

CURRICULUM VITAE

Andrew J. Goupee, Ph.D.
Libra Assistant Professor
Department of Mechanical Engineering
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Education

B.S.—Mechanical Engineering **May 2003**
UNIVERSITY OF MAINE, Orono, ME

M.S.—Mechanical Engineering **August 2005**
UNIVERSITY OF MAINE, Orono, ME

Ph.D.—Mechanical Engineering **May 2010**
UNIVERSITY OF MAINE, Orono, ME
Advisor: Dr. Senthil Vel

Professional Experience

Libra Assistant Professor of Mechanical Engineering **September 2014 to Present**
Department of Mechanical Engineering
UNIVERSITY OF MAINE, Orono, ME

Research Assistant Professor **March 2010 to August 2014**
Advanced Structures and Composites Center
UNIVERSITY OF MAINE, Orono, ME

Graduate Research Assistant **May 2003 to March 2010**
Department of Mechanical Engineering
UNIVERSITY OF MAINE, Orono, ME

Instructor **August 2004 to December 2005**
Department of Mechanical Engineering
UNIVERSITY OF MAINE, Orono, ME

Honors and Awards

- University of Maine Advanced Structures and Composites Center Annual Director's Awards, VoltturnUS Team Award and Outstanding Faculty Member Award, 2014
- University of Maine Advanced Structures and Composites Center Annual Director's Awards, VoltturnUS Team Award, 2013
- Maine Economic Improvement Fund Fellowship, 2008
- University of Maine College of Engineering Graduate Assistant Research Award, 2005
- University of Maine College of Engineering Outstanding Teaching Assistant Award, 2005
- University of Maine Provost Fellowship, 2003
- University of Maine Outstanding Student of the College of Engineering, 2003
- University of Maine Valedictorian, 2003

Research Interests

- Numerical methods in floating offshore structures
- Model testing of floating offshore structures
- Development of methods for Froude-scale model testing of floating wind turbines
- Numerical methods in solid mechanics
- Structural optimization
- Multiscale methods for heterogeneous materials
- Functionally graded materials
- Homogenization of random composite and geologic materials
- Inflatable structures

Publications

Papers Published or Accepted for Publication in Refereed Journals

- [1] R.W. Kimball, **A.J. Goupee**, A.J. Coulling and H.J. Dagher, 2013, Model test comparisons of TLP, spar-buoy and semi-submersible floating offshore wind turbine systems, *Transactions of the Society of Naval Architects and Marine Engineers*, in press.
- [2] B.J. Koo, **A.J. Goupee**, R.W. Kimball and K.F. Lambrakos, 2014, Model tests for a floating wind turbine on three different floaters, *Journal of Offshore Mechanics and Arctic Engineering* **136(2)**:021904.
- [3] **A.J. Goupee**, B.J. Koo, R.W. Kimball, K.F. Lambrakos and H.J. Dagher, 2014, Experimental comparison of three floating wind turbine concepts, *Journal of Offshore Mechanics and Arctic Engineering* **136(2)**:021903.
- [4] H.R. Martin, R.W. Kimball, A.M. Viselli and **A.J. Goupee**, 2014, Methodology for wind/wave basin testing of floating offshore wind turbines, *Journal of Offshore Mechanics and Arctic Engineering* **136(2)**:021902.
- [5] A.J. Coulling, **A.J. Goupee**, A.N. Robertson, J.M. Jonkman and H.J. Dagher, 2013, Validation of a FAST semi-submersible floating wind turbine model with DeepCwind test data, *Journal of Renewable and Sustainable Energy* **5**:023116.

