# Bing Ouyang

## Professional Preparation

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| 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

2017-Present, Associate Research Professor, Harbor Branch Oceanographic Institute at Florida Atlantic University

2013-2017, Assistant Research Professor, Harbor Branch Oceanographic Institute at Florida Atlantic University

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 Naval Research Lab.
- 2013 AFOSR Young Investigator Research Program.

## Publications:

*Patents*
- 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., Dalgleish, F., Caimi, F., Gong, C., Dalgleish, A., "Compressive Line Sensing Imaging using Individually Addressable Laser Diode Array," US Patent 20170299722A1, 10/8/2019.
- Ouyang, B., Wills P., Dalgleish, F., Dalgleish, A., "Systems and Methods for Larval Fish Enumeration and Growth Monitoring", 10,426,143, 10/1/2019.
- Ouyang, B., Dalgleish F., Dalgleish, A., "MEMS microdisplay optical imaging and sensor systems for underwater and other scattering environments," US Patent 9,019,503, 4/28/2015.
- Dalgleish F., Dalgleish, 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.

*Book and Book Chapters*

- Ahmad F., Markopoulos P.anos and Ouyang B. eds, "SPIE Conference Volume Big Data III: Learning, Analytics, and Applications", SPIE, 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, 2013.

*Peer-reviewed Journal Papers*

- Den Ouden J. C., Wills S. P., Lopez L., Sanderson J., Ouyang B., "Evolution of the Hybrid Aerial Underwater Robotic System (HAUCS) for Aquaculture: Sensor Payload and Extension Development," Vehicles 2022, 4(2), 390-408.

- 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, Vol 11 No 1 (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, doi: 10.1109/JIOT.2021.3068571.

- 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 MA, Vuorenkoski AK, Dalgleish FR, 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., Vuorenkoski A., Alsenas G., and Principe J., "Marine Animal Classification with Correntropy Loss Based Multi-view Learning," IEEE Journal of Oceanic Engineering, vol. 44, no. 4, pp. 1116-1129, 2019.

- Y Li, R Stankovic, B Ouyang, T Su, "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., 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., 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. https://doi.org/10.1520/ACEM20160072, 2017.

- Ouyang B., Hou W., Gong C., Dalgleish F. R., Caimi F. M., Vuorenkoski A. K., Nootz G., Xiao X., 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.

- 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.

*Patent Applications*
- Ouyang B., Wills P., Den Ouden C. and Lopes L., "Platform-Independent Mobile Environmental Sensing System", U.S. Patent Application 63/311,937, Feb. 18, 2022.
- Ouyang B., Su T. -C., Li Y., Thomas J. "Energy Efficient Underwater Inflatable Array using Hydrofoam and Water Swelling Material," US Patent Application 20210284303, Sept. 16, 2021.
- Ouyang B., Su T. -C., Li Y., Thomas J. "Chemical reaction activated expanding material for underwater deployable structures," US Patent Application 201862743219P, Oct. 19, 2018.

