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Erin E. Bachynski
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PERSONAL INFORMATION

Date of Birth: January 24, 1987
Place of Birth: Pontiac, MI, USA
Citizenship: USA
Gender: Female

EDUCATION

- Aug. 2010 – Mar. 2014 **Norwegian University of Science and Technology, Trondheim, Norway**
Centre for Ships and Ocean Structures
PhD Marine Technology (Adviser Prof. Torgeir Moan)
Thesis: Design and Dynamic Analysis of Tension Leg Platform Wind Turbines
- Sept. 2009 – May 2010 **University of Michigan, Ann Arbor, MI**
G.P.A. 8.703/9.000
M.S. Naval Architecture and Marine Engineering
Thesis: Power Takeoff and Safety Considerations for a Tethered Point-Absorber Wave Energy Converter (Adviser Prof. Yin Lu (Julie) Young)
- Sept. 2005 – May 2009 **University of Michigan, Ann Arbor, MI**
G.P.A. 3.995/4.000
B.S.E. Naval Architecture and Marine Engineering
Minor in Mathematics

EMPLOYMENT HISTORY

- Feb. 2020 - present **NTNU (Norwegian University of Science and Technology)**
Professor in the Department of Marine Technology.
Research on numerical and experimental modelling of offshore wind turbine structures, including hydroelasticity, nonlinear wave loads, and structural response modelling.
- April 2016 – Jan. 2020 **NTNU (Norwegian University of Science and Technology)**
Associate professor in the Department of Marine Technology, supported by Onsager Fellowship in Marine Structures for the Future.
- Feb. 2014 – Mar. 2016 **MARINTEK (Norwegian Marine Technology Research Institute)**
Researcher, Offshore Hydrodynamics (Marine Operations and Ocean Energy group). Developing and validating numerical tools and models for hydrodynamic and aerodynamic loads and structural responses. (100% from Feb. 2014-Aug. 2014, 80% from Sept. 2014-Mar. 2016).
- Sept. 2014 – Mar. 2016 **NTNU (Norwegian University of Science and Technology)**
Adjunct associate professor (20%) within marine technology (marine structures with emphasis on renewable energy).

June – Sept. 2009 **Maritime Research Institute Netherlands, Wageningen, the Netherlands**
Engineering Intern, “Validation of the aNySIM Morison Module”
Tested implementation of Morison’s Equation in a time-domain simulation code, including debugging, validation against model tests, and validation against similar software

May 2007 – May 2009 **University of Michigan Marine Hydrodynamics Laboratory**
Research assistant under Dr. Michael Bernitsas, “Design and Testing of the VIVACE (Vortex Induced Vibrations Aquatic Clean Energy) Converter”
Designed, built, and tested modifications to unique laboratory apparatus
Evaluated prototype design options for power take-off, location, array spacing

RESEARCH ACTIVITIES AND FIELDS OF INTEREST

- Ringing loads and responses of bottom-fixed structures in intermediate and shallow water depth
- Experimental and numerical modelling of floating offshore wind turbines
- Global dynamic analysis of fixed and floating offshore wind turbines, particularly with attention to fatigue and to gearbox responses
- Wind loads on floating bridges
- Software development for dynamic analysis of marine structures

Present doctoral students:

- Carlos Eduardo Silva de Souza (expected graduation 2020): Dynamic analysis of floating wind turbines, considering control and hull flexibility
- John Marius Hegseth (expected graduation 2020): Multidisciplinary design optimization of floating wind turbines.
- Haoran Li (expected graduation 2021): Nonlinear wave loads on floating wind turbines.
- George Katsikogiannis (expected graduation 2021): Wave loads and soil support for extra large monopile wind turbines.
- Irene Rivera Arreba (expected graduation 2022): Wind load modelling for floating wind turbines, with focus on the mooring system responses.

Graduated doctoral students:

- Emil Smilden. Co-supervisor. Graduated 11.2019. Structural control of offshore wind turbines: Increasing the role of control design in offshore wind farm development. Main supervisor: Asgeir Sørensen.
- Loup Suja. Co-supervisor. Graduated 10.2019. Responses of monopile wind turbines to higher order wave loads. Main supervisor: Jørgen Krokstad.

