

## YIN LU (JULIE) YOUNG

Professor of Naval Architecture & Marine Engineering

Professor of Mechanical Engineering

Professor of Aerospace Engineering

University of Michigan

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### **RESEARCH INTERESTS & EXPERTISE:**

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*Numerical and physical modeling of multiphase flow & composite structures with focus on:*

- Smart/adaptive marine propulsors and turbines
- Multi-functional composite marine structures
- Smart energy conversion systems

### **EDUCATION**

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- **The University of Texas at Austin, Ph.D., May 2002.**  
Dissertation: *Numerical Modeling of Supercavitating and Surface-Piercing Propellers.*
- **The University of Texas at Austin, M.S. in Engineering, May 1998.**  
Thesis: *Analytical Investigation of Stress Induced-Anisotropy in Soil Surrounding a Borehole for Use in SASW Testing.*  
Other Research: *Dynamic Vehicular Impact of Highway Noise Barriers.*
- **University of Southern California, B.S. in Civil Engineering, May 1996.**  
Research: *Shear-Band Failure of Soil Particles.*

### **PROFESSIONAL POSITIONS**

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- **Professor**, Department of Aerospace Engineering, University of Michigan at Ann Arbor, 2019 – present
- **Professor**, Department of Mechanical Engineering, University of Michigan at Ann Arbor, 2019 – present
- **Professor**, Department of Naval Architecture and Marine Engineering, University of Michigan at Ann Arbor, 2015 – present
- **Director**, Marine Hydrodynamics Laboratory, University of Michigan at Ann Arbor, 2017 – 2020
- **Associate Professor**, Department of Naval Architecture and Marine Engineering, University of Michigan at Ann Arbor, 2009 – 2015
- **Civil Engineer Leader**, CSC, 2009 – 2013.
- **Visiting Associate Research Scientist**, Department of Naval Architecture and Marine Engineering, University of Michigan at Ann Arbor, 2009
- **Senior ASEE-ONR Summer Faculty Fellow**, Naval Surface Warfare Center, Carderock Division, Bethesda, MD, 2009
- **Assistant Professor**, Department of Civil and Environmental Engineering, Princeton University, 2002 – 2009.
- **UPS Visiting Professor**, Department of Civil and Environmental Engineering, Stanford University, 2008.

### **HONORS, AWARDS, RECOGNITIONS**

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- Invited Speaker, Floating Futures Seminar, Netherlands Embassy in Washington, D.C., USA, 10/21/2019.

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- Invited Plenary Lecture Speaker, NATO-AVT-307: Symposium on Separated Flow: Prediction, Measurement and Assessment for Air and Sea Vehicles, Trondheim, Norway, 10/7/2019-10/9/2019.
  - NAE Invitee, Global Grand Challenges Summit, organized by the US National Academy of Engineering, UK Royal Academy of Engineering, and the Chinese Academy of Engineering, London, UK, 09/16/2019-09/18/19.
  - Invited Member, Committee on the Update of National Naval Responsibility for Naval Engineering (B0164) managed by the Transportation Research Board (TRB) Executive Committee under the National Academy of Sciences, 03/13/2018 to 06/30/2019.
  - Invited Keynote Lecture, A.Yücel ODABAŞI Colloquium Series: 3rd International Meeting - Progress in Propeller Cavitation and its Consequences: Experimental and Computational Methods for Predictions in conjunction with the inauguration of ITU Cavitation Tunnel (ITU-CAT), Istanbul, Turkey, Nov. 2018.
  - Invited Keynote Lecture, 17<sup>th</sup> International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, 2017.
  - Invited Keynote Lecture, 9<sup>th</sup> Australasian Congress on Applied Mechanics (ACAM 9), 2017.
  - Invited Keynote Lecture, 16<sup>th</sup> International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, 2016.
  - Visiting professor, Ecole Centrale Nantes-France, 2016.
  - UTAS Visiting Fellow, University of Tasmania, 2016.
  - Network for Earthquake Engineering Simulation (NEES) Outstanding Contributor Award, Tsunami category for "Development of Performance-Based Tsunami Engineering" for joint work with Ronald Riggs (University of Hawaii), Kwok Fai Cheung (University of Hawaii), Ian Robertson (University of Hawaii), and Solomon Yim (Oregon State University), 2014.
  - SNAME representative, United States National Committee on Theoretical and Applied Mechanics (USNC/TAM), 2009-2014.
  - Naval Architecture and Marine Engineering Department Achievement Award, University of Michigan, 2013.
  - US Delegate, Global Grand Challenges Summit, organized by the US National Academy of Engineering, UK Royal Academy of Engineering, and the Chinese Academy of Engineering, London, UK, 2013.
  - Outstanding Faculty Award, Quarterdeck Honorary Society, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2012.
  - Advisor, Best Undergraduate Student Paper, 2012 ASNE Day.
  - ONR Global Invitee, Global Futures Forum: Low Carbon Technologies Workshop, Glasgow, April 27-28, 2011
  - Co-Chair, Ocean Engineering Session, 2011 China-America Frontiers of Engineering Symposium (CAFOE), National Academy of Engineering, San Diego, CA, March 28-30, 2011.
  - Offshore Mechanics and Arctic Engineering (OMAE) 2009 Best Paper of Ocean Renewable Energy Symposium, 2009.
  - ONR-ASEE Senior Faculty Fellow, 2009.
  - UPS Visiting Professorship, Stanford University, 2008.
  - Princeton Engineering Commendation List for Outstanding Teaching, 2008.
  - ONR Young Investigator Award, 2005.
  - Rheinstein School of Eng. and App. Sci. Junior Faculty Award, Princeton University, 2005.

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## RESEARCH FUNDING

1. Data-Model Fusion for Naval Platforms and Systems, PI-Matthew Collect, Co-PIs: David Singer, Kevin Maki, Jim McCoy, James Gose.

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2. RDT&E for Polymer Kelp MSVOT, 12/17/2019-10/31/2019, PI-Young, Co-PI-James Gose, \$302,115.
  3. Maritime Transport and Resource Utilization, University of Michigan College of Engineering's Clusters & Themes Program, 2019, PI-Young, Young's allocation=\$75,000.
  4. Efficient Modeling of Ship Maneuvering in Seaway, ONR Code 331, 12/1/2018-11/30/2021, PI-Young, Young's allocation=\$300,000.
  5. Advanced Naval Platform Analysis and Design, ONR Code 331, 8/8/2018-8/7/2023, PI-Maki, Co-PIs: David Singer, Matthew Collect, and Yin Lu Young. \$4,000,000. Young's allocation=\$1,000,004.
  6. A Novel Amphibious Platform with Stowable Cycloidal Propellers, ONR Code 330, 4/2/2018-3/31/2019, UofM PI-Young (collaborative effort with Texas A&M, PI-Benedict), Young's allocation=\$80,000 (Young's portion)
  7. Maritime Vessel Stopping Occlusion Studies, Alion Science & Technology, 5/14/2018-10/31/2019, PI-Young, Co-PI-James Gose & Kevin Maki, \$370,000. Young's allocation=\$50,001+\$50,001+\$90,000=\$190,002.
  8. High-Fidelity Hydrostructural Optimization of Multi-Component Surface Vessels, ONR Code 331, 6/1/2018-5/31/2021, PI-Young, Young's allocation=\$520,871.
  9. High-Fidelity Modeling and Optimization of Multi-Functional Lightweight Marine Structures, ONR Code 331, 5/31/2016-04/30/2020, PI-Young, Young's allocation=\$450,010.
  10. Inverse Modeling for In Situ Hydrodynamic Load Identification of Flexible Marine Propulsors, ONR Code 331, 4/15/2016-9/30/2018, PI-Young, Young's allocation=\$264,040.
  11. A Novel Non-Intrusive Targeted Tumor Therapy using Micro-Shock Waves, University of Michigan, 12/1/2016-3/31/2018, PI-Young, Co-PIs-Ellen Arruda and Sofia Merajver, Young's allocation=\$60,000.
  12. Modeling and Optimization of Integrated Ship-Propulsion Systems, ONR Code 331, 8/1/2013-7/31/2016, PI-Young, Young's allocation=\$306,446.
  13. Modeling and Control of the Dynamic Response and Stability of Flexible Marine Propulsors, ONR Code 331, 1/11/2013-04/30/2016, PI-Young, Young's allocation=\$275,329.
  14. Hydroelastic Response of Adaptive Seals and Advanced Naval Platforms, ONR Code 333, 7/15/2011-8/31/2016, PI-Young, Young's allocation=\$652,117.
  15. Energy Saving Marine Propulsion Systems, GCRC-SOP, Korean National Research Foundation, 9/7/2011-2/28/2014, Director of GCRC-ROP – Ho Hwan Chun (Pusan National University). Young's allocation = \$220,965.
  16. Analysis and Optimization of 3-D Supercavitating Hydrofoils, ONR Code 333, 7/1/2011-12/31/2013, PI-Young, Young's allocation = \$74,505+\$24,992(extension)=\$99,497.
  17. Creation of the Naval Engineering Education Consortium (NEEC), Naval Surface Warfare Center, Carderock Division, 4/1/2010-9/30/2020, PI-Ceccio (University of Michigan), UM Sponsor PI - Armin Troesch, UM PI with specified effort - Matthew Collette, David Dowling, Ryan Eustice, Brian Gilchrist, Marc Perlin, David Singer, Jing Sun, Yin Lu Young. Young's projects and Young's shares under NEEC:
    - a. Total Ship and Powering Systems Architecture to Support High Energy Weapons, 12/1/2010-8/29/2012, PI-Werner (Webb Institute), CoPI-Young. Young's share: \$84,459 + \$74,625=\$159,084.
    - b. Design and Analysis of a Large-Scale, All-Electric Naval Combatant, 12/1/2012-9/29/2013, PI-Werner (Webb Institute), CoPI-Young. Young's share: \$75,000.
    - c. Design of a Morphing and Variable Pitch Propeller Experiment, 9/11/2013-9/30/2013, PI-Steve Ceccio (UofM), CoPIs – Dowling & Young. Young's share: \$20,000.
    - d. Feasibility Study of Morphing and Variable Pitch Hydrofoils, 9/12/2013-9/12/2014, PI-Young, Young's share: \$125,000.
    - e. Exploring Morphing Control Surfaces for Vibration Control, 9/15/2014-9/15/2015,

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PI – Young, Young’s share: \$125,000.

18. Transient Hydrodynamic and Hydroelastic Response of Waterjet Propulsion Systems, ONR Code 334, 1/1/2010-12/31/2012, PI-Young, Young’s allocation = \$351,968.
19. High-Fidelity Fluid-Structure Interaction Modeling of Composite Marine Rotors, ONR Code 331, 9/1/2009-12/31/2012, PI-Young, Young’s allocation = \$286,201.
20. Transient Response and Failure Mechanisms of Composite Marine Structures, ONR Code 331, 10/01/09-12/31/2011, PI-Young, Young’s allocation = \$156,535.
21. Transient Flow-Induced Soil Failures of Coastal Structures, awarded, NSF-CMMI division, 9/1/2007-8/31/2010, PI-Young (changed PI to Prevost on 9/1/2009 when Young left Princeton), Co-PIs – Jean Prevost (Princeton University) and Jim Smith (Princeton University). \$397,124. Young’s allocation = \$150,000.
22. High-fidelity Fluid-Structure Interaction Modeling of Composite Rotors, ONR Code 331, 10/1/2008-6/30/2009, PI-Young (Princeton University), Young’s allocation = \$230,205.
23. Transient Response and Failure Mechanisms of Advanced Composite Materials, ONR Code 331, 06/01/08-09/01/2009, PI-Young (Princeton University), Young’s allocation = \$277,935.
24. Shock and Crashback Loading on Composite Propellers, ONR Code 331, 2/1/2007-1/31/2008, PI-Young (Princeton University), Young’s allocation = \$70,000.
25. Collaborative Research: SGER-Enhanced Sediment Transport Due to Transient Wave Loads, NSF-CMMI division, 10/1/2006-9/30/2007, PI-Young (Princeton University), Co-PI – Michelle Teng (University of Hawaii at Manoa). \$70,000, Young’s allocation = \$38,652.
26. NEESR-SG: Development of Performance Based Tsunami Engineering, PBTE, NSF-CMS division, 10/1/2005-9/30/2009, PI-Riggs (University of Hawaii at Manoa), Co-PIs: Ian Robertson (University of Hawaii at Manoa), Solomon Yim (Oregon State University), Yin Lu Young (Princeton University). \$1,300,000, Young’s allocation = \$188,949.
27. Design Tools for the Sea-Base-Connector Transformable Craft (T-Craft) Prototype Demonstrator, ONR BAA 05-20, 9/1/2007-9/30/2008, PI-Troesch (University of Michigan), Young’s allocation = \$30,000 as subcontractor.
28. Hydrodynamically Tailored Composite Propulsor Systems, ONR-YIP, 6/1/2005-5/31/2008, PI-Young (Princeton University), Young’s allocation = \$299,997.

