郑海永　博士，教授，泰山学者青年专家

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1. 个人简介

1.1 教学

践行以学生学习和学生发展为中心的教学理念，自主研发“海码”大模型赋能编程教育教学，主持山东省本科高校教学改革研究项目 2 项、山东省研究生教育质量提升计划建设项目 2 项，发表教学论文 2 篇，负责山东省一流本科专业建设点“电子信息科学与技术”，主持省一流本科课程和省智慧课程，入选省“人工智能 + 高等教育”典型应用场景案例。

1.2 科研

长期从事新一代人工智能技术及应用研究，组建微纳感知与信息智能科研团队，主持包括国家自然科学基金在内的科研项目 10 余项，发表包括计算机视觉顶级期刊 TPAMI、IJCV 和三大顶级会议 CVPR、ICCV、ECCV 以及多媒体顶级会议 ACM MM 在内的学术论文 100 余篇，授权国家发明专利 10 多项。

1.3 学术

担任 IEEE Journal of Oceanic Engineering、Information Processing in Agriculture、Intelligent Marine Technology and Systems 和电波科学学报期刊编委，IEEE 海洋工程学协会光学与成像技术委员会主席（2023-），IEEE 海洋工程学协会山东分会主席（2024-），中国图象图形学学会青年工作委员会委员，山东电子学会理事，新侨创新创业青岛联盟理事，青岛西海岸新区海洋电子信息联盟副理事长，北太平洋海洋科学组织 PICES 工作组 WG48 和 WG54 成员，VALSE 首批常务领域主席等；IEEE Senior Member，CSIG 高级会员。

1.4 获奖

荣获生物信息学国际权威会议 InCoB 2017 最佳论文奖、山东省省级教学成果奖、山东省优秀硕士学位论文指导奖、山东电子学会科学技术奖，以及中国海洋大学本科教学优秀奖、天泰优秀人才奖、东升课程教学卓越奖、海潮英才奖、五四青年奖等，入选山东省泰山学者青年专家。

2. 教育背景

- **中国海洋大学**　　*青岛，中国*
  博士，海洋信息探测与处理 专业，导师：姬光荣 教授　　*2004 年 9 月 - 2009 年 6 月*
- **中国海洋大学**　　*青岛，中国*
  本科，电子信息工程 专业，工学学士学位　　*2000 年 9 月 - 2004 年 6 月*

3. 工作经历

- **中国海洋大学**　　*青岛，中国*
  教授，信息科学与工程学院电子工程系　　*2020 年 1 月 - 至今*
- **英国邓迪大学**　　*邓迪，英国*
  访问学者，科学与工程学院数学系　　*2018 年 8 月 - 2019 年 8 月*
- **中国海洋大学**　　*青岛，中国*
  副教授，信息科学与工程学院电子工程系　　*2014 年 12 月 - 2019 年 12 月*
- **中国海洋大学**　　*青岛，中国*
  讲师，信息科学与工程学院电子工程系　　*2009 年 7 月 - 2014 年 11 月*

4. 学术服务

- **学术兼职**: IEEE Journal of Oceanic Engineering 编委（Associate Editor），Information Processing in Agriculture 编委（Associate Editor），Intelligent Marine Technology and Systems 编委（Associate Editor），电波科学学报编委（委员）；IEEE Senior Member，CSIG 高级会员；IEEE 海洋工程学协会光学与成像技术委员会主席（2023-）；IEEE 海洋工程学协会山东分会主席（2024-）；中国图象图形学学会青年工作委员会委员；山东电子学会理事；新侨创新创业青岛联盟理事；青岛西海岸新区海洋电子信息联盟副理事长；北太平洋海洋科学组织 PICES 工作组 WG48 和 WG54 成员；VALSE 首批常务领域主席（LACC）、首届在线理事会理事（VODB）；ISAIR 首届指导委员会委员。
- **客座编辑**: Deep Learning for Marine Science, Volume II, Frontiers in Marine Science, 2023; Deep Learning for Marine Science, Frontiers in Marine Science, 2022; Advanced Machine Learning Methodologies for Underwater Image and Video Processing and Analysis, IEEE Journal of Oceanic Engineering, 2021.
- **特邀报告**: 触手生春：多场景降质图像智能解译，第一届轨道交通装备图像智能检测与分析研讨会，中国青岛，2024；Image Harmonization and Beyond，Robert Gordon University，英国阿伯丁，2024；水下视觉："未见其人，先闻其声"，中国模式识别与计算机视觉大会（PRCV）专题论坛：蓝色经济下的海洋环境感知与理解，中国深圳，2022；Image Harmonization Methods and Applications, Wireless Silk Road International Lecture Series, Virtual, 2022; Image-to-Image Translation: Advances and Trends, International Symposium on Artificial Intelligence and Robotics (ISAIR), Daegu, Korea, 2019; Underwater Vision from Optics and Imaging to Vision and Learning, Vision And Learning SEminar (VALSE), Xiamen, China, 2017.
- **期刊审稿**: IEEE TPAMI, TNNLS, TII, TSMC, TMI, TCSVT, TAI, JOE, Access, SPL, GRSL; IEEE/ACM TCBB; ACM CSUR; Elsevier FGCS, KNOSYS, P&RS AESCTE, PR, PRLETTERS, NEUCOM, CVIU, JVCI, JOLT, COMPELECENG, FISH, ASOC, OPT COMMUN, ECOINF; SPIE JEI, JARS, OE; Springer MONE, COE, MTAP, NCA, WINE; Wiley LOM, MRT, CCPE; CLP COL; Nature SREP; Hindawi CIN; · · ·
- **会议审稿**: CVPR (2019-), ICCV (2019-), ECCV (2020-), ICML (2023-), NeurIPS (2022-), ICLR (2022-), AAAI (2020-), ACM MM (2021-), MICCAI (2022-), WACV (2021-), OCEANS (2016-).