Research/education grants:

NFR 268182 Wave loads and soil support for extra large monopiles.

NFR 274827 Green energy at sea: offshore wind turbines and energy systems for ships, ports, and offshore structures

NFR 294573 Advanced wave and wind load models for floating wind turbine mooring system design

EU project 860879 FLOWER (ITN) FLOWing Wind Energy network

MARINET2 (EU Grant 731084) – Access Grant 1088 (Follow-on Testing of the OC5

Semisubmersible to Address Hydrodynamic Modelling Uncertainties)
WEAMEC grant (France): HeloFOW. Hydroelastic analysis of floating wind turbines using weak-scatterer approach

PROFESSIONAL QUALIFICATIONS

Computer Skills:

Proficient: MATLAB, Fortran 77/90, Abaqus, SIMO (SINTEF Ocean, involved in development), RIFLEX (SINTEF Ocean, involved in development), Simo-Riflex-AeroDyn with Java control (involved in development), Microsoft Office, LaTeX, FAST, AutoCAD 2009
Limited experience: Python, Java, HAWC2, Dynamic C, Solidworks, NCL, ArcGIS

Languages:

English (native)
French (fluent)
Norwegian (fluent)
Spanish (conversational, written)
Croatian (beginner)

AWARDS

2016	NOWITECH Innovation Award
2015	Onsager Fellowship (Marine Structures for the Future)
2015	OMAE Conference Appreciation Award
2014	Chorafas prize (best PhD thesis at NTNU)
2012	Forsker (Researcher) Grand Prix Trondheim - participant
2010	National Science Foundation Graduate Research Fellowship (awarded, declined)
2010	National Defense Science and Engineering Graduate (NDSEG) Fellowship (awarded, declined)
2010	Hertz Foundation Fellowship Finalist
2009 – 2010	William M. Kennedy Graduate Scholarship (SNAME)
2009 – 2010	College of Engineering Dean's Named Fellowship
2009	Distinguished Achievement Award (NA&ME)
2006 – 2009	James Angell Scholar
2008	Henry Ford II Prize: Outstanding Junior, College of Engineering
2007 – 2008, 2008 – 2009	American Bureau of Shipping/NA&ME Scholarship
2008	Graham Scholars Program: Sustainable Energy Development in South America
2007 – 2009	National Oceanic and Atmospheric Administration Hollings Scholarship
May – Aug. 2007	Marian Sarah Parker Award and Summer Undergraduate Research Award
2006, 2007	William H. Mack Memorial Engineering Prize
2006	George M. Landes Contest for Technical Communication, 3rd Place, Freshman Division
May – Aug. 2006	UROP Engineering and Physical Sciences Summer Fellowship
2005 – 2009	College of Engineering Richard Earhart Scholarship
2005	Regents Merit Scholarship