- [6] F.M.J. Naus-Thijssen, **A.J. Goupee**, S.E. Johnson, S.S. Vel, C. Gerbi, 2011, The influence of crenulation cleavage development on the bulk elastic properties and seismic wave velocities of phyllosilicate-rich rocks, *Earth and Planetary Science Letters* **311**:212-224.
- [7] F.M.J. Naus-Thijssen, **A.J. Goupee**, S.S. Vel and S.E. Johnson, 2011, The influence of microstructure on seismic wave speed anisotropy in the crust: Computational analysis of quartz-muscovite, *Geophysical Journal International*, **185**:609-621.
- [8] **A.J. Goupee** and S.S. Vel, 2010, Multiscale thermoelastic analysis of random heterogeneous materials. Part II. Direct micromechanical failure analysis and multiscale simulations, *Computational Materials Science*, **48**:39-53.
- [9] S.S. Vel and **A.J. Goupee**, 2010, Multiscale thermoelastic analysis of random heterogeneous materials. Part I. Microstructure characterization and homogenization of material properties, *Computational Materials Science*, **48**:22-38.
- [10] **A.J. Goupee** and S.S. Vel, 2010, Transient multiscale thermoelastic analysis of functionally graded materials, *Composite Structures*, **92**:1372-1390.
- [11] **A.J. Goupee** and S.S. Vel, 2007, Multi-objective optimization of functionally graded materials with temperature-dependent material properties, *Materials & Design* **28**:1861-1879.
- [12] **A.J. Goupee** and S.S. Vel, 2006, Optimization of natural frequencies of bidirectional functionally graded beams, *Structural and Multidisciplinary Optimization* **32**:473-484.
- [13] **A.J. Goupee** and S.S. Vel, 2006, Two-dimensional optimization of material composition of functionally graded materials using meshless analyses and a genetic algorithm, *Computer Methods in Applied Mechanics and Engineering* **195**:5926-5948.

Conference Proceedings

- [1] A.M. Viselli, **A.J. Goupee** and H.J. Dagher, 2014, Model test of a 1:8 scale floating wind turbine in the Gulf of Maine, *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, California, June 8-13.
- [2] **A.J. Goupee**, M.J. Fowler, R.W. Kimball, J. Helder and E.-J. de Ridder, 2014, Additional wind/wave basin testing of the DeepCwind semi-submersible with a performance-matched wind turbine, *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, California, June 8-13.
- [3] R. Kimball, **A.J. Goupee**, M.J. Fowler, E.-J. de Ridder and J. Helder, 2014, Wind/wave basin verification of a performance-matched scale-model wind turbine on a floating offshore wind turbine platform, *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, California, June 8-13.
- [4] B. Koo, **A.J. Goupee**, K. Lambrakos and H.-J. Lim, 2014, Model test data correlations with fully coupled hull/mooring analysis for a floating wind turbine on a semi-submersible platform, *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, California, June 8-13.
- [5] A.C. Young, S. Hettick, H.J. Dagher, A.M. Viselli and **A.J. Goupee**, 2014, VoltturnUS 1:8-scale FRP floating wind turbine tower: Analysis, design, testing and performance, *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, California, June 8-13.
- [6] M.J. Fowler, B. Owens, D. Bull, **A.J. Goupee**, J. Hurtado, D.T. Griffith and M. Alves, 2014, Hydrodynamic module coupling in the Offshore Wind Energy Simulation (OWENS) toolkit, *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, California, June 8-13.