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## **SERVICE TO SCIENTIFIC COMMUNITIES**

1. Member, Seakeeping Committee, 29<sup>th</sup> International Towing Tank Conference (ITTC), 2017-2020.
2. Member, ITTC-ISSC (International Ship and Offshore Structures Congress) Working Group, 2017-2020.
3. Member, Committee on the Update of National Naval Responsibility for Naval Engineering (B0164), 03/13/18-06/30/19.
4. Invited Presenter, NATO-AVT-307: Symposium on Separated Flow: Prediction, Measurement and Assessment for Air and Sea Vehicles, 2019.
5. Member, International Site Review Team, The Science Foundation Ireland Centre for Marine Renewable Energy Research, Cork, Ireland, February, 2019
6. Co-Editor, special issue on “Hydrodynamics of Marine Propulsion,” Proceeding of the Institution of Mechanical Engineering, Part C: Journal of Mechanical Engineering Science, 2019.
7. Member, International Scientific Committee, 5th International Symposium on Marine Propulsors (SMP’19), Rome, Italy, May 2019.
8. Independent Member, Ph.D. Committee, Ir. P.J. Maljaars, TU Delft, Delft, Netherlands, March 2019.
9. Contributor, NATO-AVT-237: Benchmarks in Multidisciplinary Optimization and Design for Affordable Military Vehicles, 2018.
10. Associate Editor, Journal of Ship Research, 2018-2019.
11. Associate Editor, Journal of Offshore, Mechanics, Artic, and Ocean Engineering, 2012-2018.

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12. Editorial Board Member, Acta Mechanica Sinica, 2011-present.
  13. Member, International Site Review Team, The Science Foundation Ireland Centre for Marine Renewable Energy Research, Cork, Ireland, October, 2017
  14. Chair, Propulsor Hydrodynamics Session, 32nd Symposium on Naval Hydrodynamics, Hamburg, Germany, Aug. 5-10, 2018.
  15. Member, International Scientific Committee, 9th Australasian Congress on Applied Mechanics (ACAM 9), Sydney, Australia, November 27-29, 2017.
  16. Member, International Scientific Committee, 5<sup>th</sup> International Symposium on Marine Propulsors (SMP'17), Helsinki, Finland, June 12-15, 2017.
  17. Chair, Fluid-Structure Interactions Session, 31th Symposium on Naval Hydrodynamics, Monterey, CA, Sept. 11-16, 2016.
  18. Member, Scientific & Organizing Committee and Session Chair for Marine Propulsors, 16th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, April 10-15, 2016.
  19. Member, International Scientific Committee, 4th International Symposium on Marine Propulsors (SMP'15) & 2nd International Workshop on Cavitating Propeller Performance, Austin, TX, May 31-June 4, 2015.
  20. Chair, Propulsor Hydrodynamics Session, 30th Symposium on Naval Hydrodynamics, Hobart, Tasmania, Australia, Nov. 2-7, 2014.
  21. Lead organizer and chair, Mini-symposium on Modeling and Optimization of Fluid-Structure Interaction Problems, 17th U.S. National Congress on Theoretical & Applied Mechanics, East Lansing, MI, June 15-20, 2014.
  22. SNAME Representative, the United States National Committee on Theoretical and Applied Mechanics (USNC/TAM), Nov. 1, 2009-Oct. 31, 2014.
  23. Presiding Officer, SNAME Annual Meeting & Expo, 2013.
  24. Lead Guest Editor, Special issue on "Marine propellers and current turbines: state-of-the-art and current challenges," International Journal of Rotating Machinery, 2011-2012.
  25. Co-Chair, Fluid-Structure Interactions (Pre-Nominated Session), 23rd International Congress of Theoretical and Applied Mechanics, ICTAM2012, Beijing, China, 2012.
  26. Invited speaker, 26th IAHR Symposium on Hydraulic Machinery and Systems, Beijing, China, August 19-23, 2012.
  27. Session Organizer and Session Chair, 2012 Ronald W. Yeung Honoring Symposium on Offshore and Ship Hydrodynamics – Fluid-Structure Interaction, 31th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Rio de Janeiro, Brazil, 2012.
  28. Member, SNAME Panel H-8 (Propulsor Hydrodynamics) Committee, 2005-present.
  29. Member, ASME Fluids Engineering Division Fluid Mechanics Committee, 2010-present.
  30. Member, ASCE 7 Tsunami Load Effects Committee, 2011.
  31. Member, ASME, ASNE, and SNAME.
  32. ONR Global Invitee, Global Futures Forum: Low Carbon Technologies Workshop, Glasgow, April 27-28, 2011
  33. Co-Chair, Ocean Engineering Session, 2011 China-America Frontiers of Engineering Symposium (CAFOE), National Academy of Engineering, San Diego, CA, March 28-30, 2011.
  34. Session Organizer, 2011 Ocean Engineering Symposium - Advanced Ship Hydromechanics and Marine Technology - I, 30th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Rotterdam, Netherlands, June 19-24, 2011.
  35. Chair, Propulsor Hydrodynamics Session, 26<sup>th</sup>, 27<sup>th</sup>, and 28<sup>th</sup> Symposium on Naval Hydrodynamics, 2006, 2008, & 2010.
  36. Organizer, 1st Workshop on Lifting Bodies, Ann Arbor, MI, July 28, 2010.
  37. Session Organizer and Chair, 2010 Ocean Engineering Symposium - Advanced Ship Hydromechanics and Marine Technology, 29th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Shanghai, China, June 6-11, 2010.

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38. Chair, 2009 Offshore Renewable Energy Symposium, 28th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Honolulu, HI, May 31-June 5, 2009.
  39. Invited panelist, NSF Review panels (BES and CMMI divisions), 2004-2009.
  40. Invited speaker, Workshop on “Energy, wind and water: algorithms for simulation, optimization and control”, New Zealand Institute for Mathematics & its Application (NZIMA), University of Auckland, New Zealand, Feb. 9-12, 2009.
  41. Invited speaker, 2nd Canada France Congress: Mini Symposium on Modeling Fluid-Structure Interaction in Naval Architecture, Montreal, Canada, 2008.
  42. Keynote Speaker, “Wave-Soil-Structure Interactions: Hurricane Katrina,” 3rd Conference for the International Congress of Chemistry and Environment, Kuwait City, Kuwait, 2007.
  43. Invited speaker, NSF NEES Workshop on Simulation Development, Chicago, US, 2007.
  44. Invited panelist, NSF sponsored 2007 Tsunami Sedimentology Seminar to improve the understanding of tsunami deposits and their role in hazard mitigation, San Juan Island, Washington, US, 2007.
  45. Invited presenter, NSF Sponsored International Workshop on Fundamentals of Coastal Effects of Tsunamis, Hilo, HI, 2006.
  46. Invited panelist, NSF/NOAA sponsored Tsunami Research Workshop to develop a strategic plan for tsunami research in the US, Oregon, US, 2006.
  47. Invited panelist, NEES Tsunami Facility Usage and Tsunami Modeling Workshop, Oregon, US, 2006.

#### **REVIEWER FOR SCHOLARLY JOURNALS**

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J. of Fluid Mechanics; Physics of Fluids; Applied Mechanics Review, J. of Applied Physics; J. of Applied Mechanics; J. of Fluids and Structures; IEEE Journal of Oceanic Engineering; Composite Science & Technology, Composite Structures; J. of Computational Mechanics; Renewable Energy; Int. J. of Num. Methods in Engineering, Int. J. for Numerical Methods in Fluids; Proc. of the Royal Society A; J. of Ship Research; Ocean Eng.; J. of Fluids Eng.; J. of Waterway, Port, Coastal, and Ocean Eng.; Marine Technology; J. of Offshore Mechanics and Arctic Eng.

#### **MEDIA/PUBLIC RELATIONS ANNOUNCEMENTS**

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- Online participation in iMechanica, web of mechanics and mechanicians. I also wrote a featured article for the February 2011 issue of the Journal Club titled “Challenges of Fluid-Structure Interaction Problems Involving Incompressible, Viscous Flow.” (<http://imechanica.org/node/9733>)
- YouTube video of my invited seminar at Stanford University, 04/16/2009, titled “Renewable Ocean Energy Conversion Systems.” (<http://www.youtube.com/watch?v=Uv3NWabzb6A>)
- SIAM News, July/August 2009: Featured in article titled “*Power from the Oceans*” by Dana Mackenzie.
- Marine Propulsion Magazine, Feb/March 2009: Featured in article titled “*Next Generation Propellers Promise Wide Speed Optima*” by Wendy Laursen.
- Video: Engineering Our Future, Princeton University, [www.princeton.edu](http://www.princeton.edu), Jan-Feb, 2009 – *This video showcased cutting edge research from three of Princeton University’s engineering professors, including my research on tsunami impact on coastlines and coastal regions.*
- Photo Show: SEAS Café, Princeton University, April 4-May 11, 2007 -- Lessons from Hurricane Katrina: The Effect of Storm Surge on Engineered Structures -- by Y.L. Young, I. Robertson, S. Yim, R. Riggs. *Also featured in the Daily News, Science Daily, LiveScience.com, CNet.com, The Daily Princetonian.*

#### **PUBLICATIONS:**

## **A. REFEREED ARCHIVAL JOURNAL PUBLICATIONS**

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- 1) S.M. Smith, J.A. Venning, B.W. Pearce, Y.L. Young, and P.A. Brandner, "The Influence of Fluid-structure Interaction on Cloud Cavitation about a Stiff Hydrofoil (Part 1)," *Journal of Fluid Mechanics*, in press, 2020.
- 2) S.M. Smith, J.A. Venning, B.W. Pearce, Y.L. Young, and P.A. Brandner, "The Influence of Fluid-structure Interaction on Cloud Cavitation about a Flexible Hydrofoil (Part 2)," *Journal of Fluid Mechanics*, in press, 2020.
- 3) F. Bou-Rabee, Y.L. Young, E.A. Okal, "Evidence of a Large Prehistoric Earthquake in Kuwait and Implications for the Seismic Vulnerability of the Arabian Gulf Countries," *Natural Hazards*, accepted, 2020.
- 4) D.T. Akcabay and Y.L. Young, "Material anisotropy and sweep effects on the hydroelastic response of lifting surfaces," *Composite Structures*, Vol. 242, 112140, 2020.
- 5) Y.L. Young, T. Wright, H. Yoon, and C.M. Harwood, "Dynamic Hydroelastic Response of a Surface-Piercing Strut in Waves and Ventilated Flows," *Journal of Fluids and Structures*, Vol. 94, 102899, 2020.
- 6) C.M. Harwood, M. Felli, M. Falchi, N. Garg, S.L. Ceccio, and Y.L. Young, "The Hydroelastic Response of a Surface-Piercing Hydrofoil in Multi-phase Flows: Part II – Modal Parameters and Generalized Fluid Forces," *Journal of Fluid Mechanics*, Vol. 884, A3, 2020.
- 7) C.M. Harwood, M. Felli, M. Falchi, S.L. Ceccio, and Y.L. Young, "The Hydroelastic Response of a Surface-Piercing Hydrofoil in Multi-phase Flows: Part I – Passive Hydroelasticity," *Journal of Fluid Mechanics*, Vol. 881, pp. 313-364, 2019.
- 8) Y. Liao, J.R.R.A. Martins, Y.L. Young, "Sweep and Anisotropy Effects on the Viscous Hydroelastic Response of Composite Hydrofoils," *Composite Structures*, Vol. 230, No. 111471, 2019.
- 9) D.T. Akcabay and Y.L. Young, "Steady and Dynamic Hydroelastic Behavior of Composite Lifting Surfaces," *Composite Structures*, Vol. 227, No. 111240, 2019.
- 10) T. Wright, C. Harwood, H. Yoon, and Y.L. Young, "Dynamic Hydroelastic Response of a Surface-Piercing Hydrofoil in Waves," *Transactions*, in press.
- 11) I.M. Di Napoli, Y.L. Young, S.L. Ceccio, and C.M. Harwood, "Design and Benchmarking of a Low-Cost Shape Sensing Spar for in-situ Measurement of Deflections in Slender Lifting Surfaces in Complex Multiphase Flows," *Smart Materials and Structures*, v28: 055038, 2019.
- 12) Y. Liao, N. Garg, J.R.R.A. Martins, Y.L. Young, "Viscous Fluid Structure Interaction Response of Composite Hydrofoils," *Composite Structures*, Vol. 212, pp. 571-585, 2019.
- 13) N. Garg, B.W. Pearce, P.A. Brandner, A.W. Phillips, J.R.R.A. Martins, and Y.L. Young "Experimental Investigation of a Hydrofoil Designed via Hydrostructural Optimization," *Journal of Fluids and Structures*, Vol. 84, pp. 243-262, 2019.
- 14) S.M. Smith, J.A. Venning, D.R. Giosio, P.A. Brandner, B.W. Pearce, Y.L. Young, "Cloud Cavitation Behavior on a Hydrofoil due to Fluid-Structure Interaction," *Journal of Fluids Engineering*, Vol. 141, 041105, 2019.
- 15) B. Knight, R. Freda, Y.L. Young, and K. Maki, "Coupling Numerical Methods and Analytical Models for Ducted Turbines to Evaluate Designs," *Journal of Marine Science and Engineering*, Vol. 6, No. 43, 2018.
- 16) J.C. Ward, C.M. Harwood, and Y.L. Young, "Inverse Method for Hydrodynamic Load Reconstruction on a Flexible Surface-Piercing Hydrofoil in Multi-Phase Flow," *Journal of Fluids and Structures*, Vol. 77, pp. 58-79, 2018.
- 17) Y.L. Young, N. Garg, P.A. Brandner, B.W. Pearce, D. Butler, D. Clarke, and A.W. Philips, "Load-Dependent Bend-Twist Coupling Effects on the Steady-state Hydroelastic Response of Composite Hydrofoils," *Composite Structures*, Vol. 189, pp. 398-418, 2018.
- 18) D.T. Akcabay, J. Xiao, Y.L. Young, "Numerical Stabilities of Loosely Coupled Methods for Robust Modeling of Lightweight and Flexible Structures in Incompressible and Viscous Flows," *Acta Mechanica Sinica*, DOI 10.1007/s10409-017-0696-1, 2017.

