

Bing Ouyang

Professional Preparation

Southern Methodist Univ.	Dallas, TX	Ph.D.	Electrical Engineering	2007
University of Florida	Gainesville, FL	M.S.	Computer Engineering	1996
University of Miami	Miami, FL	M.S.	Applied Marine Physics	1995
Xi'an Jiaotong Univ.	Xi'an, China	B.S.	Electronic & Communication Systems	1989

Appointments

2025-Present, Research Professor, Harbor Branch Oceanographic Institute at Florida Atlantic University
2019-2024, Associate Research Professor, Harbor Branch Oceanographic Institute at Florida Atlantic Univ.
2013-2019, Assistant Research Professor, Harbor Branch Oceanographic Institute at Florida Atlantic Univ.
2009-2013, Research Associate, Harbor Branch Oceanographic Institute at Florida Atlantic University
2002-2009 Algorithm Engineer, DLP Division, Texas Instruments Inc.
1996-2002 Software System Engineer, KFAB, Texas Instruments Inc.

Honors

- 2017 Florida Atlantic University Researcher of the Year at Assistant Professor Level.
- 2017 ONR Summer Fellow at U.S. Naval Research Lab.
- 2013 AFOSR Young Investigator Research Program.

Publications:

Patents

- Dagleish F., Estrada D., Knarr S. H., Ouyang B., Lopez O., "Quantum-inspired adaptive computational 3D imager," US12395750B1, 08/09/2025.
- Ouyang B., Wills P. S., Den Ouden, Casey, Lopes, Lucas, Fairman, William, "Platform-independent mobile environmental sensing system," US12320731B2, 06/03/2025.
- Ouyang B.; Dagleish F.; Caimi F.; Dagleish A. "Underwater imaging system," US20210352201A1, 04/20/2023.
- Ouyang B.; Wills P. S.; Hallstrom J.; Su T.-C.; Riche M.; Reiff P.; Tang Y. "Hybrid aerial/underwater robotics system for scalable and adaptable maintenance of aquaculture fish farms," US Patent 11,150,658, 10/19/2021.
- Ouyang B.; Hou W.; Dagleish F.; Caimi F.; Gong C.; Dagleish A. "Compressive Line Sensing Imaging using Individually Addressable Laser Diode Array," US Patent 20170299722A1, 10/8/2019.
- Ouyang B.; Wills P. S.; Dagleish F. R.; Dagleish A. "Systems and Methods for Larval Fish Enumeration and Growth Monitoring", 10,426,143, 10/1/2019.
- Ouyang B.; Dagleish F.; Dagleish A. "MEMS microdisplay optical imaging and sensor systems for underwater and other scattering environments," US Patent 9,019,503, 4/28/2015.
- Dagleish F.; Dagleish A.; Ouyang B. "MEMS Microdisplay Optical Imaging and Sensor Systems for Underwater Scattering Environments," US Patent 8,917,395 12/23/2014.
- Ouyang B. "System and Method for Determining High-Frequency Content in an Analog Image Source," US Patent 8,260,047 09/04/2012.
- Ouyang B.; Baweja, S. G.; Rigsby D. J. "Method for Collecting Data from Semiconductor Equipment," US Patent 8,112,400, 02/07/2012.
- Ouyang B.; Hayden J. M.; Ethridge T. L.; Sundararajan A.; Dickinson L. D. "Method and Apparatus for Analog Graphics Sample Clock Frequency Offset Detection and Verification," US Patent 8,111,330, 02/07/2012.
- Hayden J. M.; Ouyang B.; Ethridge T. L.; Sundararajan A.; Dickinson L. D. "Method and Apparatus for Analog Graphics Sample Clock Frequency Verification," US Patent 7,733,424, 06/08/2010.

Books and Book Chapters

- Markopoulos P. P.; Ouyang B.; and Sklivanitis G., eds., “Machine Learning from Challenging Data 2025,” Proc. SPIE Vol. 13460, 2025.
- Markopoulos P. P.; Ouyang B. and Sklivanitis G. eds, “Big Data VI: Learning, Analytics, and Applications,” Proc. of SPIE Vol. 13036, 2024.
- Markopoulos P. P.; Ouyang B. and Papalexakis V., eds, “Big Data V: Learning, Analytics, and Applications,” Proc. of SPIE Vol. 12522, 2023.
- Ahmad F.; Markopoulos P. P. and Ouyang B., eds, “Big Data IV: Learning, Analytics, and Applications,” Proc. of SPIE Vol. 12097, 2022.
- Ahmad F.; Markopoulos P. P. and Ouyang B., eds, “Big Data III: Learning, Analytics, and Applications,” Proc. of SPIE Vol. 11730, 2021.
- Kovacs D.M., and Ouyang B., “Underwater Imaging: Photographic, Digital and Video Techniques” in Watson J. and Zielinski O. eds. “Subsea Optics and Imaging,” Woodhead Publishing Limited, 2013.