5. 获奖荣誉

- 2025 年，中国海洋大学第三届"海潮英才奖"二等奖。
- 2025 年，山东电子学会自然科学二等奖"多场景降质图像智能解译方法研究"（第一完成人）。
- 2025 年，山东省"人工智能 + 高等教育"典型应用场景案例"'海码'大模型赋能编程教育教学平台"负责人。
- 2025 年，山东省智慧课程"高级语言程序设计"负责人。
- 2024 年，山东省电子信息行业优秀科技工作者。
- 2024 年，山东省一流本科课程"高级语言程序设计"负责人。
- 2023 年，山东省泰山学者青年专家（2022）。
- 2023 年，中国图象图形学学会（CSIG）高级会员。
- 2022 年，IEEE Senior Member。
- 2020 年，山东省优秀硕士学位论文指导奖。
- 2020 年，中国海洋大学第二十届"五四青年奖"。
- 2020 年，中国海洋大学第九届本科教学优秀奖三等奖。
- 2019 年，中国海洋大学第二十一届"天泰优秀人才奖"二等奖。
- 2018 年，"卓越计划"背景下电子信息类人才培养模式的构建与实践，山东省第八届高等教育教学成果奖二等奖（第二位）。

- 2018 年，中国海洋大学第四届“东升课程教学卓越奖”二等奖。
- 2017 年，“卓越工程师”背景下电子信息类人才培养模式的构建与实践，中国海洋大学第十届校级优秀教学成果奖二等奖（第二位）。
- 2017 年，“Automatic plankton image classification combining multiple view features via multiple kernel learning”，第十六届国际生物信息学会议 InCoB 2017 最佳论文奖（第一作者）。
- 2016 年，中国海洋大学 2016 届本科生毕业论文（设计）优秀指导教师。
- 2013 年，中国海洋大学优秀教师。

6. 科研项目

6.1 图像分析与水下视觉

- **复杂降质图像智能解译大模型方法研究** *国家自然科学基金（**负责人**）*
  批准号：62571503 项目直接费用：50 万元 *研究期限：2026 年 01 月 - 2029 年 12 月*
- **受限场景下自监督图像翻译方法及其水下视觉应用研究** *国家自然科学基金（**负责人**）*
  批准号：62171421 项目直接费用：57 万元 *研究期限：2022 年 01 月 - 2025 年 12 月*

6.2 海洋浮游生物图像分析与识别

- **类别不平衡条件下海洋浮游生物图像精细识别及其原位应用研究** *国家自然科学基金（**负责人**）*
  批准号：61771440 项目直接费用：67 万元 *研究期限：2018 年 01 月 - 2021 年 12 月*
- **基于深度学习的类别不平衡条件下海洋浮游生物图像精细识别** *青岛市科技计划源头创新计划（**负责人**）*
  批准号：17-1-1-5-jcb 项目经费：10 万元 *研究期限：2017 年 03 月 - 2019 年 03 月*
- **基于视觉注意结合生物形态特征的海洋浮游植物显微图像分析** *国家自然科学基金（**负责人**）*
  批准号：61301240 项目经费：26 万元 *研究期限：2014 年 01 月 - 2016 年 12 月*
- **基于生物形态特征的中国海常见有害赤潮藻显微图像识别** *国家自然科学基金（第二位）*
  批准号：61271406 本人经费：30 万元 *研究期限：2013 年 01 月 - 2016 年 12 月*
- **基于生物形态学的有害赤潮藻显微图像自动识别研究** *山东省自然科学基金（**负责人**）*
  批准号：ZR2010DQ002 项目经费：5 万元 *研究期限：2010 年 11 月 - 2013 年 11 月*

6.3 水下目标视觉信息获取与处理

- **海洋中小型浮游生物原位光学观测关键技术研究** *国家自然科学基金（第二位）*
  批准号：41776113 项目直接费用：70 万元 *研究期限：2018 年 01 月 - 2021 年 12 月*
- **基于逻辑随机共振理论的水下视觉目标检测方法研究** *国家自然科学基金（第二位）*
  批准号：61703381 项目直接费用：25 万元 *研究期限：2018 年 01 月 - 2020 年 12 月*
- **海洋浮游动物原位探测与分析系统** *中央高校基本科研业务费（**负责人**）*
  批准号：201562023 项目经费：95 万元 *研究期限：2015 年 11 月 - 2017 年 12 月*

6.4 垂直探测电离图自动解译与度量

- **基于图像分析的垂测电离图自动判读研究** *青岛市科技计划基础研究项目（**负责人**）*
  批准号：13-1-4-223-jcb 项目经费：5 万元 *研究期限：2013 年 01 月 - 2015 年 09 月*
- **电离层垂直探测频高图自动解释及度量** *中央高校基本科研业务费（**负责人**）*
  批准号：201313011 项目经费：16 万元 *研究期限：2013 年 01 月 - 2015 年 12 月*
- **典型垂测电离图自动识别方法** *电波环境特性及模化技术国防科技重点实验室开放课题（**负责人**）*
  编号：20140106 项目经费：10 万元 *研究期限：2013 年 06 月 - 2015 年 05 月*

7. 主要论著

期刊论文（* 通讯作者 / # 同等贡献）

[1] Shishi Qiao#, Shuai Yuan#, Miaonan Chen#, **Haiyong Zheng***. *Hierarchical Text-guided Hashing for Open-world Image Retrieval*. IEEE Transactions on Circuits and Systems for Video Technology, 2026, DOI: 10.1109/TCSVT.2026.3651707.

[2] Shishi Qiao#, Shixian Li#, **Haiyong Zheng***. *Fine-Grained Visual Classification via Adaptive Attention Quantization Transformer*. IEEE Transactions on Neural Networks and Learning Systems, 2026, DOI: 10.1109/TNNLS.2025.3643809.