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- 19) N. Garg, G. Kenway, J. Martins, Y.L. Young, "High-fidelity Multipoint Hydrostructural Optimization of a 3-D Hydrofoil," *Journal of Fluids and Structures*, Vol. 71, pp. 15–39, 2017.
  - 20) E.J. Chae, D.T. Akcabay, Y.L. Young, "Influence of Flow-induced Bend-twist Coupling on the Natural Vibration Response of Flexible Hydrofoils," *Journal of Fluids and Structures*, Vol. 69, pp. 323-340, 2017.
  - 21) Y.L. Young, C.M. Harwood, F.M. Montero, J.C. Ward, and S.L. Ceccio, "Ventilation of Lifting Bodies: Review of the Physics and Discussion of Scaling Effects," *Applied Mechanics Reviews*, Vol. 69, 010801, 2017.
  - 22) Y.L. Young, M.R. Motley, R. Barber, E.J. Chae, and N.G. Garg, "Adaptive Composite Marine Propulsors and Turbines: Progress and Challenges," *Applied Mechanics Reviews*, 68, 062001, 2016.
  - 23) E.J. Chae, D.A. Akcabay, A. Lelong, J.A. Astolfi, and Y.L. Young, "Numerical and Experimental Investigation of Natural Flow-induced Vibrations of Flexible Hydrofoils," *Physics of Fluids*, Vol. 28, 075102, 2016.
  - 24) C.M. Harwood, Y.L. Young, S.L. Ceccio, "Ventilated Cavities on a Surface-Piercing Hydrofoil at Moderate Froude Numbers: Cavity Formation, Elimination, and Stability," *Journal of Fluid Mechanics*, Vol. 800, pp. 5-56, 2016.
  - 25) Y. Mao and Y.L. Young, "Influence of Skew on the Added Mass and Damping Characteristics of Marine Propellers," *Ocean Engineering*, Vol. 121, pp. 437-452, 2016.
  - 26) R.J. Caverly, C. Li, E.J. Chae, J.R. Forbes, and Y.L. Young, "Modeling and Control of Flow-induced Vibrations of a Flexible Hydrofoil in Viscous Flow," *Smart Materials and Structures*, Vol. 25, No. 6, No. 065007, 2016.
  - 27) X. Wang, S. Alben, C. Li and Y.L. Young, "Stability and Scaling of Piezoelectric Flags," *Physics of Fluids*, Vol. 28, 023601, 2016.
  - 28) N. Garg, G.K.W. Kenway, Z. Lyu, J.R.R.A. Martins, and Y.L. Young, "High-fidelity Hydrodynamic Shape Optimization of a 3-D Hydrofoil," *Journal of Ship Research*, Vol. 59, No. 4, pp. 1-18, 2015.
  - 29) D.T. Akcabay and Y.L. Young, "Parametric Excitations and Lock-in of Flexible Hydrofoils in Two-Phase Flows," *Journal of Fluids and Structures*, Vol. 57, pp. 344-356, 2015.
  - 30) M.R. Motley, B.R. Savander, and Y.L. Young, "Influence of Spatially Varying Flow on the Dynamic Response of a Waterjet Inside an SES," *International Journal of Rotating Machinery*, <http://dx.doi.org/10.1155/2014/275916>, 257916, 2014.
  - 31) D.T. Akcabay E.J. Chae, Y.L. Young, A. Ducoin, and J.A. Astolfi, "Cavity-Induced Vibration of Flexible Hydrofoils," *Journals of Fluids and Structures*, Vol. 49, pp. 463-484, 2014.
  - 32) D.T. Akcabay and Y.L. Young, "Influence of Cavitation on the Hydroelastic Stability of Hydrofoils," *Journals of Fluids and Structures*, Vol. 49, pp. 170-185, 2014.
  - 33) C.M. Harwood and Y.L. Young, "A Physics-Based Gap-Flow Model for Potential Flow Solvers," *Ocean Engineering*, Vol. 88, pp. 578-587, 2014.
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## **B. REFEREED CONFERENCE PROCEEDINGS**

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- 1) Y. Liao, S. He, J.R.R.A. Martins, Y.L. Young, "Hydrostructural Optimization of Generic Composite Hydrofoils," The AIAA SciTech Forum, Orlando, Florida, Jan 6-10, 2020.
- 2) Y.L. Young, "Hydroelastic Response of Lifting Bodies in Separated Flows," NATO-AVT-307: Symposium on Separated Flow: Prediction, Measurement and Assessment for Air and Sea Vehicles, Trondheim, Norway, Oct. 7-9, 2019.
- 3) D.T. Akcabay and Y.L. Young, "Parametric Analysis of the Dynamic Elastic Response of Composite Hydrofoils and Airfoils," Sixth International Symposium on Marine Propulsors, SMP'19, Rome, Italy, May 26-30<sup>th</sup>, 2019.
- 4) A. Damley-Strnad, C. Harwood, and Y.L. Young, "Hydrodynamic Performance and Hysteresis Response of Hydrofoils in Ventilated Flows," Sixth International Symposium on Marine Propulsors, SMP'19, Rome, Italy, May 26-30<sup>th</sup>, 2019.
- 5) A.W. Phillips, R. Cairns, C. Davis, P. Norman, P.A. Brandner, B.W. Pearce, and Y.L. Young, "Predicting the Wetted Vibration Behavior of Flexible Composite Hydrofoils," 22<sup>nd</sup> International Conference on Composite materials (ICCM22), Melbourne, Australia, Aug. 11-16, 2019.
- 6) T. Wright, C. Harwood, H. Yoon, and Y.L. Young, "Dynamic Hydroelastic Response of a Surface-Piercing Hydrofoil in Waves," SNAME Maritime Convention 2018, Providence, RI, Oct. 24-27, 2018.
- 7) T. Chen, Y. Wang, J. Bundoff, H. Yoon, Y.L. Young, and J.W. Gose, "Understanding Spatial and Temporal Evolution of Wind-Generated Wave Spectra," SNAME Maritime Convention 2018, Providence, RI, Oct. 24-27, 2018.
- 8) Y.L. Young, H. Yoon, T. Wright, and C. Harwood, "The Effect of Waves on Ventilation on the Dynamic Response of a Surface-Piercing Hydrofoil," 32<sup>nd</sup> Symposium on Naval Hydrodynamics, Hamburg, Germany, Aug. 5-10, 2018.
- 9) Y.L. Young, N. Garg, P.A. Brandner, B.W. Pearce, D. Butler, D. Clarke, A.W. Phillips, "Material Bend-Twist Coupling Effects on Cavitating Response of Composite Hydrofoils," 10<sup>th</sup> International Cavitation Symposium (CAV2018), Baltimore, MD, May 14-16, 2018.
- 10) S.M. Smith, J.A. Venning, P.A. Brandner, B.W. Pearce, D. R. Giosio, and Y.L. Young, "The Influence of Fluid-structure Interaction on Cloud Cavitation about a Hydrofoil," 10<sup>th</sup> International Cavitation Symposium (CAV2018), Baltimore, MD, May 14-16, 2018.
- 11) Y.L. Young, C. Harwood, J. Ward, "Sensing and Control of Flexible Hydrodynamic Lifting Bodies in Multiphase Flows," SPIE Smart Structures + Nondestructive Evaluations (SS18), Denver, CO, March 4-8, 2018.
- 12) D.T. Akcabay and Y.L. Young, "Influence of Material Anisotropy on the Hydroelastic Response of Composite Plates in Water," SPIE Smart Structures + Nondestructive Evaluations, Denver, CO, March 4-8, 2018.
- 13) E.J. Chae and Y.L. Young, "Parametric Studies of the Passive Hydroelastic Responses and Stability Boundaries of Flexible Hydrodynamic Lifting Bodies," SPIE Active and Passive Smart Structures and Integrated Systems, Denver, CO, March 4-8, 2018.
- 14) S.M. Smith, J.A. Venning, D. R. Giosio, P.A. Brandner, B.W. Pearce, and Y.L. Young, "Cloud Cavitation Behaviour on a Hydrofoil due to Fluid-Structure Interaction," Proceedings of the 17<sup>th</sup> International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Maui, HI, Dec. 2017.
- 15) C. Harwood, J. Ward, M. Felli, M. Falchi, S. Ceccio, and Y.L. Young, "Experimental Measurements and Inverse Modeling of the Dynamic Loads and Vibration Characteristics of a Surface-Piercing Hydrofoil," Fifth International Symposium on Marine Propulsors, Espoo, Finland, June 2017.
- 16) B.W. Pearce, P.A. Brandner, N. Garg, Y.L. Young, A.W. Phillips, and D.B. Clarke, "The influence of bend-twist coupling on the dynamic response of cavitating composite hydrofoils," Fifth International Symposium on Marine Propulsors, Espoo, Finland, June 2017.

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- 17) A.W. Phillips, R. Cairns, C. Davis, P. Norman, P.A. Brandner, B.W. Pearce and Y.L. Young, "Effect of material design parameters on the forced vibration response of composite hydrofoils in air and in water," Fifth International Symposium on Marine Propulsors, Espoo, Finland, June 2017.
  - 18) B.G. Knight, R. Freda, Y.L. Young, and K.J. Maki, "Evaluation of Different Numerical and Analytical Strategies to Analyze a Ducted Marine Current Turbine," Fifth International Symposium on Marine Propulsors, Espoo, Finland, June 2017.
  - 19) C.M. Harwood, J.C. Ward, Y.L. Young, and S.L. Ceccio, "Experimental Investigation of the Hydro-Elastic Response of a Surface-Piercing Hydrofoil in Multi-Phase Flow," Proceedings of the 31st Symposium on Naval Hydrodynamics, Monterey, CA, Sept. 11-16, 2016.
  - 20) J.C. Ward, C.M. Harwood, and Y.L. Young, "Inverse Method for Determination of the In Situ Hydrodynamic Load Distribution in Multi-Phase Flow," Proceedings of the 31st Symposium on Naval Hydrodynamics, Monterey, CA, Sept. 11-16, 2016.
  - 21) C.M. Harwood, A.J. Stankovich, Y.L. Young, and S.L. Ceccio, "Combined Experimental and Numerical Study of the Free Vibration of Surface-Piercing Struts," Proceedings of the International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, April 10-15, 2016.
  - 22) N. Garg, G.K.W. Kenway, J.R.R.A. Martins and Y. L. Young, "High-fidelity Hydrostructural Optimization of a 3-D Hydrofoil," Proceedings of the International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, April 10-15, 2016.
  - 23) R. Kennedy, D. Helfers, and Y.L. Young, "A Reduced-Order Model for an Oscillating Hydrofoil near the Free Surface," 13th International Conference on Fast Sea Transportation, Washington, D.C., Sept. 1-4, 2015.
  - 24) E.J. Chae and Y.L. Young, "Flow-Induced Vibration Characteristics of Lightweight Lifting Bodies in Water," 13th International Conference on Fast Sea Transportation, Washington, D.C., Sept. 1-4, 2015.
  - 25) A.J. Costa, D. Kowalyshyn, K. Tuil, Y.L. Young, W. Milewski, D. Kring, "Influence of Free Surface on Hydrodynamic Lift Using a High-Order Boundary Element Method," 13th International Conference on Fast Sea Transportation, Washington, D.C., Sept. 1-4, 2015.
  - 26) N. Garg, Z. Lyu, T. Dhert, J.R.R. Martins, Y.L. Young, "High-fidelity Hydrodynamic Shape Optimization of a 3-D Morphing Hydrofoil," Fourth International Symposium on Marine Propulsors, Austin, TX, May 31-June 4, 2015.
  - 27) C. Li, E.J. Chae, Y.L. Young, X. Wang, and S. Alben, "Passive Vibration Control of Flexible Hydrofoils Using Piezoelectric Material," Fourth International Symposium on Marine Propulsors, Austin, TX, May 31-June 4, 2015.
  - 28) D.T. Akcabay, Y.L. Young, A. Lelong, and J.A. Astolfi, "Cavity-Induced Vibrations of Flexible Hydrofoils and their Susceptibility to Lock-in and Parametric Excitations," 2014 Symposium on Naval Hydrodynamics, Hobart, Tasmania, Australia, November 2-7, 2014.
  - 29) C.M. Harwood, K.A. Brucker, F.M. Montero, Y.L. Young, and S. Ceccio, "Experimental and Numerical Investigation of Ventilation Inception and Washout Mechanisms of a Surface-Piercing Hydrofoil," 2014 Symposium on Naval Hydrodynamics, Hobart, Tasmania, Australia, November 2-7, 2014.
  - 30) A. Ducoin and Y.L. Young, "Scaling of the Hydroelastic Response of Flexible Lifting Bodies in Transitional and Turbulent Flows," 32nd International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2013), Nantes, France, June 9-14, 2013.
  - 31) Y.L. Young and S. Brizzolara, "Numerical and Physical Investigation of a Surface-Piercing Hydrofoil," 3rd International Symposium on Marine Propulsors (SMP'13), Launceston, Tasmania, Australia, May 5-8, 2013.
  - 32) D.L. Witt, M.R. Motley, D.P. Helfers, Y.L. Young, "Analysis of Controllable Pitch Propellers for an All-Electric Naval Combatant," 2012 SNAME Annual Meeting Student Papers, Oct. 24-26, 2012, Providence, RI.