Peer-reviewed Journal Papers

- Yu M.; Feng Y.; Fairman W.; Ouyang B.; Wills P. S.; and Wei M., “Physics-Guided Transfer Learning for Predicting Dissolved Oxygen in Smart Aquaculture Farms,” IET Cyber-Systems and Robotics, Vol. 8, No. 1, e70053, 2026.
- Yu M.; Feng Y.; Ouyang B.; Wills P. S.; and Tang Y., “Dissolved oxygen in aquaculture ponds: Causal factors, predictive modeling, and intelligent monitoring,” Aquacultural Engineering, Vol. 112, 2026.
- Kunapinun A.; Fairman W.; Wills P. S.; Hanisak D.; and Ouyang B., “Advancing Seaweed Cultivation: Integrating Physics Constraints in Machine Learning for Enhanced Biomass Forecasting in IMTA Systems,” Remote Sensing, 16(23), 4418, 2024.
- López O.; Ernce A.; Ouyang B.; Malkiel E.; Gong C. and Twardowski M., “Advancements in Remote Compressive Hyperspectral Imaging: Adaptive Sampling with Low-Rank Tensor Image Reconstruction,” Electronics, 13(14), 2698, 2024.
- Davis A.; Wills P.S.; Garvey J. E.; Fairman W.; Karim M. A.; and Ouyang, B., “Developing and Field-Testing Path Planning for Robotic Aquaculture Water Quality Monitoring,” Appl. Sci., 13, 2805, 2023.
- Estrada D.; Hou W.; Matt S. C., and Ouyang B., "Multi-Frame Image Fusion using a Machine Learning-Based Weight Mask Predictor for Turbulence-Induced Image Degradation," J. Appl. Rem. Sens. 17(1) 016514, 2023.
- Den Ouden C. J.; Wills P.S.; Lopes L.; Sanderson J.; and Ouyang B., "Evolution of the Hybrid Aerial Underwater Robotic System (HAUCS) for Aquaculture: Sensor Payload and Extension Development," Vehicles, 4, 390-408, 2022.
- Estrada D. C.; Dalglish F. R.; Den Ouden C. J.; Ramos B.; Li Y.; and Ouyang B., "Underwater LiDAR Image Enhancement Using a GAN Based Machine Learning Technique," IEEE Sensors Journal, vol. 22, no. 5, pp. 4438-4451, 2022.
- Li Y.; Ouyang B.; Zhou T. Thomas J.; Bavar S.; Weber E.; Michieletto L.; Su T.-C. and Ahmad F., “Laboratory and Field Experimental Study of Underwater Inflatable Co-prime Sonar Array (UICSA),” Journal of Civil Engineering and Construction, 11(1), pp. 41-55, 2022.
- Ouyang B.; Wills P. S.; Tang Y.; Hallstrom J. O.; Su T.-C.; Namuduri K.; Mukherjee S.; Rodriguez-Labra J. I.; Li Y.; Den Ouden C. J., “Initial Development of the Hybrid Aerial Underwater Robotic System (HAUCS): Internet of Things (IoT) for Aquaculture Farms,” in IEEE Internet of Things Journal, 8(18), pp. 14013-14027, doi: 10.1109/JIOT.2021.3068571, 2021.
- Yu X.; Ouyang B.; Principe J. C., “Image Segmentation with Point-Supervision via Latent Dirichlet Allocation with Spatial Coherence,” Journal of Marine Science and Engineering 9 (2), 157, 2021.
- Montes M. A.; Vuorenkoski A. K.; Dalglish F. R.; Ouyang B., “Characterization of Underwater Scattering Layers based on Variance Components of LiDAR Backscattering,” Opt. Express, 5;27(16), pp. A1084-A1108, 2019.