[3] Shishi Qiao#, Shuai Yuan#, Hang Fu, Mai Yan, **Haiyong Zheng***. *Self-distillation Self-supervised Hashing for Remote Sensing Image Retrieval*. IEEE Geoscience and Remote Sensing Letters, 2026, DOI: 10.1109/LGRS.2025.3646078.

[4] Qinyue Zhang, Shasha Wang, Tianshu Zhang, Guiming Ren, Lingling Zhang, Yangfan Wang, Bing Zheng, Juan Li*, **Haiyong Zheng***. *Toward smart aquaculture: A review of multimodal methods, datasets, and applications from the modality perspective*. Computers and Electronics in Agriculture, 2026, DOI: 10.1016/j.compag.2025.111227.

[5] Qinyue Zhang, Zhensheng Shi, Naizhe Sun, Yangfan Wang, Lingling Zhang, Bo Wang, Xiaogang Xun, Bing Zheng, **Haiyong Zheng***. *FishFaceID: A deep learning-based non-invasive system for aquaculture organism individual identification*. Aquaculture, 2026, DOI: 10.1016/j.aquaculture.2025.743375.

[6] Shishi Qiao#, Benqian Lin#, Guanren Bu#, Shuai Yuan, **Haiyong Zheng***. *Token Aggregation and Selection Hashing for Efficient Underwater Image Retrieval*. IEEE Signal Processing Letters, 2025, DOI: 10.1109/LSP.2025.3605283.

[7] Yufeng Jiang, Zining Yu, **Haiyong Zheng***. *Short-term earthquake forecasting using electromagnetic and geoacoustic observations via contrastive learning*. Computers & Geosciences, 2025, DOI: 10.1016/j.cageo.2025.106024.

[8] Yiqing Huang#, Tianshun Han#, Haoru Zhao#, Yanyan Liang, Jun Wan, Sergio Escalera, **Haiyong Zheng***. *Simulating Marine Snow Images: Pipeline, Dataset, and Benchmark*. IEEE Journal of Oceanic Engineering, 2025, DOI: 10.1109/JOE.2025.3590094.

[9] LinXiao Wu, Ke Chen, Mai Yan, Boyu Sima, **Haiyong Zheng***. *Dual-circularly polarized flat-top-beam transmitarray antenna with flexible energy allocations*. Optics Express, 2025, DOI: 10.1364/OE.570144.

[10] Yan Liu, Mingyu Hao, Hui Xu, Xiang Gao, **Haiyong Zheng***. *Ensembling a Learned Volterra Polynomial with a Neural Network for Joint Nonlinear Distortions and Mismatch Errors Calibration of Time-Interleaved Pipelined ADCs*. Sensors, 2025, DOI: 10.3390/s25134059.

[11] Yufeng Wang, Dongsheng Guo, Haoru Zhao, Min Yang, **Haiyong Zheng***. *Image inpainting via Multi-scale Adaptive Priors*. Pattern Recognition, 2025, DOI: 10.1016/j.patcog.2025.111410.

[12] Lin Li, Zhenzhao Xing, Xiansheng Guo, **Haiyong Zheng***. *D^2-MLoc: Dual-Domain MLP-Mixer Framework for CSI-Fingerprinting Indoor Localization*. IEEE Transactions on Cognitive Communications and Networking, 2025, DOI: 10.1109/TCCN.2025.3530698.

[13] Nan Li, Zhensheng Shi, Yuqi Shao, Naizhe Sun, Bing Zheng, **Haiyong Zheng***. *MCAD-MM: A benchmark dataset and method for multi-channel acoustic detection of marine mammals*. Intelligent Marine Technology and Systems, 2025, DOI: 10.1007/s44295-024-00051-2.

[14] Haoru Zhao, Yufeng Wang, Zhaorui Gu, Bing Zheng, **Haiyong Zheng***. *Context-aware mutual learning for blind image inpainting and beyond*. Expert Systems with Applications, 2025, DOI: 10.1016/j.eswa.2024.126224.

[15] **Haiyong Zheng***, Jie Nie, Huiyu Zhou, An-An Liu, Xiangrong Zhang. *Editorial: Deep Learning for Marine Science, Volume II*. Frontiers in Marine Science, 2024, DOI: 10.3389/fmars.2024.1501225.

[16] Mingyao Tan#, Dongsheng Guo#, Lei Huang, Zhaorui Gu, Xiaodong Wang*, **Haiyong Zheng***. *Image sterilization via overwriting*. Information Sciences, 2024, DOI: 10.1016/j.ins.2024.121521.

[17] Guihui Li, Zhensheng Shi, Zhaorui Gu, Bing Zheng, **Haiyong Zheng***. *Reference-then-supervision framework for infrared and visible image fusion*. Pattern Recognition, 2024, DOI: 10.1016/j.patcog.2024.110996.

[18] Jiahua Li#, Wentao Yang#, Shishi Qiao, Zhaorui Gu, Bing Zheng, **Haiyong Zheng***. *Self-supervised Marine Organism Detection from Underwater Images*. IEEE Journal of Oceanic Engineering, 2024, DOI: 10.1109/JOE.2024.3455565.

[19] Yufeng Jiang, Zining Yu, **Haiyong Zheng***. *Short-Term Earthquake Forecasting via Self-Supervised Learning*. IEEE Geoscience and Remote Sensing Letters, 2024, DOI: 10.1109/LGRS.2024.3448623.

[20] Zining Yu, Yufeng Jiang, Xilong Jing, **Haiyong Zheng***. *Study on geomagnetic observations associated with three major earthquakes in Southwest China through a novel deep learning framework*. IEEE Transactions on Geoscience and Remote Sensing, 2024, DOI: 10.1109/TGRS.2024.3411705.