PUBLICATIONS

Journal Articles

39. Suja-Thauvin, L.; **Bachynski, E. E.**; Pierella, F.; Borg, M.; Krokstad, J. R.; Bredmose, H. Critical assessment of hydrodynamic load models for a monopile structure in finite water depth. *Marine Structures*. vol. 72, 2020.
38. Hegseth, J.M.; **Bachynski, E.E.**; Martins, J.R.R.A; Integrated design optimization of spar floating wind turbines. *Marine Structures*. vol. 72, 2020.
37. Wise, A.S.; **Bachynski, E. E.**; Wake meandering effects on floating wind turbines. *Wind Energy*, 2020.
36. Smilden, S; Sørum, S. H.; **Bachynski, E. E.**; Sørensen, A. J.; Amdahl, J. Post-installation adaptation of offshore wind turbine controls. *Wind Energy*, 2020.
35. Silva de Souza, C. E., and **Bachynski, E. E.** "Effects of Hull Flexibility on the Structural Dynamics of a Tension Leg Platform Floating Wind Turbine." ASME. *J. Offshore Mech. Arct. Eng.* February 2020; 142(1): 011903.
34. Cho, S.; **Bachynski, E. E.**; Rasekhi Nejad, A.; Gao, Z.; Moan, T. Numerical modeling of the hydraulic blade pitch actuator in a spar-type floating wind turbine considering fault conditions and their effects on global dynamic responses. *Wind Energy*. vol. 23 (2), 2020.
33. Robertson, A. N.; **Bachynski, E. E.**; Gueydon, S.; Wendt, F.; Schünemann, P. Total experimental uncertainty in hydrodynamic testing of a semisubmersible wind turbine, considering numerical propagation of systematic uncertainty. *Ocean Engineering*. vol. 195, 2020.
32. Katsikogiannis, G.; **Bachynski, E.E.**; Page, A.M. Fatigue sensitivity to foundation modelling in different operational states for the DTU 10MW monopile-based offshore wind turbine. *Journal of Physics: Conference Series*, Volume 1356, Number 1, 2019.
31. Wise, A. and **Bachynski, E.E.** Analysis of wake effects on global responses for a floating two-turbine case. *Journal of Physics: Conference Series*, Volume 1356, Number 1, 2019.
30. Rivera-Arreba, I.; Bruinsma, N.; **Bachynski, E.E.**; Viré, A.; Paulsen, B.T.; Jacobsen, N. G. Modeling of a semisubmersible floating offshore wind platform in severe waves. *Journal of Offshore Mechanics and Arctic Engineering* 2019.
29. **Bachynski, E.E.**; Thys, M.; Delhaye, V. Dynamic response of a monopile wind turbine in waves: Experimental uncertainty analysis for validation of numerical tools. *Applied Ocean Research* 2019 ; 89: 96-114. <https://doi.org/10.1016/j.apor.2019.05.002>
28. Hegseth, J.M.; **Bachynski, E.E.** A semi-analytical frequency domain model for efficient design evaluation of spar floating wind turbines. *Marine Structures* 2019; 64:186-210
27. Souza, C.E.S., **Bachynski, E.E.**, Changes in surge and pitch decay periods of floating wind turbines for varying wind speed, *Ocean Engineering*, 2019; 180: 223-237. <https://doi.org/10.1016/j.oceaneng.2019.02.075>.

26. **Bachynski, E.E.**, Eliassen, L. The effects of coherent structures on the global response of floating offshore wind turbines. *Wind Energy* 2019; 22: 219– 238.
<https://doi.org/10.1002/we.2280>
25. Nejad, A.R., **Bachynski, E.E.**, Moan T. Effect of Axial Acceleration on Drivetrain Responses in a Spar-Type Floating Wind Turbine. ASME. *J. Offshore Mech. Arct. Eng.* 2019;141(3):031901-031901-7. doi:10.1115/1.4041996.
24. Smilden, E., **Bachynski, E.E.**, Sørensen, A.J., Amdahl, J. Wave Disturbance Rejection for Monopile Offshore Wind Turbines. *Wind Energy*, 2019, 22: 89– 108.
<https://doi.org/10.1002/we.2273>
23. **Bachynski, E. E.**, Pakozdi, C., Östman, A., and Stansberg, C.T. Computational Fluid Dynamics Reproduction of Nonlinear Loads on a Vertical Column during Extreme Irregular Wave Events. *Journal of Offshore Mechanics and Arctic Engineering* 2018, Volume 140.
22. Smilden, E., **Bachynski, E.E.**, Sørensen, A.J., Amdahl, J.. Site-specific controller design for monopile offshore wind turbines. *Marine Structures* 2018, Volume 61, p. 503-523.
<https://doi.org/10.1016/j.marstruc.2018.03.002>
21. Suja-Thauvin, L., Krokstad, J.R., **Bachynski, E.E.**, Critical assessment of non-linear hydrodynamic load models for a fully flexible monopile offshore wind turbine. *Ocean Engineering*, Volume 164, 15 September 2018, Pages 87-104, ISSN 0029-8018,
<https://doi.org/10.1016/j.oceaneng.2018.06.027>.
20. **Bachynski, E.E.**, Kristiansen, T., Thys, M. Experimental and numerical investigations of monopile ringing in irregular finite-depth water waves. *Applied Ocean Research* 2017, Volume 68. p. 154-170.
19. Suja-Thauvin, L., Krokstad, J., **Bachynski, E.E.**, de Ridder, E-J. Experimental results of a multimode monopile offshore wind turbine support structure subjected to steep and breaking irregular waves. *Ocean Engineering*, 2017, Volume 146. p. 339-351.
18. Karimirad, M., **Bachynski, E.E.** Sensitivity Analysis of Limited Actuation for Real-time Hybrid Model Testing of 5MW Bottom-fixed Offshore Wind Turbine. *Energy Procedia*, 2017, Volume 137, p. 14-25.
17. Velarde, J., **Bachynski, E.E.** Design and fatigue analysis of monopile foundations to support the DTU 10 MW offshore wind turbine. *Energy Procedia*, 2017, Volume 146, p. 3-13.
16. Luan, C., Chabaud, V., **Bachynski, E.E.**, Gao, Z., Moan, T. Experimental validation of a time-domain approach for determining sectional loads in a floating wind turbine hull subjected to moderate waves. *Energy Procedia*, 2017, Volume 137, p 366-381.
15. Chen, M.O., **Bachynski, E.E.**, Økland, O.D. Dynamic Responses of Jacket-Type Offshore Wind Turbines Using Decoupled and Coupled Models. *Journal of Offshore Mechanics and Arctic Engineering*, 2017. (doi:10.1115/1.4035772)