- Cao Z.; Yu S.; Ouyang B.; Dalgleish F. R.; Vuorenkoski A.; Alsenas G.; and Principe J. C., "Marine Animal Classification with Correntropy Loss Based Multi-view Learning," *IEEE Journal of Oceanic Engineering*, vol. 44, no. 4, pp. 1116-1129, 2019.
- Li Y.; Stankovic R.; Ouyang B.; Su T.-C., "Study on Flexural Properties of Tubular Underwater Inflated Structures Filled with Hydrogel Beads," *Journal of Civil Engineering and Construction* 8 (2), 48-54, 2019.
- Ouyang B.; Hou W., "Compressive Line Sensing Imaging System in a Controlled Hybrid Scattering Environment," *Opt. Eng.* 58(2) 023102, 2019.
- Ouyang B.; Hou W.; Dalgleish F. R.; Caimi F. M.; Vuorenkoski A. K. and Gong C., "Integrating Dynamic and Distributed Compressive Sensing Techniques to Enhance the Image Quality of the Compressive Line Sensing System for UAV Application," *SPIE Journal of Applied Remote Sensing*, 11(3) 2017.
- Cao Z.; Principe J. C.; Ouyang B.; Dalgleish F. R.; Vuorenkoski A. K.; Ramos B.; Alsenas G., "Marine Animal Classification using UMSLI in HBOI Optical Test Facility," *Springer Multimedia Tools and Applications*, pp 1-22, 2017.
- Li Y.; Su T.-C.; Ouyang B.; Dalgleish F. and Dalgleish A., "Field Testing and Numerical Modeling of Inflatable Structure for Underwater Applications," *Advances in Civil Engineering Materials* 6(1) pp. 403-411, 2017.
- Ouyang B.; Hou W.; Gong C.; Dalgleish F. R.; Caimi F. M.; Vuorenkoski A. K.; Nootz G.; Xiao X. and Voelz D. G., "Experimental Study of a Compressive Line Sensing Imaging System in the Turbulence Environment," *Applied Optics*, 55(30):8523-8531, October 2016.
- Ouyang B.; Dalgleish F. R.; Caimi F. M.; Giddings T. E.; Vuorenkoski A. K.; Britton W. and Nootz G., "Compressive Line Sensing Underwater Imaging System," *Journal of Optical Engineering*, special edition on Ocean Optics, Vol. 53, Issue 5, 2014.
- Dalgleish F. R.; Shirron J. J.; Rashkin D.; Giddings T. E.; Dalgleish A.; Cardei I.; Ouyang B.; Caimi F. M. and Cardei M., "Physical Layer Simulator for Undersea Free-Space Laser Communications," *Optical Engineering*, Issue: 5, Volume: 53, Pages: 51410-51410, 2014.
- Ouyang B.; Dalgleish F. R.; Caimi F. M.; Giddings T. E.; Shirron J. J.; Vuorenkoski A. K.; Nootz G.; Britton W. and Ramos B., "Compressive Sensing Underwater Laser Serial Imaging System", *Journal of Electronic Imaging*, special edition on Compressive Sensing, Vol. 22, Issue 2, 2013.
- Ouyang B.; Dalgleish F. R.; Vuorenkoski A.; Britton W.; Ramos B. and Metzger B., "Visualization for Multi-Static Underwater LLS System using Image Based Rendering," *IEEE Journal of Oceanic Engineering*, Vol. 38, pp. 566 – 580, 2013.

Conference Papers

- Diktanas Jr., V.; Fairman W.; Wills P. S.; Ouyang B., "Payload Delivery for Waterproof Drones in Remote Waterways," *FCRAR25* (Best poster award).
- Kunapinun A.; Fairman W.; Wills P. S.; Ouyang B., "Integrating Bi-LSTM and physics constraint models for improved biomass and water quality prediction in the aquaculture systems," *Proc. SPIE* 13460, 2025.
- Fairman W.; Wills P. S.; Castro L. V.; Ouyang B., "Waterproof Uavs for Sensing in Coastal Zones and Estuaries," *Proc. SPIE* 13061, 2024.
- Kunapinun A.; Fairman W.; Wills P. S.; Mejri S.; Kostelnik M.; Ouyang B. "Innovative Aquaculture Biometrics Analysis: Harnessing IR Lasers and TOF Cameras for Microscopic Fish Larvae Tracking," *Proc. SPIE* 13061, pp. 113-120, 2024.
- Kunapinun A.; Fairman W.; Wills P. S.; Hanisak D.; Singh S. and Ouyang B., "Advancing Seaweed Cultivation Analytics: Integrating Polynomial Regression Models with IOT for Optimized Harvesting in an Integrated Multitrophic Aquaculture (IMTA) System," *Proc. SPIE* 13036, 2024.
- Gong C.; Ouyang B., "Exploring the Loading Sequence of the Phase Light Modulator to Suppress the Zero-Order Diffraction Beam," *Proc. SPIE* 12900, 2024.