[21] Zining Yu, Xilong Jing, Xianwei Wang, Chengquan Chi, **Haiyong Zheng***. *The Study on Anomalies of the Geomagnetic Topology Network Associated with the 2022 Ms6.8 Luding Earthquake*. Remote Sensing, 2024, DOI: 10.3390/rs16091613.

[22] **Haiyong Zheng***, Hongsheng Bi, Xuemin Cheng, Mark C. Benfield. *Editorial: Deep learning for marine science*. Frontiers in Marine Science, 2024, DOI: 10.3389/fmars.2024.1407053.

[23] Zhensheng Shi, **Haiyong Zheng***, Junyu Dong*. *Spatiotemporal Self-supervised Predictive Learning for Atmospheric Variable Prediction via Multi-Group Multi-Attention*. Knowledge-Based Systems, 2024, DOI: 10.1016/j.knosys.2024.112090.

[24] Zhensheng Shi, **Haiyong Zheng***, Junyu Dong*. *OceanVP: A HYCOM based Benchmark Dataset and A Relational Spatiotemporal Predictive Network for Oceanic Variable Prediction*. Ocean Engineering, 2024, DOI: 10.1016/j.oceaneng.2024.117748.

[25] Guangzhe Si, Zhaorui Gu, **Haiyong Zheng***. *Duet of ViT and CNN: multi-scale dual-branch network for fine-grained image classification of marine organisms*. Intelligent Marine Technology and Systems, 2024, DOI: 10.1007/s44295-023-00019-8.

[26] 刘英杰, 黄嘉琦, 姜玉凤, 邵宇琪, 杨文韬, 于紫凝, **郑海永** *. *融合电磁和地声特征的地震预测集成学习方法*. 计算机技术与发展, 2024.

[27] Lin Li, **Haiyong Zheng***. *Multidomain Transfer Ensemble Learning for Wireless Fingerprinting Localization*. IEEE Internet of Things Journal, 2023, DOI: 10.1109/JIOT.2023.3330736.

[28] Hongsheng Bi*, Yunhao Cheng, Xuemin Cheng, Mark C. Benfield, David G. Kimmel, **Haiyong Zheng**, Sabrina Groves, Kezhen Ying. *Taming the data deluge: a novel end-to-end deep learning system for classifying marine biological and environmental images*. Limnology and Oceanography: Methods, 2023, DOI: 10.1002/lom3.10591.

[29] Yanan Li#, Zhimin Wang#*, Rongbing Han, Shangshang Shi, Jiaxin Li, Ruimin Shang, **Haiyong Zheng**, Guoqiang Zhong, Yongjian Gu*. *Quantum recurrent neural networks for sequential learning*. Neural Networks, 2023, DOI: 10.1016/j.neunet.2023.07.003.

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[31] 郭冬升, 顾肇瑞, 郑冰, 董军宇, **郑海永** *. *面向图像内补与外推问题的迭代预测统一框架*. 中国图象图形学报, 2023, DOI: 10.11834/jig.230144.

[32] Qi Qi, Kunqian Li*, **Haiyong Zheng**, Xiang Gao, Guojia Hou, Kun Sun. *SGUIE-Net: Semantic Attention Guided Underwater Image Enhancement With Multi-Scale Perception*. IEEE Transactions on Image Processing, 2022, DOI: 10.1109/TIP.2022.3216208.

[33] Zonghui Guo, Zhaorui Gu, Bing Zheng, Junyu Dong, **Haiyong Zheng***. *Transformer for Image Harmonization and Beyond*. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022, DOI: 10.1109/TPAMI.2022.3207091.

[34] Juan Li, Wenkai Xu, Limiao Deng, Ying Xiao, Zhongzhi Han, **Haiyong Zheng***. *Deep learning for visual recognition and detection of aquatic animals: A review*. Reviews in Aquaculture, 2022, DOI: 10.1111/raq.12726.

[35] Zhensheng Shi#, Cheng Guan#, Qianqian Li#, Ju Liang, Liangjie Cao, **Haiyong Zheng***, Zhaorui Gu*, Bing Zheng. *Detecting Marine Organisms via Joint Attention-Relation Learning for Marine Video Surveillance*. IEEE Journal of Oceanic Engineering, 2022, DOI: 10.1109/JOE.2022.3162864.

[36] Hafiza Sadia Nawaz, Zhensheng Shi, Yanhai Gan, Amanuel Hirpa, Junyu Dong*, **Haiyong Zheng**. *Temporal Moment Localization via Natural Language by Utilizing Video Question Answers as a Special Variant and Bypassing NLP for Corpora*. IEEE Transactions on Circuits and Systems for Video Technology, 2022, DOI: 10.1109/TCSVT.2022.3162650.

[37] Peng Liu#, Yueyue Wang#, Angang Du, Liqiang Zhang, Bin Wei, Zhaorui Gu*, Xiaodong Wang*, **Haiyong Zheng**, Juan Li. *Disentangling Latent Space Better for Few-Shot Image-to-Image Translation*. International Journal of Machine Learning and Cybernetics, 2022, DOI: 10.1007/s13042-022-01552-4.

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发明专利

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[18] **郑海永**, 朱亚菲, 赵红苗, 姬光荣. *一种基于幅度谱分析的显著目标检测方法*. 申请号: 201510271210.9. 申请日: 2015 年 05 月 25 日. 专利号: ZL 2015 1 0271210.9. 授权公告日: 2018 年 10 月 19 日.

