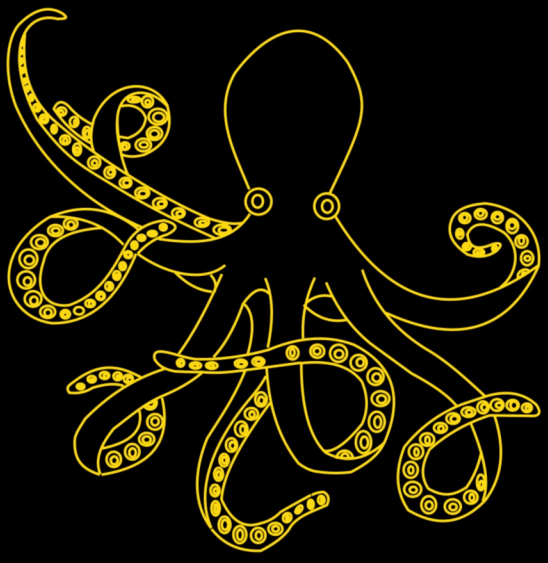

Diving & ROV specialists

Index for document research:

Underwater mapping techniques

November 2025

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Diving & ROV Specialists
52/2 moo 3 tambon Tarpo 65000 Phitsanulock - Thailand
Tel: +66 857 277 123 - E mail: info@ccoltd.co.th

Purpose

This document lists the papers on ***"Underwater Mapping Techniques"*** archived in the relevant section of the "Diving and ROV Specialists" website database.
Its purpose is to serve as a supplementary resource for research to the chronological list and search engine capabilities. For this reason, the various documents are categorized under the following sub-sections:

- Presentations of various systems
- Acoustic imaging
- Image treatment
- Positioning & localization
- Autonomous systems (including robotics design & artificial intelligence programs)

Categorizations will be refined over time. However, it is impractical to provide search engines and classifications that fully reflect researchers' preferences. Therefore, it is hoped that these three search methods will enable you to find the documents you seek.

Unlike the website's chronological index, this document does not include descriptions of the content of the various papers. However, the chronological classification number, authors' names, and publication dates are available, allowing you to locate them in the chronological lists where the descriptions and download links are provided.

This list was published on 1 September 2024. Please note that new documents added for this edition of the website are listed for each main section on the home page of the website.

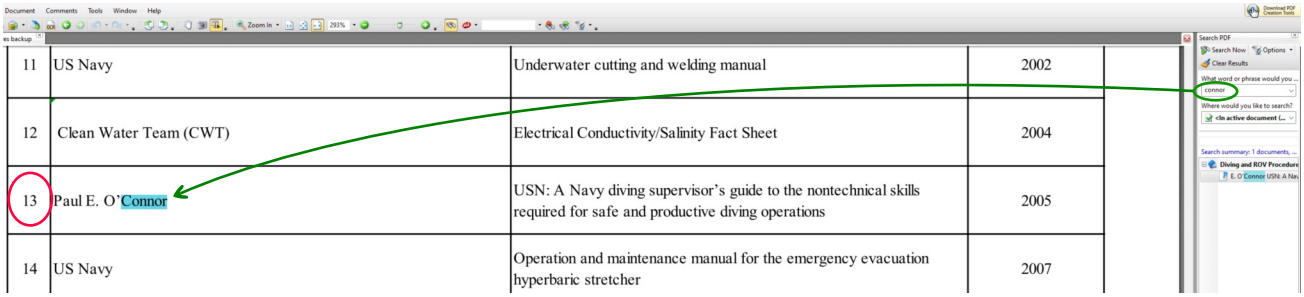
Important note:

This document is in PDF (Portable Document Format), so it can be downloaded and used independently of the website. It is also worth noting that some PDF readers come with a built-in search engine. This feature allows users to locate specific documents by entering relevant keywords, making document retrieval more efficient and convenient. It is, therefore, possible to find the desired document by browsing the list or by using the aforementioned search engine. Among the many free PDF readers available on the Internet, the four listed below include the aforementioned search engine:

- WPS Office (https://www.wps.com/) - works on Windows, Mac OS, and Linux
- PDF X Change Viewer (https://pdf-xchange.eu/pdf-xchange-editor/index.htm) - Works on Windows and Mac OS.
- Foxit Reader (https://www.foxit.com/pdf-reader/) - Works on Windows, Linux , and Mac OS
- Adobe Acrobat Reader (https://get.adobe.com/reader/) - Works on Windows and Mac Os.