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- 33) C. Harwood, A. Ducoin, and Y.L. Young, "Influence of Gap Flow on the Hydrodynamic Response of a Cantilevered Hydrofoil," 2012 Propeller and Shafting Symposium, Sept. 11-12, 2012, Norfolk, VA.
  - 34) D.T. Akcabay, A. Ducoin, E.J. Chae, and Y.L. Young, "Transient Hydroelastic Reponse of a Flexible Hydrofoil in Subcavitating and Cavitating Flows," 2012 Symposium on Naval Hydrodynamics, August 26-31, 2012, Gothenburg, Sweden.
  - 35) M.R. Kramer and Y.L. Young, "Fluid-Structure Interaction Response of Planar Surface Effect Ship Seals," 2012 Symposium on Naval Hydrodynamics, August 26-31, 2012, Gothenburg, Sweden.
  - 36) R.W. Miller, S.E. Kim, B. Rhee, and Y.L. Young, "Unsteady Fluid Structure Interaction Response of a Marine Propeller in Crashback," 2012 Symposium on Naval Hydrodynamics, August 26-31, 2012, Gothenburg, Sweden.
  - 37) B. Huang, A. Ducoin, and Y.L. Young, "Evaluation of Cavitation Models for Prediction of Transient Cavitating Flows around a Stationary and a Pitching Hydrofoil," 8TH International Symposium on Cavitation (CAV2012), August 13-16, 2012, Singapore.
  - 38) M.R. Motley, Y.L. Young, and B.R. Savander, "Transient Hydroelastic Analysis of Pump Performance of an SES-Waterjet System," 31th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2012), Rio de Janeiro, Brazil, June 10-15, 2012.
  - 39) S. Brizzolara and Y.L. Young, "Physical and Theoretical Modeling of Surface-Piercing Hydrofoils for a High-Speed Unmanned Surface Vessel," 31th International Conference on Ocean, Offshore and Arctic Eng. (OMAE 2012), Rio de Janeiro, Brazil, June 10-15, 2012.
  - 40) Y.L. Young, B.R. Savander, M.R. Kramer, "Numerical Investigation of the Impact of SES-Waterjet Interactions and Flow Non-uniformity on Pump Performance," 11th International Conference on Fast Sea Transportation, Honolulu, HI, Sept. 26-29, 2011.
  - 41) Y.L. Young and M.R. Motley, "Influence of Material and Loading Uncertainties on the Hydroelastic Performance of Advanced Material Propellers," 2nd International Symposium on Marine Propulsors, SMP'11, Hamburg, Germany, June 15-17, 2011.
  - 42) A. Ducoin and Y.L. Young, "Hydroelastic Response and Stability of a Hydrofoil in Viscous Flow," 2nd International Symposium on Marine Propulsors, SMP'11, Hamburg, Germany, June 15-17, 2011.
  - 43) E. Bachynski, Y.L. Young, and R.W. Yeung, "Analysis and Dynamic Scaling of Tethered Wave-Energy Converters in Irregular Waves, 30th International Conference on Ocean, Offshore and Arctic Engineering (OMAE 2011), Rotterdam, Netherlands, June 19-24, 2011.
  - 44) M.R. Motley and Y.L. Young "Performance-Based Design of Adaptive Composite Marine Propellers," 28th Symposium on Naval Hydrodynamics, Pasadena, CA, Sept. 12-17, 2010.
  - 45) Z. Liu and Y.L. Young, "Shock-Structure Interaction Considering Pressure Precursor," 28th Symposium on Naval Hydrodynamics, Pasadena, CA, Sept. 12-17, 2010.
  - 46) M.R. Kramer, M.R. Motley, Y.L. Young, "Probabilistic-Based Design of Waterjet Propulsors for Surface Effect Ships," 29th American Towing Tank Conference, Annapolis, MD, Aug. 11-13, 2010.
  - 47) Z. Liu and Y.L. Young, "Transient Response of Submerged Elastic Structures Subject to Underwater Shock Waves," ASME 2010: 7th International Symposium on Fluid-Structure Interactions, Flow-Sound Interactions, and Flow-Induced Vibration & Noise, Montreal, Canada, Aug. 1-5, 2010, paper no. FEDSM-ICNMM2010-31006.
  - 48) E. Bachynski, Y.L. Young, and R.W. Yeung, "Performance of a Tethered Point Absorber in Regular and Irregular Waves," ASME 2010: 7th International Symposium on Fluid-Structure Interactions, Flow-Sound Interactions, and Flow-Induced Vibration & Noise, Montreal, Canada, Aug. 1-5, 2010, paper no. FEDSM-ICNMM2010-30545.
  - 49) M.R. Motley and Y.L. Young, "Reliability-Based Global Design of Self-Adaptive Marine Rotors," ASME 2010: 7th International Symposium on Fluid-Structure Interactions, Flow-Sound Interactions, and Flow-Induced Vibration & Noise, Montreal, Canada, Aug. 1-5, 2010,

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- paper no. FEDSM-ICNMM2010-30414.
- 50) Ducoin, Y.L. Young, and J.F. Sigrist, "Hydroelastic Response of a Flexible Hydrofoil in Turbulent, Cavitating Flow" ASME 2010: 7th International Symposium on Fluid-Structure Interactions, Flow-Sound Interactions, and Flow-Induced Vibration & Noise, Montreal, Canada, Aug. 1-5, 2010, paper no. FEDSM-ICNMM2010-30310.
  - 51) Y.L. Young, "Analysis and Design of Advanced Marine Propulsors," 29th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Shanghai, China, June 6-June 11, 2010, paper no. OMAE2010-21180.
  - 52) Y.L. Young and M.R. Motley, "Rate-Dependent Hydroelastic Response of Self-Adaptive Composite Propellers in Fully Wetted and Cavitating Flows," CAV2009: 7th International Symposium on Cavitation (CAV2009), Ann Arbor, MI, Aug. 16-22, 2009.
  - 53) Y.L. Young and B.R. Savander, "Transient Hydroelastic Analysis of Surface-Piercing Propellers," CAV2009: 7th International Symposium on Cavitation (CAV2009), Ann Arbor, MI, Aug. 16-22, 2009.
  - 54) Y.L. Young, M.R. Motley, and R.W. Yeung, "Hydroelastic Response of Wind or Tidal Turbines," 28th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Honolulu, HI, May 31-June 5, 2009. (Best Paper Award)
  - 55) M.R. Motley, Y.L. Young, and J. Baker, "Reliability-Based Design and Optimization of Self-Twisting Composite Marine Rotors," 28th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Honolulu, HI, May 31-June 5, 2009.
  - 56) H. Xiao, Y.L. Young, and J.H. Prevost, "Dynamic Interactions between the Vadose and Phreatic Zones during Breaking Solitary Wave Runup and Drawdown over a Fine Sand Beach," 28th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), Honolulu, HI, May 31-June 5, 2009.
  - 57) Y.L. Young, Z. Liu, and M.R. Motley, "Influence of Material Anisotropy on the Hydroelastic Behaviors of Composite marine Propellers," 27th Symposium on Naval Hydrodynamics, Seoul, Korea, Oct. 5-10, 2008.
  - 58) P.A. Chang, III, M. Elbert, Y.L. Young, Z. Liu, K. Mahesh, H. Jang, and ENS M. Shearer, "Propeller Forces and Structural Response due to Crashback," 27th Symposium on Naval Hydrodynamics, Seoul, Korea, Oct. 5-10, 2008.
  - 59) Z. Liu, Y.L. Young, M.R. Motley, and W.F. Xie\*\*, "Transient Response of Submerged Composite Structures Subject to Underwater Explosions," 27th Symposium on Naval Hydrodynamics, Seoul, Korea, Oct. 5-10, 2008.
  - 60) Y.L. Young and Z. Liu, "Hydroelastic Tailoring of Composite Naval Propulsors," 26th International Conference on Offshore Mechanics and Arctic Engineering (OMAE), San Diego, CA, June 10-15, 2007.
  - 61) Y.L. Young, T.J. Michael, M. Seaver, and S.T. Trickey, "Numerical and Experimental Investigations of Composite Marine Propellers," 26th Symposium on Naval Hydrodynamics, Rome, Italy, Sept. 17-22, 2006.
  - 62) Y.L. Young, "Hydroelastic Response of Composite Marine Propellers," SNAME 2006 Propeller and Shafting Symposium, Williamsburg, VA, Sept. 12-13, 2006.
  - 63) Y.L. Young and Y. Shen, "A Numerical Tool for the Design/Analysis of Dual-Cavitating Propellers," ISROMAC-11: 11th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, Feb. 2006.
  - 64) M.A. Millan\*\*, Y.L. Young, J.H. Prevost, "3D Effects on the Seismic Response of Dam-Reservoir Systems," CDRM Monograph #4 Wind Storm and Storm Surge, ASCE, in press, 2010. Also published as Proceedings of US-Bangladesh Workshop on Innovation in Windstorm & Storm Surge Mitigation, Dhaka, Bangladesh, Dec. 19-21, 2005.
  - 65) Y.L. Young, "Hydroelastic Modeling of Surface-Piercing Propellers," 25th Symposium on Naval Hydrodynamics, St. John's, Newfoundland and Labrador, Canada, Aug. 2004.
  - 66) Y.L. Young and S.A. Kinnas, "Fluid and Structural Modeling of Cavitating Propeller Flows,"

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- CAV2003: 5th International Symposium on Cavitation, Osaka, Japan, Nov. 2003.
- 67) Y.L. Young and S.A. Kinnas, "Numerical Analysis of Surface-Piercing Propellers," SNAME 2003 Propeller and Shafting Symposium, Virginia Beach, VA, 2003.
  - 68) Y.L. Young and S.A. Kinnas, "A BEM Technique for the Modeling of Supercavitating and Surface-Piercing Propeller Flows," 24th Symposium on Naval Hydrodynamics, Fukuoka, Japan, July 2002.
  - 69) Y.L. Young and S.A. Kinnas, "Application of BEM in the Modeling of Supercavitating and Surface-Piercing Propeller Flows," IABEM 2002 Symposium, Austin, TX, May 2002.
  - 70) S.A. Kinnas, H.S. Lee, and Y.L. Young, "Modeling of Unsteady Sheet Cavitation on Marine Propulsors," ISROMAC-9: 9th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, Feb. 2002.
  - 71) S.A. Kinnas, H.S. Lee, and Y.L. Young, "Boundary Element Techniques for the Prediction of Sheet and Developed Tip Vortex Cavitation," BeTeQ/IABEM-2001 Symposium of the International Association for Boundary Element Methods, New Brunswick, NJ, July 16-18, 2001.
  - 72) Y.L. Young and S.A. Kinnas, "Numerical Modeling of Supercavitating and Surface-Piercing Propeller Flows," CAV2001: 4th International Symposium on Cavitation, Los Angeles, CA, Jun. 2001.
  - 73) Y.L. Young and S.A. Kinnas, "Prediction of Unsteady Performance of Surface-Piercing Propellers," SNAME 2000 Propeller and Shafting Symposium, Virginia Beach, VA, Sep. 2000.
  - 74) Y.L. Young and S.A. Kinnas, "Modeling of Unsteady Sheet Cavities on Hydrofoils and Propellers," EM2000: 14th Engineering Mechanics Conference, Austin, TX, May 2000.
  - 75) S.A. Kinnas, J.K. Choi, H.S. Lee, and Y.L. Young, "Numerical Cavitation Tunnel," NCT'50 International Conference on Cavitation, New Castle, United Kingdom, Apr. 2000.