- [7] A.M. Viselli, H.J. Dagher and **A.J. Goupee**, 2014, VoltturnUS 1:8 - Design and testing of the first grid-connected offshore wind turbine in the U.S.A., *Proceedings of the Texas Section of the Society of Naval Architecture and Marine Engineers 19th Offshore Symposium*, Houston, Texas, USA, February 6, 2014 (Received Conference Best Paper Award).
- [8] K.P. Thiagarajan, R. Kimball, **A. Goupee** and M. Cameron, 2014, Design and development of a multi-directional wind-wave ocean basin, *Proceedings of the Texas Section of the Society of Naval Architecture and Marine Engineers 19th Offshore Symposium*, Houston, Texas, USA, February 6, 2014.
- [9] M. Masciola, A. Robertson, J. Jonkman, A. Coulling and **A. Goupee**, 2013, Assessment of the importance of mooring dynamics on the global response of the DeepCwind floating semi-submersible offshore wind turbine, *Proceedings of ISOPE 2013, The 23rd International Ocean and Polar Engineering Conference*, Anchorage, Alaska, June 30-July 5, 2013.
- [10] A.J. Coulling, **A.J. Goupee**, A.N. Robertson and J.M. Jonkman, 2013, Importance of second-order difference-frequency wave-diffraction forces in the validation of a FAST semi-submersible floating wind turbine model, *Proceedings of OMAE 2013, ASME 32nd International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France, June 9-14, 2013.
- [11] M.J. Fowler, R.W. Kimball, D.A. Thomas III and **A.J. Goupee**, 2013, Design and testing of scale model wind turbines for use in wind/wave basin model tests of floating offshore wind turbines, *Proceedings of OMAE 2013, ASME 32nd International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France, June 9-14, 2013.
- [12] A.N. Robertson, J.M. Jonkman, **A.J. Goupee**, A.J. Coulling, I. Prowell, J. Browning, M. Masciola and P. Molta, 2013, Summary of conclusions and recommendations drawn from the DeepCwind scaled floating offshore wind system test campaign, *Proceedings of OMAE 2013, ASME 32nd International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France, June 9-14, 2013.
- [13] B. Koo, **A.J. Goupee**, K. Lambrakos and H.-J. Lim, 2013, Model test correlation study for a floating wind turbine on a tension leg platform, *Proceedings of OMAE 2013, ASME 32nd International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France, June 9-14, 2013.
- [14] I. Prowell, A. Robertson, J. Jonkman, G.M. Stewart and **A.J. Goupee**, 2013, Numerical prediction of experimentally observed scale-model behavior of an offshore wind turbine supported by a tension-leg platform, *Proceedings of the Offshore Technology Conference (OTC 2013)*, Houston, Texas, USA, May 6-9, 2013.
- [15] R.W. Kimball, **A.J. Goupee**, A.J. Coulling and H.J. Dagher, 2012, Model test comparisons of TLP, spar-buoy and semi-submersible floating offshore wind turbine systems, *Proceedings of the 2012 SNAME Annual Meeting and Expo*, Providence, Rhode Island, October 24-26, 2012.
- [16] **A.J. Goupee**, B. Koo, K. Lambrakos and R. Kimball, 2012, Model tests for three floating wind turbine concepts, *Proceedings of the Offshore Technology Conference (OTC 2012)*, Houston, Texas, USA, April 30-May 3, 2012.
- [17] B. Koo, **A.J. Goupee**, K. Lambrakos and R. Kimball, 2012, Model tests for a floating wind turbine on three different floaters, *Proceedings of OMAE 2012, ASME 31st International Conference on Ocean, Offshore and Arctic Engineering*, Rio de Janeiro, Brazil, July 1-6, 2012.