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Haiyong Zheng received the B.E. degree in electronic information engineering and the Ph.D. degree in ocean information sensing and processing from the Ocean University of China, Qingdao, China, in 2004 and 2009, respectively. In 2009, he joined the College of Electronic Engineering, Ocean University of China, where he is currently a professor. He focuses on the cutting-edge research fields of deep learning and artificial intelligence, including computer vision, underwater vision, signal processing, and artificial intelligence oceanography. He has published over 80 papers in leading journals and conferences, such as IJCV, IEEE TPAMI and JOE, as well as CVPR, ICCV, ECCV, ACM MM, etc., and has patented over 10 inventions. He is an IEEE and CSIG Senior Member, and on the editorial boards of the *IEEE Journal of Oceanic Engineering*, *Information Processing in Agriculture*, *Intelligent Marine Technology and Systems* and *Chinese Journal of Radio Science*, as well as the chair of IEEE Oceanic Engineering Society Technical Committee on *Optics and Imaging*, the chair of IEEE Beijing Section Oceanic Engineering Society-Shandong Chapter, and a member of PICES WG48 (WGISMP: *Towards best practices using Imaging Systems for Monitoring Plankton*) and WG54 (*Best Practices for Using Deep Learning in Processing Plankton Images*). He is a recipient of the Best Paper Award in InCoB 2017 and the TaiShan Scholars Youth Expert Program of Shandong Province (2022). Now he leads the research group of Micronano Perception and Information Intelligence (MPII) at Ocean University of China (`http://ouc.ai`).

1. Education Experience

- **Ocean University of China** — *Qingdao, China*
  DSc: Ocean Information Sensing and Processing, Supervisor: Prof. Guangrong Ji — *Sep. 2004 - Jun. 2009*
- **Ocean University of China** — *Qingdao, China*
  BEng: Electronic Information Engineering — *Sep. 2000 - Jun. 2004*

2. Work Experience

- **Ocean University of China** — *Qingdao, China*
  Professor, College of Electronic Engineering — *Jan. 2020 - present*
- **University of Dundee** — *Dundee, UK*
  Visiting Scholar, Department of Mathematics — *Aug. 2018 - Aug. 2019*
- **Ocean University of China** — *Qingdao, China*
  Associate Professor, Department of Electronic Engineering — *Dec. 2014 - Dec. 2019*
- **Ocean University of China** — *Qingdao, China*
  Lecturer, Department of Electronic Engineering — *Jul. 2009 - Nov. 2014*

3. Professional Service

- **Professional Position**: *IEEE Journal of Oceanic Engineering* Associate Editor, *Information Processing in Agriculture* Associate Editor, *Intelligent Marine Technology and Systems* Associate Editor, *Chinese Journal of Radio Science* Associate Editor; IEEE Senior Member, CSIG Senior Member; *IEEE Oceanic Engineering Society Technical Committee on Optics and Imaging* Chair (2023-); IEEE Beijing Section Oceanic Engineering Society-Shandong Chapter Chair (2024-); VALSE LACC, VODB; ISAIR Steering Committee.

- **Guest Editor**: Deep Learning for Marine Science, Volume II, Frontiers in Marine Science, 2023; Deep Learning for Marine Science, Frontiers in Marine Science, 2022; Advanced Machine Learning Methodologies for Underwater Image and Video Processing and Analysis, IEEE Journal of Oceanic Engineering, 2021.

- **Invited Talk**: Image Harmonization and Beyond, Robert Gordon University, Aberdeen, UK, 2024; Underwater Vision: "Hearing before seeing", Chinese Conference on Pattern Recognition and Computer Vision (PRCV) Workshop, Shenzhen, China, 2022; Image Harmonization Methods and Applications, Wireless Silk Road International Lecture Series, Virtual, 2022; Image-to-Image Translation: Advances and Trends, International Symposium on Artificial Intelligence and Robotics (ISAIR), Daegu, Korea, 2019; Underwater Vision from Optics and Imaging to Vision and Learning, Vision And Learning SEminar (VALSE), Xiamen, China, 2017.

- **Journal Review**: IEEE TPAMI, TNNLS, TII, TSMC, TMI, TCSVT, TAI, JOE, Access, SPL, GRSL; IEEE/ACM TCBB; ACM CSUR; Elsevier FGCS, KNOSYS, P&RS AESCTE, PR, PRLETTERS, NEUCOM, CVIU, JVCI, JOLT, COMPELECENG, FISH, ASOC, OPT COMMUN, ECOINF; SPIE JEI, JARS, OE; Springer MONE, COE, MTAP, NCA, WINE; Wiley LOM, MRT, CCPE; CLP COL; Nature SREP; Hindawi CIN; · · ·

- **Conference Review**: CVPR (2019-), ICCV (2019-), ECCV (2020-), ICML (2023-), NeurIPS (2022-), ICLR (2022-), AAAI (2020-), ACM MM (2021-), MICCAI (2022-), WACV (2021-), OCEANS (2016-).

4. Project Grants

4.1 Image Analysis and Underwater Vision

- **Research on Large Model Methods for Intelligent Interpretation of Complex Degraded Images** *NSFC (**Principal Inves***
  Grant No. 62571503 ¥500 Thousand *Duration: January 2026 - Decem*
- **Self-Supervised Image-to-Image Translation under Limited Situation and its Underwater Vision Application** *NSFC (**Principal Investigator**)*
  Grant No. 62171421 ¥570 Thousand *Duration: January 2022 - December 2025*