### **C. REFEREED CONFERENCE SUMMARIES/ABSTRACTS**

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- 1) M. Desai, R. Gokhale, A. Halder, M. Benedict, and Y.L. Young, "Exploring the Concept of Cycloidal Propeller Driven Underwater Vehicles," Engineering Research Symposium, University of Michigan, Ann Arbor, MI, November 8, 2019.
- 2) Y.L. Young, "Multi-functional Marine Structures: New Frontiers for Cavitating and Ventilating Flows?" **Keynote Lecture**, A.Yücel ODABAŞI Colloquium Series: 3rd International Meeting - Progress in Propeller Cavitation and its Consequences: Experimental and Computational Methods for Predictions in conjunction with the inauguration of ITU Cavitation Tunnel (ITU-CAT), Istanbul, Turkey, Nov. 2018.
- 3) Y.L. Young, "Challenges and Opportunities for Adaptive Composite Marine Structures," **Keynote Lecture**, Proceedings of the 17th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Maui, HI, Dec. 2017.
- 4) Y.L. Young and A. Phillips, "Challenges and Opportunities for Advanced Marine Structures," **Keynote Lecture**, 9th Australasian Congress on Applied Mechanics (ACAM9), Sydney, Australia, Nov. 27-29, 2017.
- 5) Y.L. Young, N. Garg, P.A. Brandner, B.W. Pearce, D. Butler, D. Clarke, and A.W. Phillips, "Vibration Characteristics and Cavitating Response of Composite Hydrofoils," Proceedings of the 17th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Maui, HI, Dec. 2017.
- 6) C. Harwood, Y.L. Young, M. Felli, M. Falchi, and S. Ceccio, "Scaling of Natural Ventilation and Vaporous Cavitation on a Surface-Piercing Hydrofoil," Proceedings of the 17th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Maui, HI, Dec. 2017.
- 7) Y.L. Young, "Scaling of the Dynamic Response and Failure Mechanisms of Composite Marine Propellers," Proceedings of the 16<sup>th</sup> International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, invited **Keynote Lecture**, Honolulu, HI, 2016.



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- 8) Y.L. Young, "Cavitating Response and Stability of Flexible Lifting Bodies," Proceedings of the 16<sup>th</sup> International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, 2016.
  - 9) N. Garg, G.K.W. Kenway, J.R.R. Martins, and Y.L. Young, "High-fidelity Hydrostructural Optimization of a 3-D Hydrofoil," Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, October 30, 2015.
  - 10) X. Wang, S. Alben, C. Li, and Y.L. Young, "Stability of Piezoelectric Flags," 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, November 22-24, 2015.
  - 11) D. Helfers, R. Kennedy, Y.L. Young, "A Reduced-Order Model for an Oscillating Hydrofoil with Large Angles of Attack and near the Free Surface," 13<sup>th</sup> US National Congress on Computational Mechanics, San Diego, CA, July 28-31, 2015.
  - 12) Y.L. Young, C. Li, E.J. Chae, "Analysis and Control of Flow-Induced Vibrations of Flexible Hydrofoils," 3rd Symposium on Fluid-Structure-Sound Interactions and Control, Perth, Western Australia, July 5-9, 2015.
  - 13) R.J. Caverly, J.R. Forbes, D.S. Bernstein, and Y.L. Young, "Modeling and Control of Flow-Induced Hydrofoil Vibrations," ASNE Day 2015, Arlington, VA, March 4-5, 2015.
  - 14) D. Kowalyshyn, A. Costa, and Y.L. Young, "Free Surface Interactions with a Hydrofoil," ASNE Day 2015, Arlington, VA, March 4-5, 2015.
  - 15) C.M. Harwood, Y.L. Young, and S.L. Ceccio, "Experimental Investigation of Atmospheric Ventilation on a Surface-Piercing Hydrofoil," Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, November 14, 2014.
  - 16) N. Garg, T. Groll, Y.L. Young, and J. Martins, "High-Fidelity Hydrodynamic Optimization of 3-D Morphing Hydrofoil," Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, November 14, 2014.
  - 17) E.J. Chae, D.T. Akcabay, and Y.L. Young, "Flow-Induced Vibration of Flexible Hydrofoils in Incompressible, Turbulent Flows," 67th Annual Meeting of the APS Division of Fluid Dynamics, November 23-25, 2014.
  - 18) C.M. Harwood, Y.L. Young, and S.L. Ceccio, "Ventilation Inception and Washout, Scaling, and Effects on Hydrodynamic Performance of a Surface Piercing Strut," 67th Annual Meeting of the APS Division of Fluid Dynamics, November 23-25, 2014.
  - 19) C.M. Harwood, F. M. Montero, A. Stankovich, Y.L. Young, and S. Ceccio "Experimental Investigation of Ventilation on Rigid and Flexible Surface Piercing Bodies," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI, June 15-20, 2014.
  - 20) D.T. Akcabay, E.J. Chae, A. Ducoin, A. Lelong, J.A. Astolfi, and Y.L. Young, "Dynamic Response and Stability of Flexible Hydrofoils in Multiphase Flows," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI, June 15-20, 2014.
  - 21) E.J. Chae, D.T. Akcabay, and Y.L. Young, "Influence of material, geometric, and flow parameters on the hydroelastic response and stability of flexible lifting bodies in water," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI, June 15-20, 2014.
  - 22) R. Kennedy, E.J. Chae, and Y.L. Young, "Scaling of the Dynamic Response and Stability of Flexible Lifting Bodies in Dense, Viscous Flow," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI, June 15-20, 2014.
  - 23) N. Garg, Z. Lyu, T. Groll, J. Martins, and Y.L. Young, "High-Fidelity Hydroelastic Optimization of 3-D Morphing Hydrofoil," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI, June 15-20, 2014.
  - 24) F.M. Montero, D.T. Akcabay, D. Piro, K.J. Maki, and Y.L. Young, "Time-Domain Simulations of the Dynamic Response of an Active Material Plate in Single Phase Flow," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI, June 15-20, 2014.
  - 25) A. Stankovich, C.M. Harwood, F. M. Montero, Y.L. Young, and S. Ceccio "Numerical and Experimental Analysis of the Added Mass and Resonance Frequency of a Partially Submerged Hydrofoil," 17th US National Congress of Theoretical and Applied Mechanics, Lansing, MI,

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June 15-20, 2014.

- 26) C.M. Harwood, F.M. Montero, Y.L. Young, and S. Ceccio, "Experimental Investigation of Ventilation of a Surface-Piercing Hydrofoil," American Physical Society 66th Annual DFD Meeting, Pittsburgh, Pennsylvania, Nov. 24-26, 2013.
- 27) F.M. Montero, C.M. Harwood, Y.L. Young, and S. Ceccio, "Influence of Scaling Effects in the Ventilation of Surface-Piercing Bodies," American Physical Society 66th Annual DFD Meeting, Pittsburgh, Pennsylvania, Nov. 24-26, 2013.
- 28) E.J. Chae, D.T. Akcabay, and Y.L. Young, "Influence of Fluid, Solid, and Geometric Parameters on the Fluid-Structure Interaction Response and Stability of Flexible Lifting Surfaces," American Physical Society 66th Annual DFD Meeting, Pittsburgh, Pennsylvania, Nov. 24-26, 2013.
- 29) D.T. Akcabay and Y.L. Young, "Understanding and Toward Controlling the Hydroelastic Response and Stability of Hydrofoils in Cavitating Flows," American Physical Society 66th Annual DFD Meeting, Pittsburgh, Pennsylvania, Nov. 24-26, 2013.
- 30) Y.L. Young and M.R. Motley, "Scaling of the Dynamic Response and Failure Mechanisms of Self-Adaptive Composite Rotors," 17th International Conference on Composite Structures (ICCS17), Porto, Portugal, June 17-21, 2013.
- 31) D. Witt and Y.L. Young, "Comparative Study of FPP vs. CPP for an All-Electric Naval Combatant," ASNE Day, 2013.
- 32) D. Helfers, D. Witt and Y.L. Young, "Selection of Power and Propulsion Systems for the Next Generation Naval Combatant," ASNE Day, 2013.
- 33) D.T. Akcabay\*\*, E.J. Chae, and Y.L. Young, "Unsteady Cavity Induced Vibrations of Flexible Hydrofoils," 65th Annual Meeting of APS Division of Fluid Dynamics, November 18-20, 2012, San Diego, CA, USA.
- 34) E.J. Chae, D.T. Akcabay, and Y.L. Young, "Numerical Simulation of the Dynamic FSI Response and Stability of a Flapping Foil in a Dense Fluid," 65th Annual Meeting of APS Division of Fluid Dynamics, November 18-20, 2012, San Diego, CA, USA.
- 35) D.T. Akcabay and Y.L. Young, "Flutter Instability of Cantilever Beams in Viscous Flow," 23rd International Congress of Theoretical and Applied Mechanics (ICTAM 2012), August 19-24, 2012, Beijing, China.
- 36) D. Witt, D. Helfers, and Y.L. Young, "Comparative Study of Power Generation and Energy Storage Modules for Support of High Energy Weapons," ASNE Day, 2012. (Best Student Paper Award).
- 37) Y.L. Young, A. Ducoin, and E.J. Chae, "Fluid-Structure Interaction Response and Stability of Flexible Hydrofoils in Cavitating Flow," 64th Annual Meeting of APS Division of Fluid Dynamics, November 20-22, 2011, Baltimore, MD, USA.
- 38) D.T. Akcabay and Y.L. Young, "Harvesting Energy via Fluttering Piezoelectric Beams in Viscous Flow," 64th Annual Meeting of APS Division of Fluid Dynamics, November 20-22, 2011, Baltimore, MD, USA.
- 39) Y.L. Young and M.R. Motley, "Influence of Uncertainties on the Reliability of Self-Adaptive Composite Rotor," 18th International Conference on Composite Materials, ICCM-18, Jeju Island, Korea, August 21-26, 2011.
- 40) M.R. Motley and Y.L. Young, "Influence of Uncertainties on the Response and Reliability of Self-adaptive Composite Rotors," 16th International Conference on Composite Structures - ICCS16, Porto, Portugal, June 28-30, 2011.
- 41) Y.L. Young, H. Xiao, J.H. Prevost, "Numerical and Physical Modeling of Near-Shore Wave-Soil Interactions," 16th US National Congress of Theoretical and Applied Mechanics, June 27-July 2, 2010.
- 42) Y.L. Young, J.H. Prevost, J.A. Smith, H. Xiao, S. Sanborn, M.L. Baeck, and N. Lin, "Numerical Modeling of Hurricanes and Storm Surges, Near-shore Wave-Soil Interactions, and Slope Instability Failures," 2009 NSF Engineering Research and Innovation Conference, Honolulu, Hawaii, June 22-25, 2009.

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- 43) Y.L. Young and H. Xiao, "Erosion and Liquefaction Failure of Coastal Sandy Slopes Caused by Breaking Solitary Wave Runup and Drawdown," NEES Seventh Annual Meeting: Seismic Mitigation in a Flat World, Honolulu, Hawaii, June 23-25, 2009.
  - 44) Y.L. Young, H. Xiao, and J.H. Prevost, "Transient Responses of Coastal Sandy Slopes during Extreme Wave Runups and Drawdowns," NEES Seventh Annual Meeting: Seismic Mitigation in a Flat World, Honolulu, Hawaii, June 23-25, 2009.
  - 45) Y.L. Young, H. Xiao, J. White, and R.I. Borja, "Can Tsunami Lead to Liquefaction Failure of Coastal Sandy Slopes," 14th World Conference on Earthquake Engineering, Beijing, China, Oct. 12-17, 2008.
  - 46) Y.L. Young and H. Xiao, "Enhanced Sediment Transport due to Wave-Soil Interactions," Proceedings of 2008 NSF Engineering Research and Innovation Conference, Knoxville, TE, January 8-10, 2008.
  - 47) H.R. Riggs, I.N. Robertson, K.F. Cheung, G. Pawlak, Y.L. Young, and S. Yim, "Experimental Simulation of Tsunami Hazards to Buildings and Bridges," Proceedings of 2008 NSF Engineering Research and Innovation Conference, Knoxville, TE, January 8-10, 2008.
  - 48) Y.L. Young, "Unsteady Hydroelastic Analysis of Self-Twisting Composite Propellers", American Towing Tank Conference, Ann Arbor, Michigan, August 9-10, 2007.
  - 49) I.N. Robertson, S. Yim, H.R. Riggs, and Y.L. Young, "Coastal Bridge Performance During Hurricane Katrina," 3rd International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa, Sept. 9-12, 2007.
  - 50) Y.L. Young, "Hydroelastic Behavior of Flexible Composite Propellers in Wake Inflow," 16th International Conference on Composite Materials, Kyoto, Japan, July 8-13, 2007.
  - 51) Z. Liu and Y.L. Young, "Utilization of Bending-Twisting Coupling in Self-Twisting Composite Propellers," 16th International Conference on Composite Materials, Kyoto, Japan, July 8-13, 2007.
  - 52) M.M. Plucinski, Y.L. Young, and Z. Liu, "Optimization of a Self-Twisting Composite Marine Propeller Using Genetic Algorithms," 16th International Conference on Composite Materials, Kyoto, Japan, July 8-13, 2007.
  - 53) W.F. Xie, Z. Liu, and Y.L. Young, "Numerical Investigation of Shock Impacts on Composite Marine Structures," 16th International Conference on Composite Materials, Kyoto, Japan, July 8-13, 2007.
  - 54) M.A. Millan, Y.L. Young, J.H. Prevost, "Seismic Induced Fluid-Structure-Interaction of Dam Intake Towers," Computational Methods in Structural Dynamics and Earthquake Engineering, Rethymno, Crete, Greece, June 13-15, 2007.
  - 55) W.F. Xie, Y.L. Young, T.G. Liu, and B.C. Khoo "A Ghost Fluid Method for Shock, Structure and Free Surface Interaction", 7th World Congress on Computational Mechanics, Los Angeles, CA, July 16-22, 2006.
  - 56) M.A. Millan, Y.L. Young, J.H. Prevost, "Effect of Reservoir Geometry and Vertical Contraction Joints in the Seismic Response of Dams," 1st European Conference on Earthquake Engineering and Seismology, Geneva, Switzerland, Sept. 3-8, 2006.
  - 57) S.A. Kinnas, Y.L. Young, H.S. Lee, H. Gu, and S. Natarajan, "Prediction of Cavitating Flow Around Single or Two-Component Propulsors, Ducted Propellers, and Rudders," RINA CFD 2003: CFD Technology in Ship Hydrodynamics conference, London, UK, Feb. 2003.
  - 58) S.A. Kinnas, E.M. Kosal, and Y.L. Young, "Computational Techniques for the Design and Analysis of Super-Cavitating Propellers," FAST99: 5th International Conference on Fast Sea Transportation, Seattle, Aug. 1999.
  - 59) S.A. Kinnas, J.K. Choi, E.M. Kosal, Y.L. Young, and H.S. Lee, "An Integrated Computational Technique for the Design of Propellers with Specified Constraints On Cavitation Extent and Hull Pressure Fluctuations," CFD'99 The International CFD Conference, Williamsburg, May 1999.
  - 60) Y.L. Young and S.A. Kinnas, "Numerical and Experimental Validation of a Cavitating Propeller BEM Code," 3rd ASME/JSME Joint Fluids Engineering Conference, San Francisco, Jul. 1999.