- [18] **A.J. Goupee**, B. Koo, R. Kimball and K. Lambrakos, 2012, Experimental comparison of three floating wind turbine concepts, *Proceedings of OMAE 2012, ASME 31st International Conference on Ocean, Offshore and Arctic Engineering*, Rio de Janeiro, Brazil, July 1-6, 2012.
- [19] H. Martin, R. Kimball, A. Viselli and **A.J. Goupee**, 2012, Methodology for wind/wave basin testing of floating offshore wind turbines, *Proceedings of OMAE 2012, ASME 31st International Conference on Ocean, Offshore and Arctic Engineering*, Rio de Janeiro, Brazil, July 1-6, 2012.
- [20] A. Jain, A.N. Robertson, J.M. Jonkman, **A.J. Goupee** and R.W. Kimball, A.H.P. Swift, 2012, FAST code verification of scaling laws for DeepCwind floating systems tests, *Proceedings of ISOPE 2012, The 22nd International Ocean and Polar Engineering Conference*, Rhodes, Greece, June 17-22, 2012.
- [21] G.M. Stewart, M.A. Lackner, A. Robertson, J. Jonkman and **A.J. Goupee**, 2012, Calibration and validation of a FAST floating wind turbine model of the DeepCwind scaled tension-leg platform, *Proceedings of ISOPE 2012, The 22nd International Ocean and Polar Engineering Conference*, Rhodes, Greece, June 17-22, 2012.
- [22] J.R. Browning, J. Jonkman, A. Robertson and **A.J. Goupee**, 2012, Calibration and validation of the FAST dynamic simulation tool for a spar-type floating offshore wind turbine, *Proceedings of the Science of Making Torque from Wind Conference*, Oldenburg, Germany, October 9-11, 2012.
- [23] S.S. Vel and **A.J. Goupee**, 2008, Multiscale design of functionally graded materials, *Proceedings of the 2008 NSF CMMI Engineering Research and Innovation Conference*, Knoxville, Tennessee, January 2008.
- [24] S.S. Vel and **A.J. Goupee**, 2006, Multi-objective optimization of geometric dimensions and material composition of functionally graded components, *Proceedings of the Multiscale and Functionally Graded Materials Conference 2006*, Honolulu, Hawaii. Editors G. H. Paulino, M.-J. Pindera, R. H. Dodds, Jr., F. A. Rochinha, E. V. Dave, and L. Chen, American Institute of Physics, 978, pp. 610-615, 2008.
- [25] S.S. Vel and **A.J. Goupee**, J.L. Pelletier, 2006, Multi-objective design optimization of functionally graded materials, *Proceedings of the 2006 NSF Design, Service, and Manufacturing Grantees and Research Conference*, St. Louis, Missouri, July 24-27, 2006.
- [26] S.S. Vel and **A.J. Goupee**, 2005, A Methodology for the optimization of material composition of functionally graded materials, *Proceedings of the 2005 NSF Design, Service and Manufacturing Grantees and Research Conference*, Scottsdale, Arizona, Jan 3-6, 2005.
- [27] **A.J. Goupee** and S.S. Vel, 2004, Two-dimensional thermomechanical analysis and optimization of functionally graded materials, *Advances in Computational and Experimental Engineering and Sciences*, Editors A. Tadeu and Satya N. Atluri, pp. 1705-1710, Tech Science Press.

Technical Reports

- [1] M. Fowler, D. Bull and **A. Goupee**, A comparison of Platform Options for Deep-water Floating Offshore Vertical Axis Wind Turbines: An Initial Study, *Sandia Report SAND2014-16800*, August 2014.
- [2] H. Dagher, A. Young and **A.J. Goupee**, Feasibility of Using a Composite Materials Tower Atop a Floating Offshore Wind Turbine Steel Spar Hull, *Advanced Structures and Composites Center Report Number 13-37-1134*, July 10, 2013.
- [3] **A.J. Goupee**, P. Drown, C. Libby, D. Gjeta and Y. Yamamoto, Detailed Cost of Energy Analysis for SWF System, *Advanced Structures and Composites Center Report Number 13-44-1048*, May 24, 2013.
- [4] A. Viselli, **A.J. Goupee**, H.J. Dagher, J. Chung, T. Snape, M. Lankowski, D. Jalbert, Feasibility Study for Offshore Floating Wind Turbine Composite Towers, *AEWC Report Number 12-15.941A*, December 7, 2011.
- [5] **A.J. Goupee**, Oceanwind XS-770 Floating Wind Turbine Initial Analysis Final Report, *AEWC Report Number 11-28*, September 13, 2010.