*Conference Papers*
- Fairman W., Wills S. P., Hanisak D., Ouyang B., "Pseudorandom encoded-light for evaluating biomass (PEEB): a robust COTS macroalgal biomass sensor for the integrated multi-trophic aquaculture (IMTA) system," SPIE Big Data IV: Learning, Analytics, and Applications, 2022 (Accepted).
- Davis A., Mukherjee S., Wills S. P., Ouyang B., "Path Planning Algorithms for Robotic Aquaculture Monitoring," SPIE Big Data IV: Learning, Analytics, and Applications, 2022 (Accepted).
- Tang G., Li Y., Wills S. P., Hanisak D., Ouyang B., "Development of a macroalgal biomass sensor for an integrated multi-trophic aquaculture (IMTA) system," SPIE Big Data III: Learning, Analytics, and Applications 11730, 117300E, 2021.
- Li Y., Schaff C. A., Sklivanitis G., Ouyang B., Su T. -C. and Ahmad F., "Comprehensive Study of Underwater Inflatable Co-prime Sonar Array (UICSA)," OCEANS 2021: San Diego – Porto, 2021, pp. 1-6, doi: 10.23919/OCEANS44145.2021.9706080.
- Mukherjee S., Ouyang B., Namuduri K., Wills S. P., "Multi-Agent Systems (MAS) related data analytics in the Hybrid Aerial Underwater Robotic System (HAUCS)," SPIE Big Data III: Learning, Analytics, and Applications 11730, 117300E, 2021.
- Estrada D., Dalgleish F., Den Ouden C., Ouyang B., "Multi-frame GAN-based machine learning image restoration for degraded visual environments," SPIE Big Data III: Learning, Analytics, and Applications 11730, 117300E, 2021.
- Schaff C. A., Li Y., Ouyang B., Den Ouden C., Zhou T., Ahmad F., "Development of a low-cost subsea datalogger for passive phased sonar arrays," SPIE Big Data III: Learning, Analytics, and Applications 11730, 117300E, 2021.
- Den Ouden C., Estrada D., Dalgleish F., Ouyang B., "Evaluation of a technique to simulate LiDAR image datasets for training a machine learning-based image enhancement algorithm," SPIE Big Data III: Learning, Analytics, and Applications 11730, 117300E, 2021.
- Tang G., Li Y., Wills S. P., Hanisak D., Ouyang B., "Development of a macroalgal biomass sensor for an integrated multi-trophic aquaculture (IMTA) system," SPIE Big Data III: Learning, Analytics, and Applications 11730, 117300E, 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, 2020, pp. 1-6, doi: 10.1109/VTC2020-Fall49728.2020.9348740.
- Li Y., Bavar S., Schaff A., Ouyang B., Su T. -C., Zhou T. and Ahmad F., "Design and Implementation of Underwater Inflatable Co-prime Sonar Array (UICSA)," Global Oceans 2020: Singapore – U.S. Gulf Coast, 2020, pp. 1-6, doi: 10.1109/IEEECONF38699.2020.9389089.
- Li Y., Thomas J., Ouyang B., Su, T., and Ahmad F., "Numerical Study of Underwater Inflatable Co-Prime Sonar Array (UICSA)," Proceedings of the ASME 2020 39th International Conference on Ocean, Offshore and Arctic Engineering. Vol 4: Pipelines, Risers, and Subsea Systems, 2020.

- Michieletto L., Ouyang B., Wills P. S., "Investigation of water quality using transfer learning, phased LSTM and correntropy loss," Proc. SPIE 11395, 2020.
- Estrada D., Lee S., Dalgleish F., 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., Sanborn G., "A Compressive Sensing Based Hyperspectral Ocean Color Imager for CubeSats," 2020 Ocean Science Meeting.
- Yu X., Ma Y., Farrington S., Reed J., Ouyang B., Principe J. C., "Fast segmentation for large and sparsely labeled coral images," International Joint Conference on Neural Networks (IJCNN), 2019.
- Li Y., Thomas J., Ouyang B., Su T. -C., Zhou T. and Ahmad F., "Design and Experimental Study of Underwater Inflatable Co-prime Sonar Array (UICSA)," OCEANS 2019 MTS/IEEE SEATTLE, 2019, pp. 1-7, doi: 10.23919/OCEANS40490.2019.8962544.
- Sklivanitis G., Li Y., Tountas K., Ouyang B., Thomas J., Su T.-C., Pados D., "Design and Experimental Evaluation of an Active Underwater Inflatable Co-prime Sonar Array (UICSA),", OCEANS 2019 MTS/IEEE SEATTLE, Seattle, WA, USA, 2019, pp. 1-5, doi: 10.23919/OCEANS40490.2019.8962866.
- Yu X., Ouyang B.., Principe J. C., Farrington S., Reed J., Li Y., "Weakly supervised learning of point-level annotation for coral image segmentation," OCEANS 2019 MTS/IEEE SEATTLE, Seattle, WA, USA, 2019, pp. 1-7, doi: 10.23919/OCEANS40490.2019.8962759.
- 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., Dalgleish F., Dalgleish A., Ahmad F., "Compressing two ways: the initial study of an underwater inflatable co-prime sonar array (UICSA)," Proc. SPIE 10658, 2018.
- Ouyang, B, Hou, W., Cui G., Dalgleish. 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., Dalgleish. 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., Dalgleish 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., Dalgleish. 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., Ouyang B., "Information Point Set Registration for Shape Recognition," ICASPP, 2016.
- Cao Z., Principe J. C., Ouyang B., Dalgleish 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., Ouyang B., "Group Feature Selection in Image Classification with Multiple Kernel Learning," IJCNN 2015.
- Ouyang B., Hou, W., Dalgleish F. R., Caimi F. M., Vuorenkoski A. K., 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., Dalgleish 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., Dalgleish, 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., Dalgleish F. R., Nootz G., Vuorenkoski A. K., "3D imaging using compressive line sensing serial imaging system", SPIE Proceedings Vol. 9109, 2014.
- Ouyang B., Caimi F. M., Dalgleish F. R., Vuorenkoski A. K., Hou, W., "Experimental studies of the compressive line sensing underwater serial imaging system," SPIE Proceedings Vol. 9111, 2014.
- Ouyang B., Dalgleish F. R., Giddings, T., Caimi F. M., Nootz G., Vuorenkoski A. K., (Invited talk) "Compressive Line Sensing Underwater Imaging System," 11th Intl. Mine Warfare Tech. Symp., 2014.
- Ouyang B., Caimi F. M., Dalgleish 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., Dalgleish F. R., Vuorenkoski A. K., Caimi F. M., and Britton W., "Compressive line sensing underwater imaging system," SPIE Proceedings Vol. 8717, 2013.