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#### **D. NON-REFEREED CONFERENCE SUMMARIES/ABSTRACTS**

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- 1) Y.L. Young, Y. Liao, E. Arruda, S. Merajver, "Targeted Tumor Therapy using Ultrasonic Shock Waves," MCubed Symposium, Ann Arbor, MI, Nov. 1, 2017.
- 2) D. Kowalyszyn, Y.L. Young, J. Forbes, A. Costa, and D. Kring, "Modeling and Control of Hydrofoil Response and Flow-induced Vibrations," NEEC Summer Meeting, Bethesda, MD, April 6-7, 2015.
- 3) C. Harwood, Y.L. Young, and S. Ceccio, "Hydrodynamic and Structural Response of Surface-Piercing Struts in Ventilated Flows," NEEC Summer Meeting, Bethesda, MD, April 6-7, 2015.
- 4) C. Harwood, A. Stankovich, F.M. Montero, Y.L. Young, S. Ceccio, "The Effects of Ventilation on the Hydrodynamic and Structural Response of Surface-Piercing Struts," NEEC Summer Meeting, 2014.
- 5) D. Helfers, R. Kennedy, Y.L. Young, "The Hydrodynamic Response of a Pitching Hydrofoil, NEEC Summer Meeting, 2014.
- 6) D. Witt, D. Helfers, Y.L. Young, "Comparative Study of Power Generation and Energy Storage Modules for Support of High Energy Weapons," NEEC Summer Meeting, 2012.
- 7) D. Witt, M. Nelson, Y.L. Young, "Fundamentals of Power and Propulsion Systems for All-Electric Warships to Support High Energy Weapons," NEEC Summer Meeting, 2011.
- 8) M. Nelson, M.R. Motley, Y.L. Young, "Integrated Design of Naval Propulsion System to Reduce Lifetime Fuel Consumption," NEEC Summer Meeting, 2011.
- 9) Y.L. Young and M. Gerritsen, "Marine Energy Technology: Riding the Current," SIAM Mini-symposium on Mathematical and Computational Challenges in Global Climate and Energy Processes, Washington, DC, Jan 5-8, 2009.
- 10) Y.L. Young, Z. Liu, M.R. Motley, and W.F. Xie, "Numerical Investigation of Shock and Blast Loads on Composite Marine Structures", 2nd Canada France Congress, Modeling Fluid-Structure Interaction in Naval Architecture Mini-symposium, Montreal, Canada, June 1-5, 2008.
- 11) H. Xiao and Y.L. Young, "Solitary Wave Runup on Movable Bed: Experimental and Numerical Investigations," NEES 6TH Annual Meeting: The Value of Earthquake Engineering Research, Portland, OR, June 18-20, 2008.
- 12) Z. Liu and Y.L. Young, "Design and Optimization of Self-Twisting Composite Propellers", 9th US National Congress on Computational Mechanics, San Francisco, CA, July 23-26, 2007.
- 13) Y.L. Young and Z. Liu, "Numerical Analysis of Self-Twisting Composite Propellers in Spatially Varying Wake", 9th US National Congress on Computational Mechanics, San Francisco, CA, July 23-26, 2007.
- 14) W.F. Xie, Z. Liu, and Y.L. Young, "Underwater Explosion Induced Fluid Structure Interaction with Cavitation", 9th US National Congress on Computational Mechanics, San Francisco, CA, July 23-26, 2007.
- 15) H. Xiao and Y.L. Young, "Modeling of Solitary Waves over a Movable Bed", 9th US National Congress on Computational Mechanics, San Francisco, CA, July 23-26, 2007.
- 16) Y.L. Young and H. Xiao, "Numerical and Experimental Investigations of Tsunami-Induced Sediment Transport," American Geophysics Union Joint Assembly, Acapulco, Mexico, May 22-25, 2007.
- 17) S. Piaskowy and Y.L. Young, "Coastal Flooding Induced by Surcharging Storm Sewer Systems at Low Elevations," American Geophysics Union Joint Assembly, Acapulco, Mexico, May 22-25, 2007.
- 18) R. Riggs, I. Robertson, S. Yim, and Y.L. Young, "Development of Performance Based Tsunami Engineering," NEES Training and Tsunami Eng. Workshop, Corvallis, OR, July 27-28, 2006.
- 19) Y.L. Young and S.A. Kinnas, "Numerical Modeling of High-Speed Propulsors," 24th Duisburg Colloquium on Ship and Ocean Technology, Duisburg, Germany, May 2003.

#### **E. PAPERS IN PROGRESS**

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- 1) Y. Liao, J.W. Gose, E.M. Arruda, A.P. Liu, S.D. Merajver, and Y.L. Young, “The effect of shock impulse on cell viability in vitro,” Cellular and Molecular Bioengineering, under review, 2020.
  - 2) M. Desai, R. Gokhale, A. Halder, M. Benedict and Y.L. Young, “Augmenting Maneuverability of UUVs with Cycloidal Propellers,” 33<sup>rd</sup> Symposium on Naval Hydrodynamics, Osaka, Japan, May 31-June 5, 2020, accepted.
  - 3) D. Helfers, R. Kennedy, A. Lelong, A. Astolfi, and Y.L. Young, “Unsteady Loads and Wake Structure of a Pitching Hydrofoil,” Ocean Engineering, under preparation 2019.

#### **F. GOVERNMENT, UNIVERSITY, OR INDUSTRIAL REPORTS**

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- 1) I.N. Robertson, L. Carden, S. Yim, Y.L. Young, K. Paczkowski, D. Witt\*, “Reconnaissance following the September 29, 2009 Tsunami in Samoa,” Research Report UHM/CEE/10-01, University of Hawaii at Manoa, January, 2010.
- 2) Y.L. Young and Z. Liu, “HE PROPCAV (Version 2.0), User’s Manual and Documentation,” Technical Report 08-1, Dept. of Civil & Environmental Engineering, Princeton University, February 2008.
- 3) Y.L. Young, “HE PROPCAV (Version 1.0), User’s Manual and Documentation,” Technical Report 05-1, Dept. of Civil & Environmental Engineering, Princeton University, April 2005.

#### **G. STUDENT DISSERTATIONS/THESIS**

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- 1) R. Gouveia, “Free Surface and Wave Effects on the Hydrodynamic Response of Lifting Surfaces.” M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2020.
- 2) M. Desai, “Using Cycloidal Propellers to Augment Maneuverability of UUVs.” M.S. Thesis, Dept. of Mechanical Engineering, University of Michigan, 2020.
- 3) T. Wright, “The Dynamic Hydroelastic Response of a Surface-Piercing Hydrofoil in Waves.” M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2018.
- 4) N. Garg, “High-Fidelity Hydrostructural Design Optimization of Lifting Surfaces.” Ph.D. Dissertation, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2017.
- 5) C.M. Harwood, “The Hydrodynamic and Hydroelastic Responses of Rigid and Flexible Surface-Piercing Hydrofoils in Multi-Phase Flows.” Ph.D. Dissertation, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2016.
- 6) E.J. Chae, “Dynamic Response and Stability of Flexible Hydrofoils in Incompressible and Viscous Flow.” Ph.D. Dissertation, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2015.
- 7) Rory Kennedy, “Dynamic Response of Pitching Hydrofoils near the Free Surface.” M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2014.
- 8) D. Helfers, “Numerical Investigation of the Dynamic Response of Pitching Hydrofoils,” M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2014.
- 9) M. Kramer, “Numerical Investigation of the Steady-State Interaction Between Surface Effect Ship Seals, Air Cushion, Free-Surface Waves, and Vessel Motion,” Ph.D. Dissertation, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2013.
- 10) M. Nelson, “Comparative Study of Lifetime Fuel Consumption and Power Profiles of Mechanical, Hybrid-Electric Drive, and All-Electric Propulsion Systems for Naval Combatants,” M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2011.
- 11) M. Motley, “Probabilistic Design and Analysis of Self-Adaptive Composite Marine Structures,” Ph.D. Dissertation, Dept. of Civil and Environmental Engineering, Princeton University, 2011.
- 12) E. Bachynski, “Power Takeoff and Safety Considerations for a Tethered Point-Absorber Wave Energy Converter,” M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2010.

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- 13) M. Kramer, "Waterjet Performance Prediction for a Surface Effect Ship Based on Model Tests," M.S. Thesis, Dept. of Naval Architecture & Marine Engineering, University of Michigan, 2010.
  - 14) H. Xiao, "Experimental and Numerical Modeling of Wave-Induced Sediment Transport and Soil Responses," Ph.D. Dissertation, Dept. of Civil and Environmental Engineering, Princeton University, 2009.
  - 15) Z. Liu, "Transient Analysis and Design of Composite Structures in Multiphase Flows," Ph.D. Dissertation, Dept. of Civil and Environmental Engineering, Princeton University, 2008.

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#### **ADMINISTRATIVE RESPONSIBILITIES**

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**University of Michigan:** Dept. of Naval Architecture & Marine Engineering, Director of Marine Hydrodynamics Laboratory, 2017-present.

**University of Michigan:** College of Engineering Dean's Advisory Committee for Female Faculty, Jan 2017-Dec 2020.

**University of Michigan:** ADVANCE Advisory Board, College of Engineering, Nov. 2013 – present

**University of Michigan:** College of Engineering Safety Committee, 2017-2020.

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering, NAME Research Space Design Committee, 2019.

**University of Michigan:** Aerospace Engineering Chair Search Committee, 2017-2018.

**University of Michigan:** College of Engineering DEI (Diversity, Equity, and Inclusion) Panel, 2018.

**University of Michigan:** Dept. of Nuclear Engineering and Radiological Sciences Faculty Tenure Casebook Committee, 2017-2017.

**University of Michigan:** College of Engineering Launch Committee, May 2016-May 2017.

**University of Michigan:** College of Engineering Research Advisory Committee (RAC), June. 2015-Jan. 2017.

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering, Faculty Search Committee, 2015-2017.

**University of Michigan:** Senate Assembly Liaison, Financial Affairs Advisory Committee (FACC), Sept. 2014-Sept. 2015.

**University of Michigan:** Senate Assembly, University of Michigan, Sept. 2012- Sept. 2015.

**University of Michigan:** Naval Architecture & Marine Engineering (NAME) Internal Review Committee, 2014-2015.

**University of Michigan:** Faculty Advisor, Quarter Deck Society, Sept. 2012 – Aug. 2015

**University of Michigan:** Faculty Advisor, Local SNAME Chapter, Sept. 2012 – Aug. 2015

**University of Michigan:** International Ambassador, College of Engineering, Feb. 2013 – Feb. 2016

**University of Michigan:** College of Engineering, Female College Representative for Faculty Search Interviews (ECE, CSE), March, 2011-present.

**University of Michigan:** College of Engineering Honors and Awards Committee, 2011-2013

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering Faculty Tenure Casebook Committee, 2012.