- Fairman W.; Wills P.S.; Hanisak D.; Karim M. A.; Singh, S. and Ouyang, B., “Deployment of the Pseudorandom Encoded Light for Evaluating Biomass (PEEB) Sensor in an Integrated Multi-Trophic Aquaculture (IMTA) System,” Proc. SPIE 12522, 2023.
- Ouyang B.; Wills P.S.; Hallstrom J. and T.-C. Su, “Journey of HAUCS”, Special Session of Aquaculture America - A primer of USDA NIFA programs, priorities, and projects supporting U.S. aquaculture, 2023.
- Fairman W.; Wills P.S.; Garvey J. E.; Davis A.; Karim M. A. and Ouyang B., “Development and Field Tests of Hybrid Aerial Underwater Robotic System (HAUCS) Payload for Autonomous Data Collection,” Aquaculture America 2023.
- Weber E. W.; Wills P. S. and Ouyang B., “Evaluating Environmental Variables that Influence Pond Dissolved Oxygen to Inform Prediction Model Development,” Aquaculture America 2023.
- Fairman W.; Wills P. S.; D Hanisak and Ouyang B., “Pseudorandom Encoded-Light for Evaluating Biomass (PEEB): a Robust COTS Macroalgal Biomass Sensor for The Integrated Multi-Trophic Aquaculture (IMTA) System,” Proc. SPIE 12097, 2022.
- Davis A.; Mukherjee S.; Wills P. S. and Ouyang B., “Path Planning Algorithms for Robotic Aquaculture Monitoring,” Proc. SPIE 12097, 2022.
- Lopez O.; Ouyang B.; Lawrence T.; Ernce A.; Gong S.; Gilly N.; Malkiel E. and Twardowski M., “Frugal Hyperspectral Imaging via Low-Rank Tensor Reconstruction,” Proc. SPIE 12118, 2022.
- Estrada D.; Dalglish F. R.; Den Ouden C. and Ouyang B., “Multi-frame GAN-based machine learning image restoration for degraded visual environments,” Proc. SPIE 11730, 2021.
- Den Ouden, C. J.; Dalglish, F. R.; Dennis, E. and Ouyang, B., "Evaluation of a technique to simulate LiDAR image datasets for training a machine learning-based image enhancement algorithm," in Proc. SPIE 11730, 2021.
- Ouyang B.; Wills P. S.; Li Y. and Den Ouden C., "Hybrid Aerial Underwater Robotic System (HAUCS): the Initial Instruments Development and Deployment," 2020 IEEE 92nd Vehicular Technology Conference (VTC2020-Fall), Victoria, BC, Canada, pp. 1-6, doi: 10.1109/VTC2020-Fall49728.2020.9348740, 2020.
- Li Y.; Thomas J.; Ouyang B.; Su, T.-C, and Ahmad F., "Numerical Study of Underwater Inflatable Co-Prime Sonar Array (UICSA)," Proceedings of the 39th International Conference on Ocean, Offshore and Arctic Engineering. Vol 4: Pipelines, Risers, and Subsea Systems, 2020.
- Michieletto L.; Ouyang B. and Wills P. S., “Investigation of Water Quality Using Transfer Learning, Phased LSTM and Correntropy Loss,” Proc. SPIE 11395, 2020.
- Estrada D.; Lee S.; Dalglish F. R.; Den Ouden C.; Young M.; Smith C.; Desjardins J., and Ouyang B., “DeblurGAN-C: Image Restoration using GAN and a Correntropy Based Loss Function in Degraded Visual Environments,” Proc. SPIE 11395, 2020.
- Hou W.; Ouyang B.; Matt S.; and Estrada D., “Imaging Through Turbulence with Improved Point Spread Model in a Compressive Sensing System,” 2020 Ocean Science Meeting.
- Twardowski M. S.; Ouyang B.; Malkiel E. and Sanborn G., “A Compressive Sensing Based Hyperspectral Ocean Color Imager for CubeSats,” 2020 Ocean Science Meeting.
- Ouyang B.; Twardowski M.; Caimi F.; Dalglish F. R.; Gong C. and Li Y., "Prototyping a Compressive Line Sensing Hyperspectral Imaging Sensor," Proc. SPIE 10932, Emerging Digital Micromirror Device Based Systems and Applications XI, 109320U, 2019.
- Yu X.; Ma Y.; Farrington S.; Reed J.; Ouyang B. and Principe J. C., “Fast Segmentation for Large and Sparsely Labeled Coral Images,” International Joint Conference on Neural Networks (IJCNN), 2019.
- Sklivanitis G.; Li Y.; Tountas K.; Ouyang B.; Thomas J.; Su T.-C. and Pados D., “Design and Experimental Evaluation of an Active Underwater Inflatable Co-prime Sonar Array (UICSA),”, IEEE/MTS OCEANS, 2019.
- Yu X.; Ouyang B.; Principe J. C.; Farrington S.; Reed J. and Li Y., “Weakly Supervised Learning of Point-Level Annotation for Coral Image Segmentation,” IEEE/MTS OCEANS, 2019.
- Ouyang B.; Estrada D., Li Y., Ahmad F., “Human Activity Monitoring Using a Compressive Active Sensing Electro-Optical Sensor,” Proc. SPIE 10989, 2019.