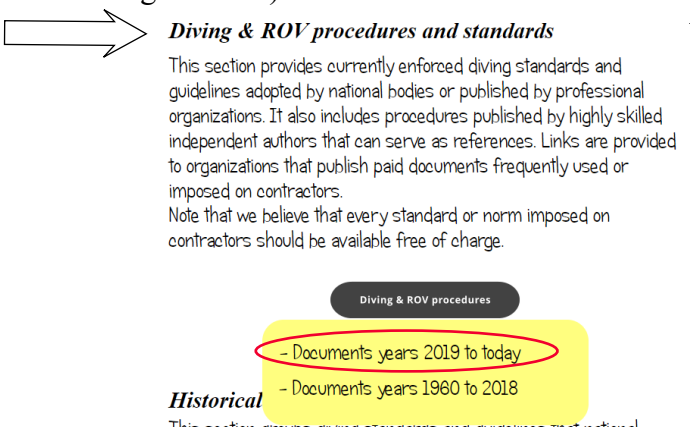
To locate a document within the chronological presentation of the database:

1. Follow the list and select the desired document, or use the search function of the PDF software by entering the keyword in the dedicated field. In this example, the author's name (Paul E. O'Connor) has been used.

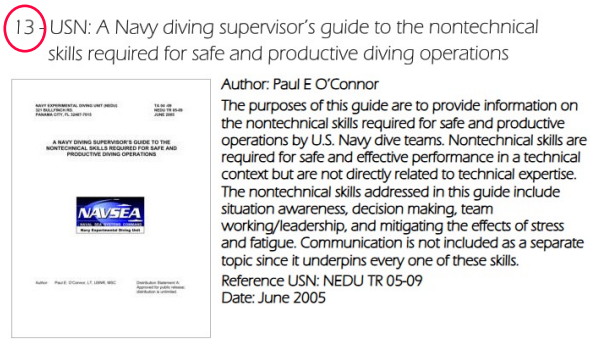


11	US Navy	Underwater cutting and welding manual	2002
12	Clean Water Team (CWT)	Electrical Conductivity/Salinity Fact Sheet	2004
13	Paul E. O'Connor	USN: A Navy diving supervisor's guide to the nontechnical skills required for safe and productive diving operations	2005
14	US Navy	Operation and maintenance manual for the emergency evacuation hyperbaric stretcher	2007

2. Select the reference number (highlighted in red) and the year of publication (2005 in this example).
3. On the website, open the corresponding section and year of publication in the database (accessible via "Documents" in the navigation bar).



4. Scroll down to find the corresponding number, title, and author's name in the chronological list. Click on the picture or the description, and enjoy.



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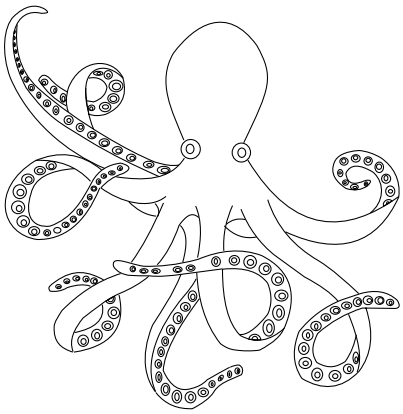
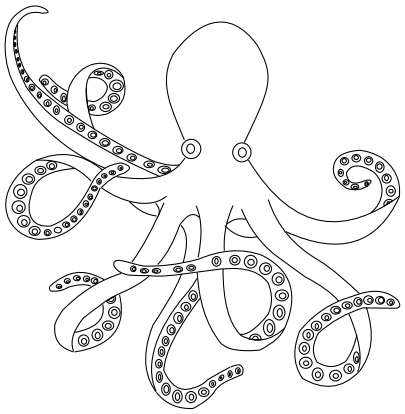
Presentations of various systems