Presentations

- [1] A.M. Viselli, **A.J. Goupee**, H.J. Dagher and C. Allen, Design and model confirmation of the intermediate scale VoltturnUS floating turbine subject to its extreme design conditions, *AWEA WINDPOWER 2014 Conference and Exhibition*, Las Vegas, Nevada, May 5-8, 2014.
- [2] A.J. Coulling, **A.J. Goupee**, A.N. Robertson, J.M. Jonkman and H.J. Dagher, Validation of a FAST floating wind turbine model using data from the DeepCwind semi-submersible model tests, *AWEA WINDPOWER 2013 Conference and Exhibition*, Chicago, Illinois, May 5-8, 2013.
- [3] A.J. Coulling, **A.J. Goupee**, A.N. Robertson, J.M. Jonkman and H.J. Dagher, Validation of a FAST floating wind turbine model using data from the DeepCwind semi-submersible model tests, *AWEA Offshore WINDPOWER 2012 Conference and Exhibition*, Virginia Beach, Virginia, October 9-11, 2012.
- [4] **A.J. Goupee**, H.R. Martin, A.M. Viselli, R.W. Kimball, H.J. Dagher, Model testing of the coupled aero-hydro-elastic response of three floating wind turbine concepts, *AWEA Windpower 2012 Conference and Exhibition*, Atlanta, Georgia, June 3-6, 2012.
- [5] **A.J. Goupee**, Model testing of the coupled aero-hydro-elastic response of three floating wind turbine concepts, *Colloquium*, Department of Physics & Astronomy, University of Maine, Orono, Maine, September 2011.
- [6] **A.J. Goupee**, DeepCwind 1/50th scale floating wind turbine model testing overview, *2011 Wind Energy Research Workshop*, UMass Lowell Inn & Conference Center, Lowell, Massachusetts, September 2011.
- [7] **A.J. Goupee**, DeepCwind 1/50th scale floating wind turbine model testing overview, *8th Annual Energy Ocean International Conference and Exhibition*, Portland, Maine, June 2011.
- [8] **A.J. Goupee**, Refinement and validation of a fully coupled aero-hydro-servo-elastic floating wind turbine simulator, *First Annual Deepwater Offshore Wind Conference*, Northport, Maine, October 2010.

Awarded Research Grants

- [1] Durability Evaluation of Composite and Cementitious Materials Through Accelerated Laboratory and Long-term Field Testing, and New Building Technology, U.S. Army Corps of Engineers ERDC, \$1,500,000, H. Dagher (PI), A. Viselli (Co-PI), **A.J. Goupee** (Co-PI), K. Goslin (Co-PI), L. Parent (Co-PI), W. Davids (Co-PI), August 2013 to August 2014.
- [2] Development of W^2 – A Unique Offshore Wind-Wave Generation System, National Science Foundation, Major Research Instrumentation Program, \$983,997, K. Thiagarajan (PI), Q. Zou (Co-PI), **A.J. Goupee** (Co-PI), H. Dagher (Co-PI), August 2013 to July 2015.
- [3] Behavior and Optimization of Hypersonic Inflatable Atmospheric Decelerator Devices for Spacecraft Re Entry, NASA Experimental Program to Stimulate Competitive Research, \$743,752, W. Davids (PI), J. Clapp (Co-PI), **A.J. Goupee** (Co-PI), P. Melrose (Co-PI), July 2013 to June 2016.
- [4] Detailed Cost of Energy Analysis for SWF System, Maine Technology Institute Seed Grant, \$25,000, **A.J. Goupee** (PI), May 2012 to May 2013.
- [5] Innovative Offshore Vertical-Axis Wind Turbine Rotors, DOE-FOA-0000415, US Offshore Wind: Technology Development, \$915,000, H.J. Dagher (PI), J. Nader (Co-PI), **A.J. Goupee** (Co-PI), October 2011 to September 2016.
- [6] Integrated Analytical-computational Analysis of Microstructural Influences on Seismic Anisotropy, National Science Foundation, \$298,171, S. E. Johnson (PI), S.S. Vel (Co-PI), C. Gerbi (Co-PI), **A.J. Goupee** (Co-PI), July 2011 to June 2014.
- [7] MTI Development Award Grant Writing Assistance for Oceanwind Technology, LLC, Maine Technology Institute Seed Grant, \$4,000, **A.J. Goupee** (PI), October 2010 to February 2011.
- [8] Submerged Web Foundation: Hydrodynamic Simulation, Maine Technology Institute Seed Grant, \$4,000, **A.J. Goupee** (PI), October 2010 to February 2011.