- Ouyang B.; Li Y.; Zhou T.; Su T.-C.; Dalglish F.; Dalglish A.; Ahmad F., "Compressing Two Ways: the Initial Study of an Underwater Inflatable Co-Prime Sonar Array (UICSA)," *Proc. SPIE* 10658, 2018.
- Ma Y.; Ouyang B.; Farrington S.; Yu S.; Reed J. and Principe J., "Joint Image Segmentation And Classification with Application to Cluttered Coral Images," *2018 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, pp. 365-369, 2018.
- Ouyang B.; Hou W.; Cui G.; Dalglish F. R.; Vuorenkoski, A. K., "Experimental Study of a Compressive Line Sensing System in a Hybrid Scattering Environment," *OSA Propagation Through and Characterization of Atmospheric and Oceanic Phenomena*, 2017.
- Ouyang B.; Cui G.; Hou, W.; Dalglish F. R.; Vuorenkoski, A. K., "The Development of an Underwater Pulsed Compressive Line Sensing Imaging System," *SPIE Defense and Security*, 2017.
- Ouyang B., "Compressive Line Sensing Imaging System for Visually Degraded Underwater Environments," *MTS Underwater Cables, Connectors & Imaging Systems Tech Surge*, Oct. 26, 2016.
- Ouyang B.; Hou W.; Gong C.; Caimi F. M.; Dalglish F. R.; Vuorenkoski A. K., "Experimental Study of A DMD Based Compressive Line Sensing Imaging System in the Turbulence Environment," *Proc. SPIE* 9827, 2016.
- Ouyang B.; Hou, W.; Cui G.; Caimi F. M.; Dalglish F. R.; Vuorenkoski A. K.; Xiao X. and Voelz D. "Experimental Study of a DMD based Compressive Line Sensing Imaging System in the Turbulence Environment," *Proc. SPIE* 9761, 2016.
- Cao Z.; Principe J. C. and Ouyang B., "Information Point Set Registration for Shape Recognition," *ICASPP*, 2016.
- Cao Z.; Principe J. C.; Ouyang B.; Dalglish F. R. and Vuorenkoski A., "Marine Animal Classification using Combined CNN and Hand-Designed Image Features," *IEEE/MTS Oceans* 2015.
- Cao Z.; Principe J. C. and Ouyang B., "Group Feature Selection in Image Classification with Multiple Kernel Learning," *IJCNN* 2015.
- Ouyang B.; Hou, W.; Dalglish F. R.; Caimi F. M.; Vuorenkoski A. K. and Gong, C., "Distributed Compressive Sensing vs. Dynamic Compressive Sensing: Improving the Compressive Line Sensing Imaging System through Their Integration", *SPIE Proceedings Vol. 9459*, 2015.
- Ouyang B.; Hou W.; Dalglish F. R., Caimi F. M., Vuorenkoski A. K., Gong, C., Britton, W., "Near-Infrared Compressive Line Sensing Imaging System Using Individually Addressable Laser Diode Array," *SPIE Proceedings Vol. 9484*, 2015.
- Xiao X.; Ouyang B.; Voelz D. G.; Hou W.; Dalglish F. and Vuorenkoski, A., "Modeling Atmospheric Turbulence Image Reconstruction with Compressive Line Sensing," in *Imaging and Applied Optics 2015*, *OSA Technical Digest (Optical Society of America, 2015)*, paper PM4C.3.
- Ouyang B.; Caimi F. M.; Dalglish F. R.; Nootz G. and Vuorenkoski A. K., "3D imaging using compressive line sensing serial imaging system", *SPIE Proceedings Vol. 9109*, 2014.
- Ouyang B.; Caimi F. M.; Dalglish F. R.; Vuorenkoski A. K. and Hou W., "Experimental studies of the compressive line sensing underwater serial imaging system," *SPIE Proceedings Vol. 9111*, 2014.
- Ouyang B.; Dalglish F. R.; Giddings T.; Caimi F. M.; Nootz G. and Vuorenkoski A. K., (Invited talk) "Compressive Line Sensing Underwater Imaging System," *11th Intl. Mine Warfare Tech. Symp.*, 2014.
- Ouyang B.; Caimi F. M.; Dalglish F. R.; Vuorenkoski A. K. and Britton W., "(JEI Invited) Compressive Sensing Underwater Active Serial Imaging Systems," *IS&T/SPIE Electronic Imaging* 2014.
- Ouyang B.; Dalglish F. R.; Vuorenkoski A. K.; Caimi F. M. and Britton W., "Compressive Line Sensing Underwater Imaging System," *SPIE Proceedings Vol. 8717*, 2013.
- Ouyang B.; Dalglish F. R.; Negahdaripour S.; Vuorenkoski A. K.; Britton W. and Wang, Y.X., "Experimental Study of Underwater Stereo via Pattern Projection", *IEEE/MTS Oceans'12*.
- Ouyang B.; Dalglish F. R.; Caimi F. M.; Giddings T. E.; Shirron J. J. and Vuorenkoski A. K., "Image Enhancement for an Underwater Pulsed Laser Line Scan Imaging System," *Proc. SPIE* 8372, 2012.
- Ouyang B.; Dalglish F. R.; Caimi F. M.; Giddings T. E.; Shirron J. J.; Vuorenkoski A. K.; Nootz G.; Britton W. and Ramos B., "Underwater Laser Serial Imaging using Compressive Sensing and Digital Mirror Device," *Proc., SPIE* 8037, 2011.