Nb	*Authors*	*Title*	*Year publication*
1989 - 2021			
21	Tom Dodson, Thomas M. Grothues, John H. Eiler, Joseph A. Dobarro, Rahul Shome	Acoustic-telemetry payload control of an autonomous underwater vehicle for mapping tagged fish	2018-08
27	Manish Mathnikar, & Uday Patkar	Underwater Bed Profile Generation	2020
43	Kai Sun, Weicheng Cui, & Chi Chen	Review of Underwater Sensing Technologies and Applications	2021
2022 - 2023			
2	Xiaotian Han, Peng Li, Chang Chang, Duorui Gao, & 4 scientists	A Comprehensive Comparison and Analysis of Several Intensity Modulations Based on the Underwater Photon-Counting Communication System	2022
11	Changho Yun	An Underwater Cooperative Spectrum Sharing Protocol for a Centralized Underwater Cognitive Acoustic Network	2022
19	Aslanbek Naziev	On the independence of conditions in the definition of linear mapping	2022
20	Tuochao Chen, Justin Chan, & Shyamnath Gollakota	Underwater Acoustic Ranging Between Smartphones	2022
57	Xuanyao Bai, Kailun Wen, Donghong Peng, Shuangqiang Liu, & Le Luo	Atomic magnetometers and their application in industry	2023
61	Shaowei Zhang, & Zhiqun Daniel Deng	Editorial: Deep-sea observation equipment and exploration technology	2023-09
63	Feihu Zhang, Diandian Xu and Chensheng Cheng	An Underwater Distributed SLAM Approach Based on Improved GMRBnB Framework	2023-11
2024			
26	Christos Alexandris, Panagiotis Papageorgas, and Dimitrios Piromalis	Positioning Systems for Unmanned Underwater Vehicles: A Comprehensive Review	2024-10
35	Xuanye Hu, Yi Yang, Zhiyu Liao, Xinghua Zhu, Renxin Wang, Peng Zhang, and Zhiqiang Hu	Wake Detection and Positioning for Autonomous Underwater Vehicles Based on Cilium-Inspired Wake Sensor	2024-12

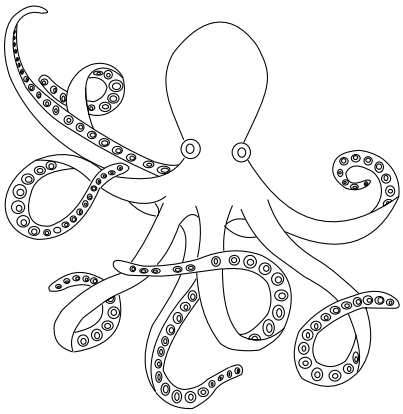
Acoustic imaging



Nb	Authors	Title	Year publication
1989 - 2021			
2	Mark Rognstad	HAWAII MR1: A New Underwater Mapping Tool	1992
10	Alistair Dobke, Joshua Vasquez, Lauren Lieu, Ben Chasnov, & 3 other scientists	Towards three-dimensional underwater mapping without odometry	2013
12	Antoni Burguera, & Gabriel Oliver	High-Resolution Underwater Mapping Using Side-Scan Sonar	2016
20	Hendra Kurnia Febriawan	The Preliminary Assessment of Reson Hydrobat Multibeam Echosounder for Seabed and Underwater Structures Mapping Under the Pier	2018
22	Qiao Gang, Xing Siyu, and Zhou Feng	Selected-Mapping Peak-to-Average Power Reduction Method with Orthogonal Pilot Sequences in Underwater Acoustic OFDM System Without Side Information	2019-07
28	Raihanah Rusmadi, & Rozaimi Che Hasan	Performance of different classifiers for marine habitat mapping using side-scan sonar and object-based image analysis	2020
30	Vijaya Baskar Veeriayan, V. Rajendran	Underwater Ambient Noise	2020
33	Joonas Syrjälä, Risto Kalliola, & Jukka Pajala	Underwater Acoustic Environment of Coastal Sea With Heavy shipping Traffic: NE Baltic Sea During Wintertime	2020
36	B. Chemisky, E. Nocerino, F. Menna, M.M. Nawaf, & P. Drap	A portable opto-acoustic survey solution for mapping of underwater targets	2021
37	Zhengliang Hu, Jinxing Huang, Pan Xu, Mingxing Nan, & 2 scientists	Underwater Acoustic Source Localization via Kernel Extreme Learning Machine	2021
48	Tiago C. A. Oliveira, Ying-Tsong Lin, & Michael B. Porter	Underwater Sound Propagation Modeling in a Complex Shallow Water Environment.	2021
53	Salvador Ortiz, Wen Yu	Autonomous navigation in unknown environment using sliding mode SLAM and genetic algorithm	2021-12
2022 - 2023			
14	Serkan Aksoy	Fundamentals of underwater acoustics	2022
18	Hong-Gi Kim, Jungmin Seo, & Soo Mee Kim	Underwater Optical-Sonar Image Fusion Systems	2022
22	Zhenjing Zhu, Ning Hu, Junyi Wu, Wenxin Li, & 5 scientists	A review of underwater acoustic metamaterials for underwater acoustic equipment.	2022
25	Lei Zhufeng, Lei Xiaofang, Wang Na, and Zhang Qingyang	Present status and challenges of underwater acoustic target recognition technology: A review.	2022-10
27	Denis V. Makarov, & Leonid E. Konkov	Angular Spectrum of Acoustic Pulses at Long Ranges.	2022
30	Shijie Xu, Rendong Feng, Pan Xu, Zhengliang Hu, Haocai Huang, and Guangming Li	Flow current field observation with underwater moving acoustic tomography	2023
37	Jiancheng Yin, Xiangyu You, Yu Yao	Acoustic scattering characteristics of underwater buried oil pipeline	2023-04
38	Ante Siljeg, Ivan Maric, Sara Krekman, Neven Cukrov, Marin Lovric, Fran Domazetovic, Lovre Panda, and Tomislav Bulat	Mapping of marine litter on the sea floor using WASSP S3 multibeam echo sounder and Chasing M2 ROV	2023-04
51	Xuebo Zhang , Haixin Sun, & Arata Kaneko	Editorial: Ocean observation based on underwater acoustic technology	2023-06