Teaching Activities

Teaching Assignments at the University of Maine

Course Number	Course	Semester	Enrollment	Overall Rating of Instructor*
MEE 252	Statics/Strength of Materials	Fall 2004	19	4.86
		Fall 2005	29	4.86
MEE 270	Dynamics	Fall 2013	28	4.58
MEE 471	Mechanical Vibrations	Spring 2005	44	4.48
MEE 480/ CIE 480	Wind Energy Engineering	Spring 2013	45	4.67
		Spring 2014	67	4.85
CIE 498/598	Selected Studies in Civil Engineering	Spring 2011	1	-
		Summer 2011	1	-
		Spring 2013	3	-
		Spring 2014	1	-

*Scale ranges from 1 (Below Average) to 5 (Excellent)

Student Supervision

Ph.D. Students

- [1] M. Fowler, Ph.D. in MEE, to be completed in 2016.
- [2] M. Hall, Ph.D. in MEE, to be completed in 2016.

M.S. Students

- [1] J. Newton, M.S. in MEE, to be completed in 2015.
- [2] C. Libby, M.S. in MEE, to be completed in 2014.
- [3] M. Fowler, "Development of a Performance Matched Wind Turbine and Analysis Tools for Model Scale Testing of Floating Offshore Wind Turbines," M.S. in MEE, 2014.
- [4] A. Young, "Investigations Into the Use of a Composite Tower on Floating Offshore Wind Turbine Platforms," M.S. in CIE, 2013.
- [5] C. Allen, "The Implementation of Morison's Equation in Dynamic Modeling and Structural Analysis of a Floating Offshore Wind Turbine," M.S. in CIE, 2013.
- [6] A. Coulling, "Validation of a FAST Semi-submersible Floating Wind Turbine Numerical Model with DeepCwind Test Data," M.S. in CIE, 2013.
- [7] H. Martin, "Development of a Scale Model Wind Turbine for Testing of Offshore Floating Wind Turbine Systems," M.S. in CIE, 2011.

Service on Thesis Committees

- [1] A. Viselli, "Model test of a 1:8 scale floating wind turbine in the Gulf of Maine," Ph.D. in CIE, 2014.
- [2] M. MacNicoll, "Modeling the Efficiency of a Semi-submerged Ocean Wave Energy Converter," M.S. in CIE, 2013.
- [3] K. Berube, "Integration of Process Parameter Control and Digital Image Correlation Methods in the Investigation of the Variability of Marine Polymer Composite Material Properties," Ph.D. in MEE, 2012.
- [4] K. Warren, "Resistance Welding of Thermoplastic Composites for Industrial Scale Wind Turbine Blades," M.S. in MEE, 2012.

Undergraduate Students

- [1] C. Howland, Spring 2012, Committee member for Honor's thesis.
- [2] Y. Peng, Summer 2014, Co-advisor for NSF-REU-Sensors program.

Volunteer Teaching Activities

- [1] K. McDonald, Griffith University, Spring 2014, Internship and Independent Study at University of Maine, 3 credits.
- [2] N. Urban, College of the Atlantic, Fall 2012, Independent Study at the College of the Atlantic, 2 credits.
- [3] O. Casas, University of Maine at Augusta, Fall 2012, Independent Study at the University of Maine at Augusta, 12 credits.
- [4] M. Lankowski, University of Michigan, Summer 2012, Internship and Independent Study at University of Maine, 3 credits.