14. Leimester, M., **Bachynski, E.E.**, Muskulus, M., Thomas, P. Rational upscaling of a semi-submersible floating platform supporting a wind turbine. *Energy Procedia*, 2016:94, 434-442.
13. Nejad, A., **Bachynski, E.E.**, Li, L., Moan, T. Effect of Tower-top Axial Acceleration on Monopile Offshore Wind Turbine Drivetrains. *Energy Procedia*, 2016:94, 487-496.
12. Robertson, A.N., Wendt, F., Jonkman, J.M., Popko, W., Borg, M., Bredmose, H., Schlutter, F., Qvist, J., Bergua, R., Harries, R., Yde, A., Nygaard, T.A., de Vaal, J.B., Oggiano, L., Bozonnet, P., Bouy, L., Sanchez, C.B., García, R.C., **Bachynski, E.E.**, Tu, Y., Bayati, I., Borisade, F., Shin, H., van der Zee, T., Guerinel, M.. OC5 Project Phase Ib: Validation of Hydrodynamic Loading on a Fixed, Flexible Cylinder for Offshore Wind Applications. *Energy Procedia* 2016:94, 82-101.
11. Nematbakhsh, A., **Bachynski, E.E.**, Gao, Z., Moan, T. Comparison of Wave Load Effects on a TLP Wind Turbine by Using Computational Fluid Dynamics and Potential Flow Theory Approaches. *Applied Ocean Research*, 2015: 53, 142–154.
10. **Bachynski, E.E.** Chabaud, V., Sauder, T. Real-time hybrid model testing of floating wind turbines: sensitivity to limited actuation. *Energy Procedia*, 2015, vol 80.
9. Nejad, A.R., **Bachynski, E.E.**, Kvittem, M.I., Luan, C., Gao, Z., Moan, T. Stochastic dynamic load effect and fatigue damage analysis of drivetrains in land-based and TLP, spar, and semi-submersible floating wind turbines. *Marine Structures*, 2015: 422, 137-153.
8. Nejad, A.R., **Bachynski, E.E.**, Gao, Z., Moan, T. Fatigue damage comparison of mechanical components in a land-based and spar floating wind turbine. *Procedia Engineering* 101 (2015) 330-338.
7. **Bachynski, E.E.**, Kvittem, M.I., Luan, C., Moan, T, 2014. Wind-wave misalignment effects on floating wind turbines: motions and tower load effects. *Journal of Offshore Mechanics and Arctic Engineering*; volume 136, pp. 041902-1-- 041902-12. doi:10.1115/1.4028028.
6. **Bachynski, E.E.**, Moan, T, 2014. Ringing loads on tension leg platform wind turbines. *Ocean Engineering*; volume 84, pp. 237-248.
5. **Bachynski, E.E.**, Etemaddar, M., Kvittem, M.I., Luan, C., Moan, T., 2013. Dynamic Analysis of floating wind turbines during pitch actuator fault, grid loss, and shutdown. *Energy Procedia* volume 35, pp. 210-222.
4. **Bachynski, E.E.**, Moan, T, 2012. Design Considerations for Tension Leg Platform Wind Turbines, *Marine Structures*, 2012; volume 29 (1), pp. 89-114.
3. Kvittem, M.I., **Bachynski, E.E.**, Moan, T., 2012. Effects of hydrodynamic modelling in fully coupled simulations of a semi-submersible wind turbine. *Energy Procedia*, volume 24, pp. 351-362. doi: 10.1016/j.egypro.2012.06.118.
2. **Bachynski, E.E.**, Young, Y.L., Yeung, R.W., 2012, Analysis and Optimization of a Tethered Wave Energy Converter in Irregular Waves, *Renewable Energy*, Volume 48, pp. 133-145. doi:10.1016/j.renene.2012.04.044