54	Xuebo Zhang, Gary Heald, Anthony P. Lyons, Roy Edgar Hansen, and Alan J. Hunter	Recent advances in synthetic aperture sonar technology	2023-07
2024			
16	Zhuoyu Zhang, Rundong Wu, Dejun Li, Mingwei Lin, Sa Xiao, and Ri Lin	Image stitching and target perception for Autonomous Underwater Vehicle-collected side-scan sonar image	2024-07
17	Feihu Zhang, Tingfeng Tan, Xujia Hou, Liang Zhao, Chun Cao, and Zewen Wang	Underwater Mapping and Optimization Based on Multibeam Echo Sounders	2024-07
33	Jun Wang, Peihui Liang, Junqiang Song, Pan Xu, Yongming Hu, Peng Zhang, Kang Lou, Rongyao Ren, and Wusheng Tang	High-Precision Sub-Wavelength Motion Compensation Technique for 3D Down-Looking Imaging Sonar Based on an Acoustic Calibration System	2024-12
2025			
5	Xufei Ding, Wen Tian, Xin Sun	Secrecy capacity maximization in autonomous underwater vehicle-enabled underwater acoustic sensor networks	2025-01
6	Pan Xu, Dongbao Gao, Shui Yu, Guangming Li, Yun Zhao, and Guojun Xu	Enhancing Physical Spatial Resolution of Synthetic Aperture Sonar Images Based on Convolutional Neural Network	2025-01
7	Zhengliang Hu, Le Cheng, Shui Yu, Pan Xu, Peng Zhang, Rui Tian, and Jingqi Han	Underwater Target Detection with High Accuracy and Speed Based on YOLOv10	2025-01
8	Chang Zou, Siquan Yu, Yankai Yu, Haitao Gu, and Xinlin Xu	Side-Scan Sonar Small Objects Detection Based on Improved YOLOv11	2025-01
12	António Ferreira, José Almeida, Aníbal Matos, and Eduardo Silva	Real-Time Registration of 3D Underwater Sonar Scans	2025-01
18	Baolin Xie, Hongmei Zhang, and Weihan Wang	Side-Scan Sonar Image Classification Based on Joint Image Deblurring–Denoising and Pre-Trained Feature Fusion Attention Network	2025-03
25	Lintai Rong, Bo Lei, Tiantian Gu, and Zhaoyang He	Depth Estimation of an Underwater Moving Source Based on the Acoustic Interference Pattern Stream	2025-05
26	Junhui Zhu, Houpu Li, Min Liu, Guojun Zhai, Shaofeng Bian, Ye Peng, and Lei Liu	Underwater Side-Scan Sonar Target Detection: An Enhanced YOLOv11 Framework Integrating Attention Mechanisms and a Bi-Directional Feature Pyramid Network	2025-05
27	Hui Zhi, Zhixin Zhou, Haiteng Wu, Zheng Chen, Shaohua Tian, Yujiong Zhang, and Yongwei Ruan	Oscillatory Forward-Looking Sonar Based 3D Reconstruction Method for Autonomous Underwater Vehicle Obstacle Avoidance	2025-05
34	Xinran Liu, Jianmin Yang, Changyu Lu, Enhua Zhang, and Wenhao Xu	Robust Forward-Looking Sonar-Image Mosaicking Without External Sensors for Autonomous Deep-Sea Mining	2025-06
36	Wenhao Xu, Jianmin Yang, Jinghang Mao, Haining Lu, Changyu Lu, and Xinran Liu	Direct Forward-Looking Sonar Odometry: A Two-Stage Odometry for Underwater Robot Localization	2025-06