4.2 Marine Plankton Image Analysis and Recognition/Classification

- **Fine-Grained Image Recognition of Marine Plankton under Class Imbalance and its *In Situ* Application** *NSFC (**Principal Investigator**)*
  Grant No. 61771440 ¥670 Thousand *Duration: January 2018 - December 2021*
- **Fine-Grained Image Recognition of Marine Plankton under Class Imbalance based on Deep Learning** *QDSTC (**Principal Investigator**)*
  Grant No. 17-1-1-5-jch ¥100 Thousand *Duration: March 2017 - March 2019*
- **Microscopic Image Analysis of Marine Phytoplankton Based on Visual Attention Combined with Biomorphic Characteristics** *NSFC (**Principal Investigator**)*
  Grant No. 61301240 ¥260 Thousand *Duration: January 2014 - December 2016*
- **Automatic Identification of Harmful Algal Blooms in Chinese Coast Areas by Microscopic Images Based on Biomorphic Characteristics** *NSFC (Main Investigator)*
  Grant No. 61271406 ¥300 Thousand *Duration: January 2013 - December 2016*
- **Automatic Identification of Harmful Algal Blooms by Microscopic Images Based on Biological Morphology** *SDNSF (**Principal Investigator**)*
  Grant No. ZR2010DQ002 ¥50 Thousand *Duration: November 2010 - November 2013*

4.3 Underwater Target Visual Information Acquisition and Processing

- **Research on Key Technologies of *In-Situ* Optical Observation for Marine Meso- and Micro-Plankton** *NSFC (Main Investigator)*
  Grant No. 41776113 ¥700 Thousand *Duration: January 2018 - December 2021*
- **Logical Stochastic Resonance Based Underwater Image Object Detection** *NSFC (Main Investigator)*
  Grant No. 61703381 ¥250 Thousand *Duration: January 2018 - December 2020*
- ***In-situ* Sensing and Analyzing System of Ocean Zooplankton** *FRFCU (**Principal Investigator**)*
  Grant No. 201562023 ¥950 Thousand *Duration: November 2015 - December 2017*

4.4 Vertical Sounding Ionogram Parsing/Interpretation and Scaling

- **Automatic Scaling of Vertical Sounding Ionogram Based on Image Analysis** *QDSTC (**Principal Investigator**)*
  Grant No. 13-1-4-223-jch ¥50 Thousand *Duration: January 2013 - September 2015*
- **Automatic Interpretation and Scaling of Ionospheric Vertical Sounding Ionogram** *FRFCU (**Principal Investigator**)*
  Grant No. 201313011 ¥160 Thousand *Duration: January 2013 - December 2015*
- **Automatic Identification of Typical Vertical Sounding Ionogram** *CRIRP (**Principal Investigator**)*
  No. 20140106 ¥100 Thousand *Duration: June 2013 - May 2015*

5. Publications

Journals (* indicates corresponding author and # indicates equal contribution)

[1] Shishi Qiao#, Shuai Yuan#, Miaonan Chen#, **Haiyong Zheng***. *Hierarchical Text-guided Hashing for Open-world Image Retrieval*. IEEE Transactions on Circuits and Systems for Video Technology, 2026, DOI: 10.1109/TCSVT.2026.3651707.

[2] Shishi Qiao#, Shixian Li#, **Haiyong Zheng***. *Fine-Grained Visual Classification via Adaptive Attention Quantization Transformer*. IEEE Transactions on Neural Networks and Learning Systems, 2026, DOI: 10.1109/TNNLS.2025.3643809.

[3] Shishi Qiao#, Shuai Yuan#, Hang Fu, Mai Yan, **Haiyong Zheng***. *Self-distillation Self-supervised Hashing for Remote Sensing Image Retrieval*. IEEE Geoscience and Remote Sensing Letters, 2026, DOI: 10.1109/LGRS.2025.3646078.

[4] Qinyue Zhang, Shasha Wang, Tianshu Zhang, Guiming Ren, Lingling Zhang, Yangfan Wang, Bing Zheng, Juan Li*, **Haiyong Zheng***. *Toward smart aquaculture: A review of multimodal methods, datasets, and applications from the modality perspective*. Computers and Electronics in Agriculture, 2026, DOI: 10.1016/j.compag.2025.111227.

[5] Qinyue Zhang, Zhensheng Shi, Naizhe Sun, Yangfan Wang, Lingling Zhang, Bo Wang, Xiaogang Xun, Bing Zheng, **Haiyong Zheng***. *FishFaceID: A deep learning-based non-invasive system for aquaculture organism individual identification*. Aquaculture, 2026, DOI: 10.1016/j.aquaculture.2025.743375.

[6] Shishi Qiao#, Benqian Lin#, Guanren Bu#, Shuai Yuan, **Haiyong Zheng***. *Token Aggregation and Selection Hashing for Efficient Underwater Image Retrieval*. IEEE Signal Processing Letters, 2025, DOI: 10.1109/LSP.2025.3605283.

[7] Yufeng Jiang, Zining Yu, **Haiyong Zheng***. *Short-term earthquake forecasting using electromagnetic and geoacoustic observations via contrastive learning*. Computers & Geosciences, 2025, DOI: 10.1016/j.cageo.2025.106024.

[8] Yiqing Huang#, Tianshun Han#, Haoru Zhao#, Yanyan Liang, Jun Wan, Sergio Escalera, **Haiyong Zheng***. *Simulating Marine Snow Images: Pipeline, Dataset, and Benchmark*. IEEE Journal of Oceanic Engineering, 2025, DOI: 10.1109/JOE.2025.3590094.

[9] LinXiao Wu, Ke Chen, Mai Yan, Boyu Sima, **Haiyong Zheng***. *Dual-circularly polarized flat-top-beam transmitarray antenna with flexible energy allocations*. Optics Express, 2025, DOI: 10.1364/OE.570144.

[10] Yan Liu, Mingyu Hao, Hui Xu, Xiang Gao, **Haiyong Zheng***. *Ensembling a Learned Volterra Polynomial with a Neural Network for Joint Nonlinear Distortions and Mismatch Errors Calibration of Time-Interleaved Pipelined ADCs*. Sensors, 2025, DOI: 10.3390/s25134059.