1. **Bachynski, E.**, Motley, M.R., Young, Y.L.. 2012, Dynamic Hydroelastic Scaling of the Underwater Shock Response of Composite Marine Structures, *Journal of Applied Mechanics*, Volume 79, Issue 1, 014501 (7 pages) doi:10.1115/1.4004535.

Peer-Reviewed Conference Papers

31. Li, H.; **Bachynski, E. E.** "Numerical Simulation of Fully Nonlinear Interaction Between Regular and Irregular Waves and a 2D Floating Body." *Proceedings of the ASME 2019 38th International Conference on Ocean, Offshore and Arctic Engineering. Volume 7A: Ocean Engineering*. Glasgow, Scotland, UK. June 9–14, 2019. OMAE2019-96680

30. H. Dadmarzi, F; Thys, M; **Bachynski, E. E.** "Validation of Hydrodynamic Loads on a Large-Diameter Monopile in Regular Waves." *Proceedings of the ASME 2019 38th International Conference on Ocean, Offshore and Arctic Engineering. Volume 7A: Ocean Engineering*. Glasgow, Scotland, UK. June 9–14, 2019. OMAE2019-95929.

29. **Bachynski, E. E.**; Page, A.; Katsikogiannis, G. "Dynamic Response of a Large-Diameter Monopile Considering 35-Hour Storm Conditions." *Proceedings of the ASME 2019 38th International Conference on Ocean, Offshore and Arctic Engineering. Volume 10: Ocean Renewable Energy*. Glasgow, Scotland, UK. June 9–14, 2019. OMAE2019-95170.

28. Robertson, A.N., **Bachynski, E.E.**, Gueydon, S., Wendt, F., Schünemann, P., Jonkman, J. Assessment of experimental uncertainty for a floating wind semisubmersible under hydrodynamic loading. In: *Proceedings of the 37th International Conference on Ocean, Offshore and Arctic Engineering*. Madrid, Spain, no. OMAE2018-77703.

27. Hegseth, J.M., **Bachynski, E.E.**, Karimirad, M. Comparison and validation of hydrodynamic load models for a semi-submersible floating wind turbine. In: *Proceedings of the 37th International Conference on Ocean, Offshore and Arctic Engineering*. Madrid, Spain, no. OMAE2018-77676.

26. Silva de Souza, C.E., **Bachynski, E.E.** Effects of hull flexibility on the structural dynamics of a TLP floating wind turbine. In: *Proceedings of the 37th International Conference on Ocean, Offshore and Arctic Engineering*. Madrid, Spain, no. OMAE2018-77310.

25. Rivera-Arreba, I., Bruinsma, N., **Bachynski, E.E.**, Viré, A., Paulsen, B.T., Jacobsen, N.G. Modelling of a semisubmersible floating wind platform in severe waves. In: *Proceedings of the 37th International Conference on Ocean, Offshore and Arctic Engineering*. Madrid, Spain, no. OMAE2018-77680.

24. Popko, W. et al. Verification of a numerical model of the offshore wind turbine from the Alpha Ventus wind farm within OC5 phase III. In: *Proceedings of the 37th International Conference on Ocean, Offshore and Arctic Engineering*. Madrid, Spain, no. OMAE2018-77589.

23. **Bachynski, E.E.**, Kristiansen T. Reproduction of monopile ringing events in reduced-duration model tests. In: *Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering*. Trondheim, Norway, no. OMAE2017-61034.