Image treatment



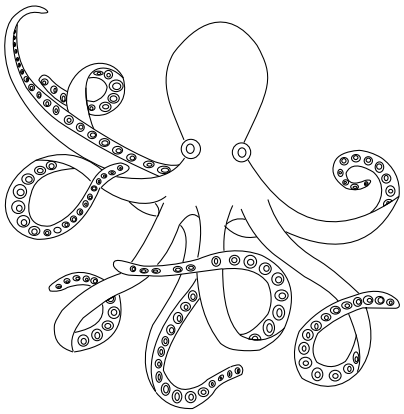
Nb	Authors	Title	Year publication
1989 - 2021			
6	Silvia Silva da Costa Botelho, Paulo Drews Jr, & Gabriel Leivas	A new approach for Visual Underwater Mapping using Topological Shell Maps	2009
7	Armagan Elibol, Nuno Gracias, Rafael Garcia, Art Gleason, & 3 other scientists	Effificient Image Mosaicing for Optical Underwater Mapping	2012
13	Adrian Bodenmann, Tamaki Ura, and Blair Thornton	Generation of High-resolution Three-dimensional Reconstructions of the Seafloor in Color using a Single Camera and Structured Light	2016-08
18	Ricard Campos, & Rafael Garcia	Surface meshing of underwater maps from highly defective point sets	2017
23	Thomas Scholz, Martin Laurenzis, and Frank Christnacher	Laser-based imaging applications in turbid waters	2019-09
24	E. Nocerino, F. Menna, B. Chemisky, & P. Drap	3d sequential mosaicing for underwater navigation and mapping	2020
25	Agung Budi Cahyono, Andreas Catur Wibisono, Dian Saptarini, Rizki Indra Permadi, & 2 other scientists	Underwater Photogrammetry Application for Coral Reef Mapping and Monitoring	2020
29	Yuliang Li, Mingliang Chen, Yuliang qi, Jinquan qi, & 8 scientists	A study of the limits of imaging capability due to water scattering effects in underwater ghost imaging	2020
32	Bohan Liu, Zhaojun Liu, Shaojie Men, Yongfu Li, & 2 other scientists	Underwater Hyperspectral Imaging Technology and Its Applications for Detecting and Mapping the Seafloor: A Review	2020
34	Chloe A. Game, & Michael B. Thompson	Weibull tone mapping for underwater imagery	2020
38	Qi Zhao, Zhichao Xin, Zhibin Yu, & Bing Zheng	Unpaired Underwater Image Synthesis with a Disentangled Representation for Underwater Depth Map Prediction	2021
39	F Muhammad, Poerbandono, & H Sternberg	Controlled experiment of underwater vision-based mapping: A preliminary evaluation	2021
40	A A Timoshenko, A V Zuev, & E S Mursalimov	Algorithm of Dynamic Forming One Whole Raster Photo Map of the Seabed During its Shooting by an Autonomous Uninhabited Underwater Vehicle	2021
41	Chloe A. Game, Michael B. Thompson, & Graham D. Finlayson	Chromatic weibull tone mapping for underwater image enhansement	2021
45	Daniele Ventura, Luca Castoro, Gianluca Mancini, Edoardo Casoli, & 3 other scientists	High spatial resolution underwater data for mapping seagrass transplantation: A powerful tool for visualization and analysis	2021
49	Chun-Feng Chou, Cheng-Mu Tsai, Chao-Hsien Chen, Yung-Hao, Wong, Yi-Chin Fang, Chan-Chuan Wen, Hsiao-Yi Lee, Hien-Thanh Le, Shun-Hsyung Chang, and Hsing-Yuan Liao	Optical Design and Optimization with Genetic Algorithm for High-Resolution Optics Applied to Underwater Remote-Sensing	2021-10
50	Qi Zhao, Ziqiang Zheng, Huimin Zeng, Zhibin Yu, Haiyong Zheng 1 & Bing Zheng	The Synthesis of Unpaired Underwater Images for Monocular Underwater Depth Prediction	2021
52	Gillian S. L. Rowan, Margaret Kalacska, Deep Inamdar, J. Pablo Arroyo-Mora, and Raymond Soffer	Multi-Scale Spectral Separability of Submerged Aquatic Vegetation Species in a Freshwater Ecosystem	2021
54	Jarina Raihan A., P.G. Emeroylariffion Abas, & Liyanage C. De Silva	Restoration of underwater images using depth and transmission map estimation, with attenuation priors	2021
2022 - 2023			
1	Xu Liu, Sen Lin, & Zhiyong Tao	Learning multiscale pipeline gated fusion for underwater image enhancement	2022
6	Kai Yan, Lanyue Liang, Ziqiang Zheng, Guoqing Wang, Yang Yang	Medium Transmission Map Matters for Learning to Restore Real-World Underwater Images	2022-04