[11] Yufeng Wang, Dongsheng Guo, Haoru Zhao, Min Yang, **Haiyong Zheng***. *Image inpainting via Multi-scale Adaptive Priors*. Pattern Recognition, 2025, DOI: 10.1016/j.patcog.2025.1114

[12] Lin Li, Zhenzhao Xing, Xiansheng Guo, **Haiyong Zheng***. *D^2-MLoc: Dual-Domain MLP-Mixer Framework for CSI-Fingerprinting Indoor Localization*. IEEE Transactions on Cognitive Communications and Networking, 2025, DOI: 10.1109/TCCN.2025.3530698.

[13] Nan Li, Zhensheng Shi, Yuqi Shao, Naizhe Sun, Bing Zheng, **Haiyong Zheng***. *MCAD-MM: A benchmark dataset and method for multi-channel acoustic detection of marine mammals*. Intelligent Marine Technology and Systems, 2025, DOI: 10.1007/s44295-024-00051-2.

[14] Haoru Zhao, Yufeng Wang, Zhaorui Gu, Bing Zheng, **Haiyong Zheng***. *Context-aware mutual learning for blind image inpainting and beyond*. Expert Systems with Applications, 2025, DOI: 10.1016/j.eswa.2024.126224.

[15] **Haiyong Zheng***, Jie Nie, Huiyu Zhou, An-An Liu, Xiangrong Zhang. *Editorial: Deep Learning for Marine Science, Volume II*. Frontiers in Marine Science, 2024, DOI: 10.3389/fmars.2024.1501225.

[16] Mingyao Tan#, Dongsheng Guo#, Lei Huang, Zhaorui Gu, Xiaodong Wang*, **Haiyong Zheng***. *Image sterilization via overwriting*. Information Sciences, 2024, DOI: 10.1016/j.ins.2024.121521.

[17] Guihui Li, Zhensheng Shi, Zhaorui Gu, Bing Zheng, **Haiyong Zheng***. *Reference-then-supervision framework for infrared and visible image fusion*. Pattern Recognition, 2024, DOI: 10.1016/j.patcog.2024.110996.

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[19] Yufeng Jiang, Zining Yu, **Haiyong Zheng***. *Short-Term Earthquake Forecasting via Self-Supervised Learning*. IEEE Geoscience and Remote Sensing Letters, 2024, DOI: 10.1109/LGRS.2024.3448623.

[20] Zining Yu, Yufeng Jiang, Xilong Jing, **Haiyong Zheng***. *Study on geomagnetic observations associated with three major earthquakes in Southwest China through a novel deep learning framework*. IEEE Transactions on Geoscience and Remote Sensing, 2024, DOI: 10.1109/TGRS.2024.3411705.

[21] Zining Yu, Xilong Jing, Xianwei Wang, Chengquan Chi, **Haiyong Zheng***. *The Study on Anomalies of the Geomagnetic Topology Network Associated with the 2022 Ms6.8 Luding Earthquake*. Remote Sensing, 2024, DOI: 10.3390/rs16091613.

[22] **Haiyong Zheng***, Hongsheng Bi, Xuemin Cheng, Mark C. Benfield. *Editorial: Deep learning for marine science*. Frontiers in Marine Science, 2024, DOI: 10.3389/fmars.2024.1407053.

[23] Zhensheng Shi, **Haiyong Zheng***, Junyu Dong*. *Spatiotemporal Self-supervised Predictive Learning for Atmospheric Variable Prediction via Multi-Group Multi-Attention*. Knowledge-Based Systems, 2024, DOI: 10.1016/j.knosys.2024.112090.

[24] Zhensheng Shi, **Haiyong Zheng***, Junyu Dong*. *OceanVP: A HYCOM based Benchmark Dataset and A Relational Spatiotemporal Predictive Network for Oceanic Variable Prediction*. Ocean Engineering, 2024, DOI: 10.1016/j.oceaneng.2024.117748.

[25] Guangzhe Si, Zhaorui Gu, **Haiyong Zheng***. *Duet of ViT and CNN: multi-scale dual-branch network for fine-grained image classification of marine organisms*. Intelligent Marine Technology and Systems, 2024, DOI: 10.1007/s44295-023-00019-8.

[26] Lin Li, **Haiyong Zheng***. *Multidomain Transfer Ensemble Learning for Wireless Fingerprinting Localization*. IEEE Internet of Things Journal, 2023, DOI: 10.1109/JIOT.2023.3330736.

[27] Hongsheng Bi*, Yunhao Cheng, Xuemin Cheng, Mark C. Benfield, David G. Kimmel, **Haiyong Zheng**, Sabrina Groves, Kezhen Ying. *Taming the data deluge: a novel end-to-end deep learning system for classifying marine biological and environmental images*. Limnology and Oceanography: Methods, 2023, DOI: 10.1002/lom3.10591.

[28] Yanan Li#, Zhimin Wang#*, Rongbing Han, Shangshang Shi, Jiaxin Li, Ruimin Shang, **Haiyong Zheng**, Guoqiang Zhong, Yongjian Gu*. *Quantum recurrent neural networks for sequential learning*. Neural Networks, 2023, DOI: 10.1016/j.neunet.2023.07.003.

[29] Zhaorui Gu, Xiuhan Liu, Zhiqiang Hu, Guoyu Wang, Bing Zheng, John Watson, **Haiyong Zheng***. *Underwater computational imaging: a survey*. Intelligent Marine Technology and Systems, 2023, DOI: 10.1007/s44295-023-00009-w.

[30] Dongsheng Guo, Zhaorui Gu, Bing Zheng, Junyu Dong, **Haiiyong ZHeng***. *An unified framework with iterative prediction for both image inpainting and image outpainting*. Journal of Image and Graphics, 2023, DOI: 10.11834/jig.230144.