22. Eliassen, L., **Bachynski E.E.** The effect of turbulence model on the response of a large floating wind turbine. In: Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering. Trondheim, Norway, no. OMAE2017-61179.
21. Karimirad, M. **Bachynski, E.E.**, Berthelsen, P.A., Ormberg H. Comparison of real-time hybrid model testing of a braceless semi-submersible wind turbine and numerical simulations. . In: Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering. Trondheim, Norway, no. OMAE2017-61121.
20. Kristiansen, T., **Bachynski, E.E.**, Bickert, F., Hniche, A., Kocher, V., Liandrat A. Aspects in model testing of a monopile in steep waves. . In: Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering. Trondheim, Norway, no. OMAE2017-61765.
19. Nejad, A.R., **Bachynski, E.E.**, Moan, T. On tower top axial acceleration and drivetrain responses in a spar-type floating wind turbine. In: Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering. Trondheim, Norway, no. OMAE2017-62314.
18. Smilden, E., **Bachynski, E.E.**, Sørensen, A.J.. Identification of key contributors to lifetime accumulated fatigue damage in offshore wind turbine support-structures. In: Proceedings of the 36th International Conference on Ocean, Offshore and Arctic Engineering. Trondheim, Norway, no. OMAE2017-61708.
17. Pákozdi, C; Östman, A., **Bachynski, E.E.**, Stansberg, C.T., 2016. CFD Reproduction of model test generated extreme irregular wave events and nonlinear loads on a vertical column. In: Proceedings of the 35th International Conference on Ocean, Offshore and Arctic Engineering, Busan, South Korea, no. OMAE2016-54869.
16. Sauder, T.; Chabaud, V.; Thys, M.; **Bachynski, E. E.** & Sæther, L. O., 2016. Real-Time Hybrid Model Testing of a Braceless Semi-Submersible Wind Turbine: Part I: The Hybrid Approach. In: Proceedings of the 35th International Conference on Ocean, Offshore and Arctic Engineering, Busan, South Korea, no. OMAE2016-54435.
15. **Bachynski, E. E.**; Thys, M.; Sauder, T.; Chabaud, V. & Sæther, L. O., 2016. Real-Time Hybrid Model Testing of a Braceless Semi-Submersible Wind Turbine: Part II: Experimental Results. In: Proceedings of the 35th International Conference on Ocean, Offshore and Arctic Engineering, Busan, South Korea, no. OMAE2016-54437.
14. Berthelsen, P. A.; **Bachynski, E. E.**; Karimirad, M. & Thys, M., 2016. Real-time Hybrid Model Testing of a Braceless Semi-Submersible Wind Turbine. Part III: Calibration of a Numerical Model. In: Proceedings of the 35th International Conference on Ocean, Offshore and Arctic Engineering, Busan, South Korea, no. OMAE2016-54640.
13. **Bachynski, E. E.**, and Ormberg, H., 2015. Hydrodynamic modeling of large-diameter bottom-fixed offshore wind turbines. In: Proceedings of the 34th International Conference on Ocean, Offshore and Arctic Engineering, St. John's, NL, Canada, no. OMAE2015-42028.