- Ouyang B.; Dalglish F. R.; Vuorenkoski A.; Britton W.; Ramos B. and Metzger B., “Visualization for Multi-Static Underwater LLS System using Image Based Rendering,” IEEE/MTS Ocean’10, 2010.

Grants and Projects

External Grants

NAWCAD Air Talent: “Environmental Sensing Drone Launched from an Unmanned Surface Vessel (USV),” \$15k, PI: Ouyang, 7/1/2026 – 6/30/2027.

NAWCAD Air Talent: “Environmental Sensing Drone Launched from an Unmanned Surface Vessel (USV),” \$15k, PI: Ouyang, 7/1/2025 – 6/30/2026.

NAWCAD: “Physically-constrained CycleGAN Training Data Generator (PCGAN-TAG) to Support Deep Learning-based Underwater LiDAR Enhancement,” PI: Ouyang, 5/1/2025 – 9/30/2027.

USDA-NIFA National Robotics Initiative: “Intelligent Resource Efficient Pond Aquaculture (IREPA): Cyber Physical System to Improve the Fish Farms Productivity in the U.S.,” \$1.2M, PI: Ouyang, Co-PIs: Wills, Tang, Su, 12/1/2023 – 11/30/2027.

NAWCAD Air Talent: “Environmental Sensing Drone Launched from an Unmanned Surface Vessel (USV),” \$15k, PI: Ouyang, 7/1/2024 – 12/31/2025.

DOE: “Analysis and Design for Offshore Fish Farms Powered by Ocean Thermal Energy,” \$81k, PI: Yufei Yang, co-PIs: VanZwieten, Ouyang, Wills, 3/13/2023 – 7/24/2024.

Triton Systems (ONR SBIR), “Low-Cost Deployable Structure for Sonobuoy,” \$40k, FAU PI: Ouyang, 6/1/2022 – 12/6/2022.

Beamsea Associates (ONR SBIR), “Hemispherical Underwater Non-Acoustic Tracking LIDAR (HUNT-L),” \$20k, FAU PI: Ouyang, 8/15/2021 – 1/15/2022.

ONR NOPP: “SlimSat-VNIR High quality littoral ocean characterization from a CubeSat with novel Spatial Light Image Modulation (SLIM),” \$300K, PI: Twardowski, co-PI: Ouyang, 4/1/21 – 6/30/24.

L3Harris-FFT, “Algorithm for a novel individually addressable laser array illuminator and photon-counting receiver-based computational imaging lidar system in the degraded visual environment,” \$50K, PI: Ouyang, Co-PI: Lopez. (1/1/2022 – 12/31/2022).

ONR: “Robust Co-Prime Sensing with Underwater Inflatable Passive Sonar Arrays,” \$450K, PI: Ahmad (Univ. of Temple), co-PI: Ouyang, 5/1/2018 – 9/30/2021.