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering CFD Faculty Search Committee, 2011.

**University of Michigan:** College of Engineering Research Computing Executive Steering Committee, 2010.

**University of Michigan:** International Programs Committee, 2009-2012.

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering Chair Search Committee, 2010.

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering CFD Course Committee, 2010-present.

**University of Michigan:** Dept. of Naval Architecture & Marine Engineering, Hydrodynamics Qualifying Exam Committee, 2010-present.

**Princeton University:** School of Eng. and Applied Science Strategic Planning Committee, 2005.

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**Princeton University:** School of Engineering and Applied Science Freshman Advisor, Class of 2007, 2009, and 2011

**Princeton University:** Dept. of Civil and Environmental Engineering, Academic Advisor for Structural Engineering, Class of 2006, 2007, and 2008

**Princeton University:** Faculty Advisor, Graduate Women in Science and Education, 2004-2008

**Princeton University:** Faculty Advisor, American Society of Civil Engineering Student Chapter, 2005-2009

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#### **UNIVERSITY TEACHING ACTIVITIES**

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- University of Michigan, NA492, Marine Engineering Lab, Fall 2019 (28 students, Q1=3.8/5, Q2=3.9/5).
- University of Michigan, NA280, Probability for Marine Engineers, Winter 2018 (30 students, Q1=4.25/5, Q2=4.25/5).
- University of Michigan, NA424, Hydrofoils, Propellers and Turbines, Winter 2017 (12 students, Q1=4.00/5, Q2=4.00/5); Fall 2018 (4 students, Q1=5.0/5, Q2=5.0/5)
- University of Michigan, NA520, Wave Loads on Ships and Offshore Structures, Winter 2010 (15 students, Q1=4.0/5, Q2=4.0/5), Fall 2010 (30 students, Q1=4.2/5, Q2=3.88/5), Fall 2011 (20 students, Q1=4.1/5, Q2=4.25/5), Fall 2012 (26 students, Q1=4.31/5, Q2=4.31/5), Fall 2013 (21 students, Q1=4.5, Q2=4.5/5), Fall 2014 (16 students, Q1=4.33/5, Q2=4.33/5), Fall 2016 (12 students, Q1=4.75/5, Q2=4.5/5), Fall 2017 (9 students, Q1=4.13/5, Q2=4.67/5), Winter 2019 (13 students)
- University of Michigan, NA599, Lifting Surfaces and Propulsors, Winter 2015 (12 students, Q1=4.86/5, Q2=4.86/5).
- University of Michigan, ENG100-600, Introduction to Marine Engineering, Fall 2009 (38 students, Q1=4.39/5, Q2=4.64/5), Winter 2011 (59 students, Q1=4.33/5, Q2=4.22/5), Winter 2012 (52 students, Q1=3.82/5, Q2=3.96/5), Winter 2014 (60 students, Q1=4.06/5, Q2=3.89/5)
- Stanford University, CEE296, Fluid-Solid Interactions, Spring 2008 (ave. student rating: 4.3/5)
- Princeton University, CEE525, Applied Numerical Methods, Spring 2004-05 & 09 (ave. student rating: 4.3/5)
- Princeton University, CEE205, Mechanics of Solids, Fall 2002-08 (ave. student rating: 4.2/5)

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#### **POSTDOCTORAL RESEARCH ASSOCIATES AND VISITORS**

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- Dr. Deniz Akcabay, University of Michigan, USA  
Dynamic response and stability of flexible composite plates in various fluids, 09/2017-03/2019
- Dr. Nitin Garg, University of Michigan, USA –Research Associate at Dept. of Mechanical Engineering at Imperial College London.  
Experimental Modeling of the performance and vibration characteristics of surface-piercing bodies in wave conditions, 05/2017- 07/2017.
- Dr. Eun Jung Chae, University of Michigan, USA – will start as **Assistant Professor at Dept. of Mechanical and Aerospace Engineering at California State University Long Beach** in Sept 2017.  
Numerical Modeling of the Flow-Induced Vibration of Flexible Lifting Bodies, 01/2015- 05/2016
- Mr. Simon Rosen and Mr. Aymeric Vuylsteke, French Naval Academy, France  
Reduce Order Modeling for an Oscillating Foil near the Free Surface, 08/2015-11/2015
- Dr. Xiaolin Wang, Georgia Tech, USA  
Stability and Energy Harvesting Potential of Piezoelectric Beams, 09/2014-12/2015
- Ms. Morgane Tellier and Mr. Xavier Cozanet, French Naval Academy, France  
Unsteady Reduced Order Model for Oscillating Hydrofoils, 08/2014-11/2014

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- Mr. Benoit Gatin and Mr. Charles Varenne, French Naval Academy, France  
Influence of Relative Foil Motion in Subcavitating and Cavitating Flows, 08/2013-11/2013
  - Dr. Deniz Akcabay, University of Michigan, USA  
High-Fidelity Fluid-Structure Interaction Modeling of Flexible Membranes in Multiphase Flow, Fall 2010 – Sept. 2014
  - Dr. Xiao Jian of Virginia Technical University, USA – Currently Senior Structural Consultant at Intellisims.  
Development of an Efficient and Stable Algorithm for Coupling of High Fidelity Fluid and Solid Solvers, 04/2013-11/2013.
  - Miss. Leclerc Emmanuelle and Miss. Moreau Audrey, French Naval Academy, France  
Hydrodynamic Response and Stability of NACA0015 Hydrofoil in Forward and Reverse Flows, 08/2012-11/2012
  - Dr. Michael Motley, Princeton University, USA - Currently **Assistant Professor at Dept. of Civil & Environmental Engineering, University of Washington.**  
Transient Hydroelastic Response of SES-Waterjet Systems, Summer, 2011-Summer, 2012.
  - Dr. Antoine Ducoin, Bureau Veritas, France - currently **Assistant Professor at Ecole Centrale Nantes, Nantes, France.**  
FSI Response and Stability Boundary of Flexible Lifting Bodies in Viscous Flow, Winter 2010 – May, 2012.
  - Dr. Biao Huang, Beijing Institute of Technology, China – Currently **Assistant Professor at Beijing Institute of Technology, China.**  
Experimental and Numerical Investigation of Unsteady Cavitating Flows, 09/2011-09/2012.
  - Miss. Eva Gagliard and Miss. Laurianne Guerry, French Naval Academy, France  
Numerical Investigation of Hydrofoils in Forward and Reverse Flows, 08/2011-11/2011
  - Dr. Miguel Millan, Escuela Superior de Ingenieros Camino de los Descubrimientos, Spain - **Currently the Director de Departamento de Ingenieria Civil en Universidad Europea de Madrid.**  
3-D boundary element method simulation of fluid-structure interaction, Sum 07 – Sum 08  
Numerical analysis of dam-foundation-reservoir interactions, Spr 05 - Spr 06
  - Dr. Wenfeng Xie, National University of Singapore, Singapore  
Num. analysis of shock load and cavitation reloads on composite structures, Spr 06-Fall 07
  - Prof. Namhyeong Kim, Cheju National University, Korea – **currently Professor at Cheju National University**  
Numerical analysis of waves over permeable boundaries and breakwaters, Spr 04 – Sum 05

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## STUDENT ADVISING

### Doctoral Advising Completed – Chair Advisor

- Zhanke Liu (Princeton University, June 2008): Transient Analysis and Design of Composite Structures in Multiphase Flows. Currently working at Sugar Land Technology Center, Schlumberger, Texas, USA.  
**Winner:** NSF Graduate Student Fellowship, US Congress on Comp. Mechanics, 2007.  
**Winner:** 2013 World Oil Best Award.  
**Winner:** 2014 Hart Energy’s Meritorious Award.
- Heng Xiao (Princeton University, Sept 2009): Physical and Numerical Modeling of Wave Propagation, Sediment Transport, and Soil Failure. **Currently Assistant Professor of the Aerospace and Engineering Department at Virginia Tech.**  
**Winner:** Wu Fellowship, 2005.
- Michael Motley (Princeton University, May 2011): Probabilistic Design and Analysis of Self-Adaptive Composite Marine Structures. **Currently Assistant Professor of the Civil and Environmental Engineering Department at University of Washington.**



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**Winner:** Offshore Mechanics and Arctic Engineering (OMAE) 2009 Best Paper of Ocean Renewable Energy Symposium, 2009.

- Matthew Kramer (University of Michigan, Sept. 2013): Numerical Investigation of the Steady-State Interaction Between Surface Effect Ship Seals, Air Cushion, Free-Surface Waves, and Vessel Motion. Currently Facilities Engineer at Chevron.

**Winner:** National Defense Science and Engineering Graduate Fellowship, 2010.

- Eun Jung Chae (University of Michigan, Jan. 2015): Dynamic Response and Stability of Flexible Hydrofoils in Incompressible and Viscous Flow. Currently Postdoctoral Fellow at University of Michigan, and will start as **Assistant Professor of the Mechanical and Aerospace Engineering Department at California State University in Sept, 2017.**

- Casey M. Harwood (University of Michigan, Dec. 2016): The Hydrodynamic and Hydroelastic Responses of Rigid and Flexible Surface-Piercing Hydrofoils in Multi-Phase Flows. Currently **Assistant Professor of the Mechanical and Industrial Engineering Department at The University of Iowa and Asst. Faculty Research Engineer at IIHR.**

**Winner:** NSF Graduate Fellowship, 2013 & University of Michigan Regents Fellowship, 2011.

- Nitin Garg (University of Michigan, May 2017): High-Fidelity Hydrostructural Design Optimization of Lifting Surfaces. Currently Research Associate at Department of Mechanical Engineering at Imperial College of London.

#### **Masters Students Completed – Chair Advisor**

- Wai Ching Sun (Princeton University, May 2009): Sedimentation and fluidization of particle-laden flow. **Currently Assistant Professor in the Dept. of Civil & Environmental Engineering at Columbia University in Sept, 2013.**

- Matthew Kramer (University of Michigan, May 2010): Probabilistic-Based Design of a Waterjet Propulsion System for a Surface-Effect Ship. Currently Engineer at Chevron.

**Winner:** National Defense Science and Engineering Graduate Fellowship, 2010.

- Erin Bachynski (University of Michigan, May 2010): Power Takeoff and Safety Considerations for a Tethered Point-Absorber Wave Energy Converter. Currently **Associate Professor at Norwegian University of Science & Technology and Researcher at Marintek.**

**Winner:** NSF Graduate Research Fellowship, 2010

National Defense Science and Engineering Graduate Fellowship, 2010

- M. Nelson, (University of Michigan, Aug. 2011): Comparative Study of Lifetime Fuel Consumption and Power Profiles of Mechanical, Hybrid-Electric Drive, and All-Electric Propulsion Systems for Naval Combatants. Current working as Naval Architect at the Naval Surface Warfare Center Carderock Division - Ship Systems Engineering Station's (NSWCCD-SSES) Advanced Machinery Systems Integration Branch in Philadelphia

- Dylan Temple (University of Michigan, May. 2011): Analysis and Design of Distributed Propulsion Systems for All-Electric Ships – co-advise with Matthew Collette.

**Winner:** UM College of Engineering J. Reid and Polly Anderson Fellowship, 2009-2010

- Colleen Stone (University of Michigan, May 2013): Transient Hydrodynamic Response of an Axial Flow Waterjet inside an SES.

- Devin Witt (University of Michigan, May 2013): Comparative Study of FPP vs. CPP for an All-Electric Naval Combatant. Currently Facilities Engineer in the Anchors, Moorings, and Risers Group, Chevron.

- Matthew Weibel (University of Michigan, May 2014): Numerical Analysis of the Frequency and Depth Dependence of the Added Mass and Hydrodynamic Loads of Lifting Bodies. **Winner:** Dow Masters/Professional Sustainability Fellow, 2014.

- Andrew Stankovich (University of Michigan, May 2014): Numerical Investigation of Added Mass Effects on the Resonance Frequency of a Cantilevered Hydrofoil in Two-Phase Flow. Currently engineer at Altair Engineering.

- Dillon Helfers (University of Michigan, May 2013): Numerical Investigation of the Dynamic

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Response of Pitching Hydrofoils. Currently Engineer at ABS.

- Rory Kennedy (University of Michigan, August 2014): Dynamic Response of Pitching Hydrofoils near the Free Surface. Currently senior analysis at Royal Caribbean Cruises Ltd.
- Chenyang Li (University of Michigan, December 2015): Numerical Modeling of Flexible Piezoelectric Beams and Foils in Air and in Water.
- Yu Mao (University of Michigan, August 2015): Influence of Skew on the Performance and Vibration Characteristics of Marine Propulsors.
- Jacod Ward (University of Michigan, August 2016): In Situ Hydrodynamic Load Identification via Inverse Fluid-Structure Interaction Modeling
- Tristan Wright (University of Michigan, May 2018): Transient Hydroelastic Response of a Surface-Piercing Hydrofoil in Waves
- Oscar Gonzalez Gallego (University of Michigan, expected to graduate in May 2020): Modeling the viscous performance of a novel Amphibious Vehicle.