12. **Bachynski, E. E.**, and Ormberg, H. Comparison of Engineering Models for the Aerodynamic Load Distribution along a Wind Turbine Blade. Proceedings of the 25th International Offshore and Polar Engineering Conference, Kona, Hawaii, USA, June 2015. 2015-TPC-0406.
11. Ormberg, H., and **E.E. Bachynski**. Sensitivity of Estimated Tower Fatigue to Wind Modeling for a Spar Floating Wind Turbine. Proceedings of the 25th International Offshore and Polar Engineering Conference, Kona, Hawaii, USA, June 2015. 2015-TPC-0729.
10. **Bachynski, E. E.**, and Moan, T., 2014. Second order wave force effects on tension leg platform wind turbines in misaligned wind and waves. In: Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering, San Francisco, California, USA, no. OMAE2014-23131.
9. Ong, M. C.; **Bachynski, E. E.**; Økland, O. D. & Passano, E. , 2014. Dynamic Responses of a Jacket-Type Offshore Wind Turbine using Decoupled and Coupled Models. In: Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering, San Francisco, CA, USA, no. OMAE2014-24246.
8. Nematbakhsh, A., **Bachynski E.E.**, Gao, Z. and Moan, T. , 2014. Comparison of Wave Induced Response of a TLP Wind Turbine Obtained by CFD Method and Potential Theory. Proceedings of the 22nd International Offshore (Ocean) and Polar Engineering Conference, Busan, Korea. June 2014. 2014-TPC-0365.
7. **Bachynski, E.E.**, Moan, T. Hydrodynamic Analysis of Tension Leg Platform Wind Turbines. Proceedings of the ASME 2013 32nd International Conference on Ocean, Offshore and Arctic Engineering, Nantes, France. OMAE2013-10120.
6. **Bachynski, E.E.**, Moan, T. Point Absorber Design for a Combined Wind and Wave Energy Converter on a Tension-Leg Support Structure. Proceedings of the ASME 2013 32nd International Conference on Ocean, Offshore and Arctic Engineering, Nantes, France. OMAE2013-10429.
5. **Bachynski, E.E.**, Moan, T. Linear and Nonlinear Analysis of Tension Leg Platform Wind Turbines. Proceedings of the 22nd International Offshore (Ocean) and Polar Engineering Conference, Rhodes, Greece, June 2012. 2012-TPC-0629.
4. Ormberg, H., and **E.E. Bachynski**. Global Analysis of Floating Wind Turbines: Code Development, Model Sensitivity, and Benchmark Study. Proceedings of the 22nd International Offshore (Ocean) and Polar Engineering Conference, Rhodes, Greece, June 2012. 2012-TPC-0734.
3. T. Moan, Z. Gao, M. Karimirad, **E.E. Bachynski**, M. Etemaddar, Z. Jiang, M.I. Kvittem, M. Muliawan, Y. Xing. Recent Developments of the Design and Analysis of Floating Wind Turbines. ICSOT: Developments In Fixed & Floating Offshore Structures, 23 – 24 May 2012, Busan, Korea.
2. **Bachynski, E.**, Young, Y. L., Yeung, R. W., Analysis and Dynamic Scaling of Tethered Wave Energy Converters in Irregular Waves, Proceedings of the ASME 2011 30th International

Conference on Ocean, Offshore and Arctic Engineering, Rotterdam, the Netherlands.
OMAE2011-49684.

1. **Bachynski, E.**, Young, Y. L., Yeung, R. W., 2010, Performance of a Tethered Point Wave-Energy Absorber in Regular and Irregular Waves, Proceedings of ASME 2010 3rd Joint US-European Fluids Engineering Summer Meeting and 8th International Conference on Nanochannels, Microchannels, and Minichannels. FEDSM2010-ICNMM2010.

Book Chapters

Offshore support structure design. In: *Renewable Energy from the Oceans: From wave, tidal and gradient systems to offshore wind and solar*. IET 2019. DOI:10.1049/pbpo129e_ch7

Fixed and Floating Offshore Wind Turbine Support Structures. in: *Offshore Wind Energy Technology*. Wiley 2018. ISBN 978-1-119-09779-2. p. 103-141.

Structural Design. in: *Floating Offshore Wind Energy*. Springer 2016. ISBN 978-3-319-29396-7. p. 182-196.

Abstracts

Insel, N., Ehlers, T.A., Poulsen, C.J., **Bachynski, E.**, Schaller, M., 2006. Quantifying Quaternary climate variability and erosion of the central Andes with paleoclimate modeling and cosmogenic ¹⁰Be; Eos, Trans. AGU, 87, Fall Meet. Suppl., Abstract T11A-0413

Other

Bachynski, E.E., Kvitem, M.I. På dypt vann. Dagens Næringsliv. 2 Nov 2012 p 40.