7	Natalie Summers, Geir Johnsen, Aksel Mogstad, Håvard Løvås, & 2 scientists	Underwater Hyperspectral Imaging of Arctic Macroalgal Habitats during the Polar Night Using a Novel Mini-ROV-UHI Portable System	2022
12	Zheng Liu, Yaoming Zhuang, Pengrun Jia, Chengdong WuHongli Xu, and Zhanlin Liu	A Novel Underwater Image Enhancement Algorithm and an Improved Underwater Biological Detection Pipeline	2022
15	Usman Ali, Muhammad Tariq Mahmood	Underwater image restoration through regularization of coherent structures	2022
16	Eon-ho Lee, Byungjae Park, Myung-Hwan Jeon, Hyesu Jang, Ayoung Kim, Sejin Lee	Data augmentation using image translation for underwater sonar image segmentation	2022-08
17	Yaofeng Xie, Zhibin Yu, Xiao Yu, & Bing Zheng	Lighting the darkness in the sea: A deep learning model for underwater image enhancement.	2022-08
21	Sayed Saad Afzal, Waleed Akbar, Osvy Rodriguez, Mario Doumet, Unsoo Ha, Reza Ghaffarivardavagh, & Fadel Adib	Battery-free wireless imaging of underwater environments	2022-09
28	Larissa Macedo Cruz de Oliveira, Aaron Lim, Luis A. Conti, and Andrew J. Wheeler	High-resolution 3D mapping of cold-water coral reefs using machine learning	2022-12
29	Yian Wang	An Underwater Target Ranging System based on Binocular Vision	2022
31	Yiyang Chen, Pengqiang Ge, Guina Wang, Guirong Weng, Hongtian Chen	An overview of intelligent image segmentation using active contour models	2023-02
32	Daniel Ierodiaconou, Dianne McLean, Matthew Jon Birt , Todd Bond, Sam Wines, Ollie Glade-Wright, Joe Morris, Doug Higgs, and Sasha K. Whitmarsh	Industry remotely operated vehicle imagery for assessing marine communities associated with subsea oil and gas infrastructure on the continental shelf of South-East Australia	2023-02
33	Chloe Amanda Game, Michael Barry Thompson, and Graham David Finlayson	Weibull Tone Mapping (WTM) for the Enhancement of Underwater Imagery	2023-03
34	Hong Song, Syed Raza Mehdi, Zixin Li, Mengjie Wang, Chaopeng Wu, Vladimir Yu Venediktov, and Hui Huang	Investigating the rate of turbidity impact on underwater spectral reflectance detection	2023-03
35	Yang Yu, & Chenfeng Qin	An End-to-End Underwater-Image-Enhancement Framework Based on Fractional Integral Retinex and Unsupervised Autoencoder.	2023
37	Jiancheng Yin, Xiangyu You, Yu Yao	Acoustic scattering characteristics of underwater buried oil pipeline	2023-04
38	Ante Siljeg, Ivan Maric, Sara Krekman, Neven Cukrov, Marin Lovric, Fran Domazetovic, Lovre Panda, and Tomislav Bulat	Mapping of marine litter on the sea floor using WASSP S3 multibeam echo sounder and Chasing M2 ROV	2023-04
40	Zefeng Zhao, Zhuang Zhou, Yunting Lai, Tenghui Wang, & 3 scientists	Single underwater image enhancement based on adaptive correction of channel differential and fusion.	2023
41	Shlomi Amitai, Itzik Klein, & Tali Treibitz	Self-Supervised Monocular Depth Underwater	2023
42	Wei Song, Yaling Liu, Dongmei Huang, Bing Zhang + 2 scientists	From shallow sea to deep sea: research progress in underwater image restoration	2022
43	Mochou Yang, Yi Wu, & Guoying Feng	Underwater environment laser ghost imaging based on Walsh speckle patterns	2023
45	Zheyong Li, Jinghua Li, Pei Zhang, Lihui Zheng, & 4 scientists	A Transfer-Based Framework for Underwater Target Detection from Hyperspectral Imagery.	2023
48	Yang Guan, Xiaoyan Liu, Zhibin Yu, Yubo Wang, & 3 scientists	Fast underwater image enhancement based on a generative adversarial framework.	2023
49	Yelena Randall, & Tali Treibitz	FLSea: Underwater Visual-Inertial and Stereo-Vision Forward-Looking Datasets.	2023
50	Yuanheng Li, Shengxiong Yang, Yuehua Gong, Jingya Cao, & 4 scientists	A New Method for Training CycleGAN to Enhance Images of Cold Seeps in the Qiongdongnan Sea	2023