[31] Qi Qi, Kunqian Li*, **Haiyong Zheng**, Xiang Gao, Guojia Hou, Kun Sun. *SGUIE-Net: Semantic Attention Guided Underwater Image Enhancement With Multi-Scale Perception*. IEEE Transactions on Image Processing, 2022, DOI: 10.1109/TIP.2022.3216208.

[32] Zonghui Guo, Zhaorui Gu, Bing Zheng, Junyu Dong, **Haiyong Zheng***. *Transformer for Image Harmonization and Beyond*. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022, DOI: 10.1109/TPAMI.2022.3207091.

[33] Juan Li, Wenkai Xu, Limiao Deng, Ying Xiao, Zhongzhi Han, **Haiyong Zheng***. *Deep learning for visual recognition and detection of aquatic animals: A review*. Reviews in Aquaculture, 2022, DOI: 10.1111/raq.12726.

[34] Zhensheng Shi#, Cheng Guan#, Qianqian Li#, Ju Liang, Liangjie Cao, **Haiyong Zheng***, Zhaorui Gu*, Bing Zheng. *Detecting Marine Organisms via Joint Attention-Relation Learning for Marine Video Surveillance*. IEEE Journal of Oceanic Engineering, 2022, DOI: 10.1109/JOE.2022.3162864.

[35] Hafiza Sadia Nawaz, Zhensheng Shi, Yanhai Gan, Amanuel Hirpa, Junyu Dong*, **Haiyong Zheng**. *Temporal Moment Localization via Natural Language by Utilizing Video Question Answers as a Special Variant and Bypassing NLP for Corpora*. IEEE Transactions on Circuits and Systems for Video Technology, 2022, DOI: 10.1109/TCSVT.2022.3162650.

[36] Peng Liu#, Yueyue Wang#, Angang Du, Liqiang Zhang, Bin Wei, Zhaorui Gu*, Xiaodong Wang*, **Haiyong Zheng**, Juan Li. *Disentangling Latent Space Better for Few-Shot Image-to-Image Translation*. International Journal of Machine Learning and Cybernetics, 2022, DOI: 10.1007/s13042-022-01552-4.

[37] Peng Liu#*, Chufeng Zhang#, Hao Qi, Guoyu Wang, **Haiyong Zheng***. *Multi-Attention DenseNet: A Scattering Medium Imaging Optimization Framework for Visual Data Pre-Processing of Autonomous Driving Systems*. IEEE Transactions on Intelligent Transportation Systems, 2022, DOI: 10.1109/TITS.2022.3145815.

[38] Qi Zhao#, Ziqiang Zheng#, Huimin Zeng, Zhibin Yu*, **Haiyong Zheng**, Bing Zheng. *The Synthesis of Unpaired Underwater Images for Monocular Underwater Depth Prediction*. Frontiers in Marine Science, 2021, DOI: 10.3389/fmars.2021.690962.

[39] Ziqiang Zheng, Zhibin Yu, Yang Wu, **Haiyong Zheng***, Bing Zheng, Minho Lee*. *Generative adversarial network with multi-branch discriminator for imbalanced cross-species image-to-image translation*. Neural Networks, 2021, DOI: 10.1016/j.neunet.2021.04.013.

[40] Ziqiang Zheng, Zhibin Yu, **Haiyong Zheng**, Yang Yang*, Heng Tao Shen. *One-shot image-to-image translation via part-global learning with a multi-adversarial framework*. IEEE Transactions on Multimedia, 2021, DOI: 10.1109/TMM.2021.3053775.

[41] Zhensheng Shi#, Liangjie Cao#, Cheng Guan, **Haiyong Zheng***, Zhaorui Gu*, Zhibin Yu, Bing Zheng. *Learning attention-enhanced spatiotemporal representation for action recognition*. IEEE Access, 2020, DOI: 10.1109/ACCESS.2020.2968024.

[42] Chao Wang#, Wenjie Niu#, Yufeng Jiang#, **Haiyong Zheng***, Zhibin Yu*, Zhaorui Gu, Bing Zheng. *Discriminative region proposal adversarial network for high-quality image-to-image translation*. International Journal of Computer Vision, 2019, DOI: 10.1007/s11263-019-01273-2.

[43] Yan Zhao, Ziqiang Zheng, Chao Wang, Zhaorui Gu, Min Fu, Zhibin Yu*, **Haiyong Zheng**, Nan Wang, Bing Zheng. *Fine-grained facial image-to-image translation with an attention based pipeline generative adversarial framework*. Multimedia Tools and Applications, 2019, DOI: 10.1007/s11042-019-08346-x.

[44] Peng Liu, Guoyu Wang, Hao Qi, Chufeng Zhang, **Haiyong Zheng**, Zhibin Yu*. *Underwater image enhancement with a deep residual framework*. IEEE Access, 2019, DOI: 10.1109/ACCESS.2019.2928976.

[45] Jia Yu, Xuewen Yang, Nan Wang*, Gavin Tilstone, Elaine Fileman, **Haiyong Zheng**, Zhibin Yu. *Video-based real time analysis of plankton particle size spectrum*. IEEE Access, 2019, DOI: 10.1109/ACCESS.2019.2914727.

[46] Haoxu Zhang, Chenchen Qiu, Chao Wang, Bin Wei, Zhibin Yu, **Haiyong Zheng***, Juan Li*. *Learning spectral normalized adversarial systems with stacked structure for high-quality 3D object generation*. Concurrency and Computation: Practice and Experience, 2019, DOI: 10.1002/cpe.5430.

[47] Hao Ding, Bin Wei*, Zhaorui Gu, Zhibin Yu, **Haiyong Zheng***, Bing Zheng, Juan Li. *KA-Ensemble: towards imbalanced image classification ensembling under-sampling and over-sampling*. Multimedia Tools and Applications, 2019, DOI: 10.1007/s11042-019-07856-y.

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