- Ouyang B., Dalgleish 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., Dalgleish F. R., Caimi F. M., Giddings T. E., Shirron J. J., Vuorenkoski A. K., "Image enhancement for an underwater pulsed laser line scan imaging system," Proc. SPIE 8372, 2012.
- Ouyang B., Dalgleish 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., Dalgleish 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*
- L3Harris-FFT, "Algorithm for novel individually addressable laser array illuminator and a parallel time-correlated single-photon counting (TCSPC) receiver array-based computational imaging lidar system in the degraded visual environment," $50K, PI: Ouyang. (3/1/2022 – 12/31/2022).
- L3Harris-FFT, "Algorithm for novel individually addressable laser array illuminator and a parallel time-correlated single-photon counting (TCSPC) receiver array-based computational imaging lidar system in the degraded visual environment," $45K, PI: Ouyang. (5/1/2021 – 12/31/2021).
- 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 – 2/28/2023.
- 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).
- NOAA CIOERT Year 10, "Perception Action Cycle-based Automatic Coral Classification for Underwater Survey Image," $100K, PI: Ouyang, Co-PIs: Reed, Principe. 7/1/2018 – 6/30/2019
- Boston Engineering (Navy STTR Phase I), "Robot Operating System (ROS) Multi-nodal Object Determination Sensing (MODS)," $80K, PI: Ouyang, Co-PIs: Dalgleish, Dhanak. 9/1/2017 – 1/30/2018.

- NOAA CIOERT Year 9, "Perception Action Cycle-based Automatic Coral Classification for Underwater Survey Image," $100K, PI: Ouyang, Co-PIs: Reed, Principe. 7/1/2017 – 6/30/2018.
- DOE, "Technical Performance and Cost Optimization of Unobtrusive Multi-static Serial LiDAR Imager (UMSLI) for Wide-area Surveillance," $900K, PI: Dalgleish (Vuorenkoski from 2018), Co-PI: Vuorenkoski (Dalgleish from 2018), Ouyang. 3/1/17-10/31/20.
- NOAA CIOERT Year 8, "Perception Action Cycle-based Automatic Coral Classification for Underwater Survey Image," $100K, PI: Ouyang, Co-PIs: Reed, Principe. 7/1/2016 – 6/30/2017
- 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*
- FAU ISENSE, "Prototyping a Compressive Line Sensing Hyperspectral Imaging Sensor." $20K, PI: Ouyang, Co-PI: Twardowski. 12/1/2016- 11/30/2017.
- HBOI Foundation, "Non-intrusive Monitoring of Activity and Biometrics of Marine Broodfish," $35k, PI: Ouyang, Co-PIs: Wills. 7/1/2016 – 12/31/2017.
- 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, Dalgleish, Vuorenkoski. 10/1/2014 – 03/31/2016.
- HBOI Foundation, "Detection & characterization of fish, spawning aggregations using a novel, persistent presence robotic approach," $323k, PI: Dalgleish, co-PI: Chérubin, Vuorenkoski, Ouyang, and Davis. 02/01/2015 - 03/31/2016.

**Synergistic Activities**

- Guest Editor, MDPI Remote Sensing, Special Issue on Advancement in Undersea Remote Sensing.
- 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.
- IGARSS 2021: Scientific Committee member and Session Chair for Lidar Data Processing and Applications.
- SPIE Defense + Commercial Sensing Big Data II: Learning, Analytics, and Applications Conference program committee member, 2020.
- Underwater Imaging and Vision session co-chair, Ocean's 15.
- 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, Ocean's 12.