53	Chengda Li, Xiang Dong, Yu Wang, and Shuo Wang	Enhancement and Optimization of Underwater Images and Videos Mapping	2023-06
58	Daniel Short, Tingjun Lei, Chaomin Luo, Daniel W. Carruth, & Zhuming	A bio-inspired algorithm in image-based path planning and localization using visual features and maps	2023
59	Ahila Priyadharshini R, Ramajeyam K	A Combined Approach of Color Correction and Homomorphic Filtering for Enhancing Underwater Images	2023-08
60	Leonidas Alagialoglou, Ioannis Manakos, Sofia Papadopoulou, Rizos-Theodoros Chadoulis, & Afroditi Kita	Mapping Underwater Aquatic Vegetation Using Foundation Models With Air- and Space-Borne Images: The Case of Polyphytos Lake	2023-08
62	Ziyang Wang, Liquan Zhao, Tie Zhong, Yanfei Jia, & Ying Cui	Generative adversarial networks with multi-scale and attention mechanisms for underwater image enhancement	2023-10
2024			
1	Tianchi Zhang and Yuxuan Liu	MTUW-GAN: A Multi-Teacher Knowledge Distillation Generative Adversarial Network for Underwater Image Enhancement	2024-01
3	Rebeca Chinicz, and Roee Diamant	A Statistical Evaluation of the Connection between Underwater Optical and Acoustic Images	2024-02
4	Tong Liu, Kaiyan Zhu, Xinyi Wang, Wenbo Song, and Han Wang	Lightweight underwater image adaptive enhancement based on zero-reference parameter estimation network	2024-04
5	Xin He, Junjie Li, and Tong Jia	Learning hybrid dynamic transformers for underwater image super-resolution.	2024-04
7	Alessandro Bucci, Alessandro Ridolfi, Benedetto Allotta	Pose-graph underwater simultaneous localization and mapping for autonomous monitoring and 3D reconstruction by means of optical and acoustic sensors	2024-05
8	Zhufei Lu, Xing Xu, Yihao Luo, Lianghui Ding, Chao Zhou, and Jiarong Wang	A Visual–Inertial Pressure Fusion-Based Underwater Simultaneous Localization and Mapping System	2024-05
11	Yushan Sun, Tian Zhou, Liwen Zhang and Puxin Chai	Underwater Camera Calibration Based on Double Refraction	2024-05
12	Peng Jiang, Hao Wang, and Zhiwen Xiong	A dynamic routing scheme for underwater acoustic sensor networks in submarine disaster applications	2024-06
13	Taoran Lu, Su Qiu, Hui Wang, Shihao Zhu and Weiqi Jin	A Simulation Method for Underwater SPAD Depth Imaging Datasets	2024-06
15	Qiang Fu, Chao Dong, Kaikai Wang, Qingyi He, Xiansong Gu, Jianhua Liu, Yong Zhu, Jin Duan	Underwater target laser polarization suppression scattering detection technology and verification	2024-06
19	Yang Zhang, Qingchao Xia, Canjun Yang, Ruiyin Song, Dingze Wu, Xin Zhang, Rui Zhou, and Shuyang Ma	Dual-Mode Square Root Cubature Kalman Filter for Miniaturized Underwater Profiler Dead Reckoning	2024-07
24	Qing Li, Hongjian Wang, Yao Xiao, Hualong Yang, Zhikang Chi, and Dongchen Dai	Underwater Unsupervised Stereo Matching Method Based on Semantic Attention	2024-07
30	M. Tedeschi, F. Filipponi, M. Picone, A. Grillo, M. Gabellini, G. Trinchera	Monitoring dispersal patterns sea foam injected by offshore platforms using satellite optical multispectral imagery.	2024-11
31	Peng Zhang, Zongyi Yang, Hong Yu, Wan Tu, Chencheng Gao, and Yue Wang	RUSNet: Robust fish segmentation in underwater videos based on adaptive selection of optical flow	2024-11
32	Xiangrui Tian, Xiaohan Xianyu, Zhimin Li, Tong Xu, Yinjun Jia	Infrared and visible image fusion based on multi-level detail enhancement and generative adversarial network.	2024-12
2025			
1	Adrian Bodenmann, Daniel O.B. Jones, Alexander B. Phillips, Robert Templeton, Rashiid Sherif, Francesco Fanelli, Darryl Newborough, and Blair Thornton	Remote Awareness of Image Quality for Multi-week Shore-launched AUV Surveys	2025-01
2	E. Spain, R. J. Carey, J. M. Whittaker, V. L. Lucieer, J. M. Fox, S. J. Watson, and F. Caratori Tontini	Geomorphic time series reveals the constructive and destructive history of Havre caldera volcano, Kermadec arc	2025-01

