi-scale iterative feature extraction model combined with learnable attack strategies for landmark detection.
- Constructed image feature pyramids processed iteratively to refine landmark localization.
- Improved robustness against noise, achieving higher accuracy in medical image landmark detection.

Efficient Intelligent Diagnosis System for Mammography-based Breast Cancer Detection January 2021 – December 2023
Project Leader

- Applied deep learning to automatically annotate tumor type, location, and size in mammograms.
- Enhanced radiologists' diagnostic accuracy, efficiency, and ability to detect subtle lesions.
- Demonstrated superior detection speed and accuracy compared to manual interpretation.

Automatic Cephalometric Software Development December 2019 – March 2022
Project Leader

· Developed software for automatic cephalometric landmark detection.
· Utilized multimodal alignment between visual and textual modalities to reduce cross-modal distance.
· Validated model effectiveness on X-ray, MRI, and CT datasets.

Baccarat Security System Based on Deep Learning and RFID December 2017 – January 2022
Project Leader
· Developed an integrated monitoring system using deep learning for card recognition and RFID for real-time chip tracking.
· Implemented Python-based system with multi-threaded processing and visualization.
· Significantly improved game security and automation in casino environments.

Underwater 3D Reconstruction via Line Structured Light Rotational Scanning September 2017 – January 2020
Project Leader
· Designed underwater camera calibration, rotation axis calibration, and laser plane calibration systems.
· Applied underwater refraction models to correct images and achieve high-precision 3D reconstruction of stationary objects.
· Proposed novel calibration methods to solve refraction and misalignment issues, enabling accurate dense reconstruction for large underwater scenes.

EEG and Voice-based Intelligent Wheelchair Control System March 2016 – August 2017
Project Leader
· Integrated IoT sensing and intelligent control to enable wheelchair operation via EEG, voice, and manual inputs.
· Implemented infrared obstacle avoidance for enhanced safety.
· Aimed to assist physically disabled and elderly individuals in achieving "mind-controlled" mobility.

IoT Sensing Device Development and Information Platform Construction May 2013 – September 2016
Core Team Member
· Independently designed both upper and lower computers for IoT systems.
· Transmitted experimental data via IoT communication devices to the Shandong Provincial Information Platform for real-time visualization.
· Developed both the IoT sensing hardware and software from scratch.

TEACHING

Qingdao University of Science and Technology

D225020400: **Digital Image Processing and Analysis**, 2025–2026, Semester 1
Taught core concepts of digital image processing, image enhancement, feature extraction, and image analysis techniques; supervised student projects.

DFX225021000: **Large Model and Generative Artificial Intelligence**, 2024–2025, Semester 2
Covered foundations of large language models, generative AI frameworks, and prompt engineering; guided students in hands-on AI application development.

D225002002W-01: **Web Crawler and Information Extraction**, 2024–2025, Semester 2
Introduced principles of web crawling, data parsing, and automated information extraction; led lab sessions on Python-based implementation.

D225021700-01: **Generative AI and Chatbots**, 2024–2025, Semester 2
Focused on conversational AI, chatbot design, and integration with generative models; mentored student teams in building functional prototypes.

DFX225020300-01: **Web Crawler and Information Extraction**, 2024–2025, Semester 1
Delivered lectures on web scraping frameworks, data cleaning, and structured data extraction; conducted assessments through practical coding assignments.

BIOGRAPHY

Xianglong Wang has been an Assistant Professor in the School of Data Science at Qingdao University of Science and Technology, China, since 2024. He is affiliated with the university's Medical Imaging and Artificial Intelligence research group, working closely with Prof. Junyu Dong's team. He serves as a reviewer for leading journals such as IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Geoscience and Remote Sensing, and Transactions on Internet and Information Systems, as well as for top conferences including MICCAI, ICASSP, and IEEE ICME.

Dr. Wang was born in Liaocheng, Shandong, China. Before joining Qingdao University of Science and Technology, he earned his Ph.D. in Computer Application Technology (2020–2024) from the College of Computer Science and Technology, Ocean University of China, under the supervision of Prof. Junyu Dong. He received his Master of Engineering in Agricultural Informatics (2017–2020) from the same institution and his Bachelor of Engineering in Internet of Things Engineering (2013–2017) from Shandong Agricultural University.

During his master's studies, Dr. Wang began his research on medical image analysis, focusing on cephalometric X-rays and breast cancer histopathology in collaboration with multiple hospitals in Qingdao. He also led the development of an AI-powered baccarat security system using deep learning, RFID, and Python-based real-time monitoring, currently under negotiation for deployment in Macau. For his doctoral research, he proposed multi-scale iterative feature extraction and learnable attack strategies for medical image landmark detection, funded by the National Fundamental Research Funds for the Central Universities. This system has been deployed at the Affiliated Hospital of Qingdao University.

Beyond software research, Dr. Wang has extensive hardware development experience, including designing a multi-channel omnidirectional tensile stress cell culture device, now in clinical research use, for which he holds a China national invention patent. His expertise also extends to 3D reconstruction using structured light and laser triangulation, underwater imaging calibration, and IoT system development.

Dr. Wang has over a decade of project leadership experience, spanning intelligent medical diagnosis systems, cephalometric software development, underwater 3D reconstruction, and EEG–voice hybrid intelligent wheelchair control. His work bridges deep learning, computer vision, and hardware–software integration, with applications in medical imaging, security, and industrial measurement. He has authored publications in IEEE Transactions on Instrumentation and Measurement, Computer Communications, and ICASSP, among others, and is the inventor of multiple China national patents.

His teaching portfolio includes courses on Digital Image Processing and Analysis, Large Models and Generative AI, Web Crawlers and Information Extraction, and Generative AI for Chatbots. He has led both undergraduate and postgraduate student projects and supervises small research teams, leveraging his combined expertise in AI theory, practical system deployment, and server management.

Dr. Wang's research interests include medical image analysis, 3D reconstruction, deep learning model design, and intelligent hardware systems. He is particularly focused on integrating AI algorithms with physical devices for real-world applications in healthcare, industrial inspection, and security systems.