ONR NOPP: “High-Quality Littoral Ocean and Aerosol Characterization from a Cubesat with Novel Spatial Light Modulator Imaging System,” \$230K, PI: Twardowski, co-PI: Ouyang, Williams (SPAWAR), 8/1/2018 – 7/31/2020.

L3Harris-FFT, “Plenoptic Lensless Array Imaging Telescope (PLAIT) Algorithm Development,” \$100K, PI: Ouyang. (5/1/2019 – 6/30/2020).

USDA-NIFA National Robotics Initiative: “NRI: INT: Hybrid Aerial/Underwater Robotic System (HAUCS) for Scalable, Adaptable Maintenance of Aquaculture Fish Farms,” \$1.2M, PI: Ouyang, Co-PIs: Wills, Hallstrom, Su, 3/1/2019 – 10/31/2024.

NOAA CIOERT, “Perception Action Cycle-based Automatic Coral Classification for Underwater Survey Image,” \$276K, PI: Ouyang, Co-PIs: Reed, Principe. 7/1/2016 – 6/30/2019

Boston Engineering (Navy STTR Phase I), “Robot Operating System (ROS) Multi-nodal Object Determination Sensing (MODS),” \$80K, PI: Ouyang, Co-PIs: Dalglish, Dhanak. 9/1/2017 – 1/30/2018.

DOE, “Technical Performance and Cost Optimization of Unobtrusive Multi-static Serial LiDAR Imager (UMSLI) for Wide-area Surveillance,” \$900K, PI: Dalglish (Vuorenkoski from 2018), Co-PI: Vuorenkoski (Dalglish from 2018), Ouyang. 3/1/17-10/31/20.

ONR (Expanding applicability of the compressive line sensing underwater laser imaging system),

\$100k, PI: Ouyang, Co-PIs: Dalgleish, Vuorenkoski. 5/11/2015 – 6/30/2017.

Naval Research Lab, “Development of a Compressive Line Sensing prototype to study turbulence imaging,” \$60k, PI: Ouyang 12/1/2014 – 8/31/2016.

AFOSR 2013 Young Investigator Research Award, (Airborne Compressive Sensing Topographic Lidar), \$360k, PI: Ouyang. 3/1/2013 – 10/30/2016.

DOE, “Unobtrusive Multi-static Serial LiDAR Imager (UMSLI) for Wide-area Surveillance & Identification of Marine Life at MHK Installations,” \$500k, PI: Dalgleish, Co-PI: Vuorenkoski, Ouyang. 10/1/14-9/30/16.

NOAA, “CIOERT AUV Enhancement (application of Hybrid AUV-ROV platform, equipped with benthic imaging and near-bottom carbonate chemistry sensors, to mesophotic coral reef ecosystem studies),” \$250k, PI: Dalgleish, co-PI: Pomponi, Vuorenkoski, Jiang, and Ouyang. 7/1/2014- 6/30/2015.

ONR, “Feasibility Study of Compressive Sensing Underwater Imaging Lidar,” \$103k, PI: Ouyang, Co-PIs: Dalgleish, Vuorenkoski. 7/1/2012 – 12/31/2013.

Battelle Memorial Institute, “Bluefin Glider Research and Operations Center (Cost Amendment II: hardware modification to Spray gliders to accommodate more powerful processors, more sensor channels, and acoustic modems),” \$90k, PI: Dalgleish, Co-PIs: Ouyang, Vuorenkoski. 1/1/2013 – 9/30/2013.

BP GCRO via Liquid Robotics, “Gulf of Mexico Natural Oil Seepage Monitoring and Research (Cost Amendment III),” \$80k, PI: Dalgleish, Co-PI: Ouyang, Vuorenkoski. 1/1/2013 – 9/30/2013.

Battelle Memorial Institute, “Bluefin Glider Research & Operations Center,” \$150k, PI: Dalgleish, Co-PIs: Ouyang, Vuorenkoski - 04/25/2011 – 04/24/2012.

BP GCRO via Liquid Robotics, “Gulf of Mexico Natural Oil Seepage Monitoring and Research (Cost Amendment II),” \$70k, PI: Dalgleish, Co-PI: Ouyang, Vuorenkoski. 6/1/2012 – 12/15/2012.

BP GCRO via Liquid Robotics, “Gulf of Mexico Natural Oil Seepage Monitoring and Research (Cost Amendment I),” \$70k, PI: Dalgleish, Co-PI: Ouyang, Vuorenkoski. 8/15/2012 – 12/15/2012.