Service Activities

- Guest speaker, Rockland Rotary Club, April 2014.
- Guest speaker, American Indian Science and Engineering Society, February 2014.
- Judge, DeepCwind Wind Blade Challenge, May 2013.
- Judge, DeepCwind Windstorm Challenge, April 2012.
- Guest speaker, University of Maine Sigma Phi Epsilon Fraternity, January 2012.
- Session organizer, ASME International Conference on Ocean, Offshore and Arctic Engineering, 2011, 2012.
- Guest speaker, Maine Student Chapter of the American Society of Mechanical Engineers, November 2010.
- Consultant, High School Windstorm Challenge, August 2010.
- Judge, Maine High School Wind Blade Challenge, May 2010.
- Reviewer for the following journals and conference proceedings:
 - Computational Materials Science
 - Energies
 - Journal of Mechanical Engineering Science
 - Journal of Renewable and Sustainable Energy
 - Philosophical Transactions of the Royal Society A
 - Renewable Energy
 - Structural and Multidisciplinary Optimization
 - Proceedings of the ASME International Conference on Ocean, Offshore and Arctic Engineering
 - Proceedings of the International Offshore and Polar Engineering Conference

Synergistic Activities

CLASS DEVELOPMENT FOR UMAINE RENEWABLE ENERGY CURRICULUM Orono, Maine

Developed a popular class in wind energy engineering to close gaps in the current UMaine renewable energy curriculum. This course provides UMaine undergraduate engineering students the opportunity to develop skills relevant to the burgeoning renewable wind energy industry.

AQUA VENTUS I Orono, Maine

Lead for coordinating all model tests and coupled numerical simulations for the \$4 million phase one portion of the Aqua Ventus I floating wind turbine demonstration project funded by the Department of Energy, the University of Maine and several industry partners. The entire \$93.2 million Aqua Ventus I project aims to deploy two 6 MW semi-submersible floating wind turbines off the coast of Maine.

VOLTURNUS Orono, Maine

Technical advisor for numerical analyses employed for designing the 1/8th-scale VoltturnUS floating wind turbine, the first grid-connected offshore wind turbine in the US. Performed select analyses and also guided graduate student analysis work related to hydrodynamic loads, aerodynamic loads, structural dynamics and mooring response. Also the lead for analysis of data obtained from this novel field experiment.

WIND/WAVE BASIN DESIGN TEAM Orono, Maine

Member of the team charged with developing the design for the Advanced Structures and Composites Center Offshore Wind Laboratory's innovative W^2 wind/wave basin model testing facility.

DEEPCWIND CONSORTIUM Orono, Maine

Project leader for DeepCwind Consortium's \$1.2 million 1/50th-scale floating wind turbine model test campaign. The completed tests, which were at the time the most comprehensive wind turbine tests ever performed, have provided vital data for numerical code validation in addition to a more thorough understanding of the coupled dynamic performance of various floating wind turbine platform technologies.

OCEANWIND TECHNOLOGY, LLC North Waterford, Maine

Developed a methodology for modeling a novel and patented floating offshore wind turbine mooring design for this Maine-based company. The results of this research lead to additional funds from the Maine Technology Institute to perform a detailed cost of energy analysis of the proposed technology.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION Silver Spring, Maryland

Reviewer for the National Oceanic and Atmospheric Administration's Phase I Small Business Innovation Research proposals.

INTERNATIONAL ENERGY ASSOCIATION OC4 WP2 (PHASE II)

Provided floating platform technical specifications for the International Energy Association's Task 30 Offshore Code Collaboration Continuation (OC4) Phase II project which has researchers from around the world performing comparisons of coupled aero-hydro-servo-elastic simulations of the DeepCwind semi-submersible floating wind turbine.

Membership in Professional Societies

- Member, American Society of Mechanical Engineers