13	Mengpan Li, Wenhao Liu, Changbin Shao, Bin Qin, Ali Tian, and Hualong Yu	Multi-Scale Feature Enhancement Method for Underwater Object Detection	2025-01
14	Chang Liu, Vladimir Filaretov, Eduard Mursalimov, Alexander Timoshenko, and Alexander Zuev	The Method for Storing a Seabed Photo Map of the During Surveys Conducted by an Autonomous Underwater Vehicle	2025-02
15	Yang Liu, Jinxi Sun, Guojie Li, and Xiujun Xu	AUV Online Path Planning Strategy Based on Sectorial Gridded Detection Area	2025-02
16	Guina Wang, Zhen Li, Guirong Weng, Yiyang Chen	An overview of industrial image segmentation using deep learning models.	2025-02
19	Natasha L. Walker-Milne, Sophie Elliott, Peter J. Wright, & David M. Bailey	A novel use of Stereo Baited Remote Underwater Video and Drop-Down Video for biodiversity and marine landscape mapping and prediction	2025-04
42	Tianchi Zhang, Qiang Liu, Hongwei Qin, and Xing Liu	RECAD: Retinex-Based Efficient Channel Attention with Dark Area Detection for Underwater Images Enhancement	2025-10
43	Jiongnan Lou, Xun Zhang, Haifei Shen, Yiqian Qian, Zhan Wang, Hongda Chen, Zefeng Wang, and Lianxin Hu	Adaptive Exposure Optimization for Underwater Optical Camera Communication via Multimodal Feature Learning and Real-to-Sim Channel Emulation	2025-10
45	Yuan Muye, Lei Zhufeng, Dang Yinuo, and Shi Zanrong	A classification method of underwater target radiated noise signals based on enhanced images and convolutional neural networks	2025-10

Positioning & Localization



Nb	Authors	Title	Year publication
1989 - 2021			
8	B. Douillard, N. Nourani-Vatani, M. Johnson-Roberson, S. Williams, & 4 other scientists	FFT-based Terrain Segmentation for Underwater Mapping	2012
9	Gerd Niedzwiedz, & Dirk Schories	New advances in diver-towed underwater GPS receivers	2013
26	Bashar Elnashef, & Sagi Filin	Direct estimation of the relative orientation in underwater environment	2020
31	Joseph H. Tarnecki, William F. Patterson	A mini ROV-based method for recovering marine instruments at depth	2020-08
47	Xiyun Ge, Hongkun Zhou, Junbo Zhao, Xiaowei Li, & 3 scientists	Robust Positioning Estimation for Underwater Acoustics Targets with Use of Multi-Particle Swarm Optimization	2021-10
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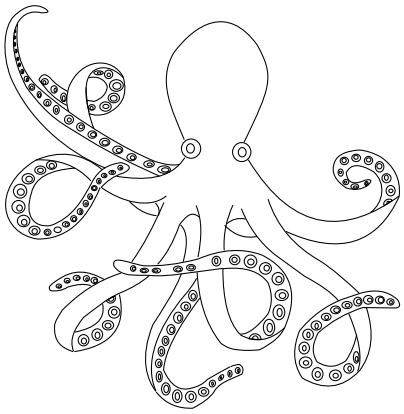
Autonomous systems



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1989 - 2021			
11	A. Ch. Kapoutsis, G. Salavasidis, S. A. Chatzichristofis, J. Braga, & 3 other scientists	The NOPTILUS project overview: A fully-autonomous navigation system of teams of AUVs for static/dynamic underwater map construction	2015
16	Athanasios Ch. Kapoutsis, Savvas A. Chatzichristofis, Lefteris Doitsidis, João Borges de Sousa, & 3 other scientists	Real-time adaptive multi-robot exploration with application to underwater map construction	2016
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