BP GCRO via Liquid Robotics, “Gulf of Mexico Natural Oil Seepage Monitoring and Research (Cost channels and acoustic modems),” \$65k, PI: Dalgleish, Co-PIs: Ouyang, Vuorenkoski. 3/1/2012 – 12/31/2012.

ONR, “Underwater Laser Imaging and Communications Research – Phase II),” \$2M, PI: Dalgleish, Co-PI: Ouyang, Vuorenkoski. 7/1/2010 - 1/31/2013.

Internal Grants

HBOI Foundation, “CRANE-Based Fluorescence-Enhanced Benthic Habitat Monitoring,” \$169k, PI: Ouyang. 7/1/2026 – 6/30/2027.

HBOI Foundation, “Advancing Technologies for IMTA System Management and Products,” \$236k, PI: Wills, Co-PIs: Jiang, Ajemian, Laramore, Chaves-Fonnegra, Davis, Ouyang, Masterson, Wei, Conkling, McHenry. 7/1/2024 – 6/30/2026.

HBOI Foundation, “Dolphin Behavioral Response to Anthropogenic Activity in Offshore and Coastal Waters,” \$296k, PI: Cherubin, Co-PIs: O Corry-Crowe, Ouyang and Zhuang. 7/1/2023 – 6/30/2025.

HBOI Foundation, “Advancing Technologies for IMTA System Management and Products FY24,” \$ 325k, PI: Wills, Co-PIs: Hanisak, Laramore, McHenry, Ouyang, Page-Karjian, Masterson, Jiang, Pomponi, Davis, Beckler, Mejri. 7/1/2023 – 6/30/2025.

HBOI Foundation, “Dolphin Population Assessment on the Florida Shelf and Habitat Characterization,” \$266k, PI: Cherubin, Co-PIs: O Corry-Crowe and Ouyang. 7/1/2022 – 6/30/2024.

HBOI Foundation, “Monitoring fish larval behavior in hypoxic conditions in the IRL using TCSPC-LiDAR,” \$143k, PI: Ouyang, Co-PIs: Sahar, Barbarite, Lopez. 7/1/2022 – 6/30/2024.

HBOI Foundation, “Non-intrusive Monitoring of Activity and Biometrics of Marine Broodfish,” \$35k, PI: Ouyang, Co-PIs: Wills. 7/1/2016 – 12/31/2017.

FAU ISENSE, “Prototyping a Compressive Line Sensing Hyperspectral Imaging Sensor.” \$20K, PI: Ouyang, Co-PI: Twardowski. 12/1/2016- 11/30/2017.

HBOI Foundation, “Cost effective and non-intrusive larval fish enumeration and growth monitoring using light field rendering (LFR) camera and active learning based classifier,” \$35k, PI: Ouyang, Co-PI: Wills, Dalglish, Vuorenkoski. 10/1/2014 – 03/31/2016.

HBOI Foundation, “Detection & characterization of fish, spawning aggregations using a novel, persistent presence robotic approach,” \$323k, PI: Dalglish, co-PI: Chérubin, Vuorenkoski, Ouyang, and Davis. 02/01/2015 - 03/31/2016.

Synergistic Activities

- Guest Editor, Remote Sensing, Special Issue on Advancement in Undersea Remote Sensing.
- SPIE Defense + Commercial Sensing Big Data VI: Learning, Analytics, and Applications Conference co-chair, 2024.
- SPIE Defense + Commercial Sensing Big Data V: Learning, Analytics, and Applications Conference co-chair, 2023.
- SPIE Defense + Commercial Sensing Big Data IV: Learning, Analytics, and Applications Conference co-chair, 2022.
- SPIE Defense + Commercial Sensing Big Data III: Learning, Analytics, and Applications Conference co-chair, 2021.
- SPIE Defense + Commercial Sensing Big Data II: Learning, Analytics, and Applications Conference program committee member, 2020.
- Underwater Imaging and Vision session co-chair, IEEE/MTS Oceans 2015.
- Invited talk at IEEE/MTS Oceans 2015 Workshop on Latest Advancements in Underwater Imaging Technology, “Compressive Line Sensing Underwater Imaging System,” 2015.
- Invited talk at Naval Research Lab, “Targeting Next Generation Compact UUV/UAV Imaging Systems: Compressive Sensing, Light Field Rendering and Post Processing,” Dec. 16, 2013.
- Invited talk at UF ECE CNEL Seminars, “Compressive Sensing Underwater Laser Serial Imaging System,” Feb. 6, 2013.
- Underwater Imaging and Vision session co-chair, IEEE/MTS Oceans 2012.