#### **Doctoral Student Currently Being Advised**

- Yingqian Liao (University of Michigan, expected to graduate in May 2021): High-Fidelity Hydrostructural Design Optimization of Smart and Lightweight Marine Structures.

#### **Master Student Currently Being Advised**

- Rachel Gouveia (University of Michigan, expected to graduate in May 2020): Efficient Modeling of Surface Vessel Maneuvering in a Seaway.
- Alexandra Damley-Strnad (University of Michigan, expected to graduate in May 2019): Hydrodynamic Performance and Hysteresis Response of Hydrofoils in Ventilated Flows.
- Ruddhi Gokhale (University of Michigan, expected to graduate in May 2020): Modeling and Control of an Amphibious Vehicle with Novel Cycloidal Propellers.
- Manavendra Desai (University of Michigan, expected to graduate in May 2020): Modeling of the Maneuvering Characteristics of an Amphibious Vehicle with Novel Cycloidal Propellers.
- Shrutika Singh (University of Michigan, expected to graduate in May 2020): Inverse Modeling of the Dynamic Hydroelastic Response of Lifting Surfaces in Multiphase Flows.

#### **SHORT COURSES & WORKSHOPS**

- Marine Propulsors, EMship master course (coordinated by the University of Liege), Ecole Centrale Nantes-France, May 28, 2016-June 4, 2016.

#### **PRESENTATIONS & INVITED LECTURES**

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1. "Fluid-Structure Interactions and Maritime Applications," Aerospace and Ocean Engineering, Virginia Tech., Blacksburg, VA, 12/09/2019.
2. "Foiling & Propulsion Concepts for the 21st Century," Floating Futures Seminar, Netherlands Embassy in Washington, D.C., USA, 10/21/2019.
3. "Hydroelastic Response of Lifting Bodies in Separated Flows," NATO-AVT-307: Symposium on Separated Flow: Prediction, Measurement and Assessment for Air and Sea Vehicles, Trondheim, Norway, 10/7/2019-10/9/2019.
4. "Advanced Marine Structures in Multiphase Flows," Mechanical Engineering Graduate Seminar, The University of Iowa, April 25, 2019.
5. "Multi-functional Marine Structures: New Frontiers for Cavitating and Ventilating Flows," A.Yücel ODABAŞI Colloquium Series: 3rd International Meeting - Progress in Propeller Cavitation and its Consequences: Experimental and Computational Methods for Predictions in conjunction with the inauguration of ITU Cavitation Tunnel (ITU-CAT), Istanbul, Turkey, Nov. 2018.
6. "Multidisciplinary Design & Optimization of Lightweight Marine Structures," ONR Code 331,

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March 15, 2018.

7. "Challenges and Opportunities for Adaptive Composite Marine Structures," Keynote Speech, 17th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, December 19, 2017, Maui, Hawaii, USA.
8. "Adaptive Composite Marine Propulsors and Turbines: Progress and Challenges," Invited Ocean Engineering Seminar, University of California at Berkeley, April 7, 2017, Berkeley, CA.
9. "Scaling of the Dynamic Response and Failure Mechanisms of Composite Marine Propellers," Proceedings of the International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, invited Keynote Lecture for F17: Sheet & Cloud Cavitation, April 14, 2016, Honolulu, HI.
10. "Adaptive Marine Structures: Current State-of-the-Art and Future Directions," Australian Maritime College, University of Tasmania, March 4, 2016, Launceston, Tasmania, Australia.
11. "High-Fidelity Hydro-structural Optimization of Advanced Marine Structures," School of Mechanical and Manufacturing Engineering UNSW Australia, Feb. 29, 2016, Sydney, Australia.
12. "Adaptive Marine Propulsors: Progress and Challenges," Defense Science Technology Group Australia, Feb. 26, 2016, Melbourne, Australia.
13. "Underwater Shock Response of Composite Marine Structures," Australian Maritime College, University of Tasmania, Feb. 18, 2016, Launceston, Tasmania, Australia.
14. "Scaling of the Dynamic Response and Failure Mechanisms of Adaptive Composite Marine Propulsors," Indo-USA Workshop on Recent Advances in Blast Mitigation Strategies for Civil and Marine Structures, August 16-19, 2015, Bangalore, India.
15. "Physics-based Gap Flow Model for Potential-Flow Solvers," SNAME H-8 Panel Meeting, January 9, 2014, Bethesda, MD, USA.
16. "Analysis & Scaling of Adaptive Marine Propulsors," National Research Council (NRC-OCRE), October 15, 2013, St. Johns, Newfoundland, Canada.
17. "Design, Analysis, and Scaling of Flexible Composite Marine Propulsors," MARIN, August 29, 2013.
18. "Adaptive Marine Structures: Current State-of-the-Art and Future Directions," Invited Ocean Engineering Seminar, University of California at Berkeley, April 25, 2013, Berkeley, CA.
19. "Analysis and Scaling of Flexible Composite Marine Propulsors," Invited Presentation, ITTC Propulsion Committee, January 23, 2013, Pusan, Korea.
20. "The Fluid-Structure Interaction Response and Stability of Hydrofoils," Invited Lecture, 26th IAHR Symposium on Hydraulic Machinery and Systems, August 19-23, 2012, Beijing, China.
21. "Hydrodynamic & Hydroelastic Response of Cavitating Hydrofoils," Invited Lecture, Institute of Fluid Dynamics and Ship Theory (FDS), Hamburg University of Technology (TUHH), June 15, 2012, Hamburg, Germany.
22. "Influence of Gap Size on the Hydrodynamic Response of 3-D Foils in Fully-Wetted and Cavitating Flow," SNAME H-8 Panel Meeting, Feb 23, 2012, Bethesda, MD, USA.
23. "Large-Scale Wind/Marine Turbines: State-of-the-Art & Current Challenges," Dalian Technical University, November, 2011.
24. "Understanding the Effect of SES-Waterjet Interactions," Dalian Technical University, November, 2011.
25. "Design and Analysis of Self-Adaptive Composite Marine Structures," ASM Detroit Chapter's annual University Night Dinner Meeting, November 14, 2011.
26. "Hydroelastic Response and Potential Failure Mechanisms of Adaptive Marine Structures," French Naval Academy, Brest, France, July 6, 2011.
27. "Self-Adaptive Marine Structures: Analysis, Design, & Optimization," Italian Ship Model Basin, Rome, Italy, July 1, 2011.
28. "Large-Scale Wind/Marine Turbines: State-of-the-Art & Current Challenges," The Institute for Systems Research, University of Maryland, April 8, 2011.
29. "Design and Optimization of Naval Ship Power and Propulsion Systems to Support High-Energy Weapons," Webb Institute, Feb. 28, 2011.
30. "Experimental and Numerical Modeling of Extreme Wave Impact on Coastlines and Coastal

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- Infrastructures,” University of Maryland, Oct. 15, 2010.
31. “Adaptive Composite Marine Structures: Analysis, Design, & Optimization,” Virginia Technical University, Sept. 6, 2010.
  32. “Adaptive Composite Marine Structures: Analysis, Design, & Optimization,” University of Toronto Institute for Aerospace Studies, July 19, 2010.
  33. “Adaptive Marine Structures: Taking Advantage of Fluid-Structure Interactions and Advance Materials,” Applied Research Laboratory at Penn State, June 30, 2010.
  34. “Analysis, Design, and Challenges of Large-Scale Wind/Marine Turbines,” Universidad Europea de Madrid SLU, May 12, 2010.
  35. “Tsunami and Storm Surge Impact on Coastlines and Coastal Structures,” Universidad Europea de Madrid SLU, May 12, 2010.
  36. “Modeling and Scaling of Wind and Marine Current Turbines,” University of California at Berkeley, Berkeley, CA, April 2, 2010.
  37. “Underwater Shock Response of Adaptive Composite Marine Structures”, Hydromechanics Colloquium, Carderock Div., NSWC, West Bethesda, MD, July 30, 2009.
  38. “Design & Analysis of Large-Scale Surface Piercing Propellers”, SNAME H-8 Meeting, Bethesda, MD, May 20, 2009.
  39. “Transient Hydroelastic Analysis of Marine Turbines,” Workshop on “Energy, wind and water: algorithms for simulation, optimization and control”, New Zealand Institute for Mathematics & its Application (NZIMA), University of Auckland, New Zealand, Feb. 9-12, 2009.
  40. “Renewable Ocean Energy Conversion Systems: Advancing State-of-the-Art,” Energy Seminar, Woods Institute, Stanford University, Stanford, CA, Jan. 28, 2009.
  41. “Analysis and Design of Composite Marine Structures that Utilize Fluid-Structure Interaction,” Michigan University, Ann Arbor, MI, December 1, 2008.
  42. “Physical and Numerical Modeling of Tsunami Erosion and Soil Failure,” Tsinghua University, Beijing, China, October 16, 2008.
  43. “Physical and Numerical Modeling of Tsunami Erosion and Soil Failure,” Institute of Mechanics, Chinese Academy of Science, Beijing, China, October 14, 2008.
  44. “From Marine Propellers to Current Turbines: How to Take Advantage of Fluid-Structure Interaction,” Stanford University, Stanford, CA, September 26, 2008.
  45. “Hydroelastic Analysis Tools for Advanced Material Propellers,” High Altitude Long Endurance, Non-Linear Aeroelastic Tools Workshop sponsored by DARPA, Institute for Defense Analysis, Alexandria, VA, September 10-11, 2008.
  46. “Tsunami Propagation and Sediment Transport: Physical and Numerical Modeling,” Stanford University, Stanford, CA, May 29, 2008.
  47. “A Coupled BEM-FEM Approach for Transient Hydroelastic Analysis of Advanced Marine Propulsors,” Stanford University, Stanford, CA, May 22, 2008.
  48. “Modeling, Control, and Utilization of Fluid-Structure Interactions,” University of California at Berkeley, Berkeley, CA, February 20, 2008.
  49. “Transient Response of Composite Naval Structures subject to Shock and Blast Loads,” University of Michigan, Ann Arbor, MI, December 10, 2007.
  50. “Violent Fluid Flows and Composite Structures,” Stevens Institute of Technology, Hoboken, NJ, November 28, 2007.
  51. “Physical and Numerical Modeling of Tsunami Erosion and Soil Failure,” Center for Environmental and Applied Fluid Mechanics, Johns Hopkins University, September 28, 2007.
  52. “Physical and Numerical Modeling of Tsunami Erosion and Soil Failure,” NSF NEES Workshop on Simulation Development, Chicago, September 13, 2007.
  53. “Tsunami and Beach Scour,” REU Tsunami Symposium, Oregon State University, Corvallis, OR, August 1, 2007.
  54. “Passive Hydroelastic Tailoring of Composite Naval Structures,” University of Michigan, Ann Arbor, MI, May 14, 2007.
  55. “Tsunami-Induced Sediment Transport and Scour,” University of Delaware, Newark, DE, May 8, 2007.

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56. "Tsunami-Induced Sediment Transport and Scour," Stanford University, Stanford, CA, April 27, 2007.
  57. "Tsunami-Induced Sediment Transport and Scour," University of Southern California, Los Angeles, CA, April 26, 2007.
  58. "Violent Fluid Flows and Composite Structures," University of California at Berkeley, Berkeley, CA, April 25, 2007.
  59. "Shock Load and Cavitation Reload on Deformable Composite Structures," California Institute of Technology, Pasadena, CA, April 17, 2007.
  60. "Shock Load and Cavitation Reload on Deformable Composite Structures," University of California at Santa Barbara, Santa Barbara, CA, April 16, 2007.
  61. "Tsunami-Induced Sediment Transport and Scour," Oregon State University, Corvallis, OR, April 13, 2007.
  62. "Tsunami-Induced Sediment Transport and Scour," Massachusetts Institute of Technology, Cambridge, MA, March 22, 2007.
  63. "Hydroelastic Tailoring of Composite Naval Structures," The University of Texas at Austin, Austin, TX, February 17, 2007.
  64. "Wave Impact and Air Bubbles," The International Workshop on Fundamentals of Coastal Effects of Tsunamis, Hilo, Hawaii, December 26-28, 2006.
  65. "Tsunami-Induced Sediment Transport and Scour," Oregon State University, Corvallis, OR, Nov. 2, 2006.
  66. "Hydroelastic Modeling of Surface-Piercing Propellers," Hydromechanics Colloquium, Carderock Div., NSWC, West Bethesda, MD, June 2, 2004.
  67. "Surface-Piercing Propellers: Jet Sprays & Fluid-Structure Interactions," Institute of Fluid Mechanics, University Duisburg-Essen, Duisburg, Germany, May 16, 2003.
  68. "Numerical Modeling of High-Speed Propulsors," Ship Technology Conference, University Duisburg-Essen, Duisburg, Germany, May 15, 2003.
  69. "Fluid-Structure Interaction of Cavitating/Ventilated Propulsors," Department of Civil and Environmental Engineering, University of Illinois, Urbana IL, April 14, 2003.
  70. "Fluid-Structure Interaction of Cavitating Propulsors," Applied Research Laboratory, Pennsylvania State University, February 21, 2003.