TEACHING EXPERIENCE

MSc course module Integrated Dynamic Analysis of Wind Turbines, 3.75 ECTS, 5th year, NTNU
2014-2015: Delivered 3 lectures per year
2016-2018: Organized course, developed course project, and delivered 9 lectures per year
2019: Organized course, developed course project, and delivered 3 lectures

TMR4182 Marine Dynamics, NTNU

2017-2019: 10 lectures per year, 1/3 of 7.5 ECTS course, 3rd year (spring)
2019: revised and took over primary responsibility (fall). 16 lectures per year

TMR4305 Dynamic Analysis of Marine Structures, 3.75 ECTS, 5th year, NTNU

2018: Substitute lecturer for most of the course

MSc course Multidisciplinary Design Optimization, 3.75 ECTS, 5th year, NTNU

2019: Developed course, delivered 10 lectures

Stochastic dynamics of marine structures, Univ. of Michigan, master/PhD level

2018: Delivered 5 lectures

Advanced Marine Design, Univ. of Michigan, master/PhD level

2020: Delivered 4 lectures and designed wind turbine optimization assignment

2017, 2018, 2019: Short course at Offshore Mechanics and Arctic Engineering Conference

Supervision of master students

1. Joey Velarde, 2015.8-2016.6. EWEM*. Design of Monopile Foundations to Support the DTU 10 MW Offshore Wind Turbine.
2. Kristian Freng Svendsen, 2015.8-2016.6. EWEM. Structural Design and Dynamic Analysis of a Tension Leg Platform Wind Turbine, Considering Elasticity in the Hull.
3. Mareike Leimeister, 2015.8-2016.6. EWEM. Rational Upscaling and Modelling of a Semi-Submersible Floating Offshore Wind Turbine.
4. Mohibb Ghani Malik, 2015.8-2016.6. Hydrodynamic Modelling Effects on Fatigue Calculations for Monopile Offshore Wind Turbines.
5. Irene Rivera Arreba, 2016.8-2017.6. EWEM. CFD calculation of nonlinear wave loads on a floating wind turbine.
6. Jingyi Yu, 2016.8-2017.6. EWEM. Efficient rotor modelling for real-time hybrid testing.
7. Oda Emilie Nilseng Danielsen, 2016.8-2017.6. Analysis of innovative mooring systems for floating semi-submersible offshore wind turbines.
8. Qian Shi, 2016.8-2017.6. EWEM. Ice detection for wind turbines.
9. Gaspar Gohin, 2017.8-2018.6. Upscaling, analysis and design of a floating vertical axis wind turbine.
10. Marius Lien Killi, 2017.8-2018.6. Hydrodynamic interaction among the pontoons of a floating bridge: effect on global responses.
11. Alvaro Ortega Nadal, 2017.8-2018.6. Time domain simulation parameters for fatigue assessment of an offshore gravity-based wind turbine.
12. Pratim Jayesh Patel, 2017.8-2018.6. Validation of nonlinear hydrodynamic load models for a monopile in long-crested waves.
13. Tiril Stenlund, 2017.8-2018.6. Mooring system design for a large floating wind turbine in shallow water.
14. Miloš Ristić, 2018.5-2018.10. Validation of Load Models and Calculations of Response for a Monopile in Steep Water Waves. (TU Berlin)
15. Megan Nissa Chan Chow, 2017.9-2018.12. EWEM. Mooring System Design for Wind Farm in Very Deep Water.
16. Chern Fong Lee, 2018.8-2019.6. Consequences of load mitigation control strategies for a floating wind turbine.
17. Daniel Kaasa, 2018.8-2019.6. Integrated dynamic analysis of a semi-submersible wind turbine considering hull flexibility
18. Chih-gang Hsu, 2018.8-2019.7. EWEM. Substructure Models for Dynamic Analysis of Floating Wind Turbines and the Effect of Hull Flexibility
19. Xuwen Wang, 2018.8-2019.6. Dynamic Analysis of Floating Wind Turbines Subjected to Deterministic Wind Gusts

Co-supervision of master students

1. Mikal Espedal Hansson, 2016.1-2016.6. Main supervisor Trygve Kristiansen. Numerical Analysis of a Floating Wind Turbine: Global Load Effects in the Tower Structure.
2. Even Sandøy Nærum. 2017.1-2017.6. Main supervisor Marilena Greco. Numerical study on the challenges of floating wind turbines in intermediate depth.
3. Mildrid Haga. 2017.1-2017.6. Main supervisor Marilena Greco. Floating wind turbine hydrodynamics in intermediate depth.
4. Thijs Bouman. 2017.9-2018.11. EWEM. A Winkler Model for the Seismic Analysis of Monopile Foundations.

5. Reeti Sarkar, 2018.8-2019.9. EWEM. Impact of seabed scour on the dynamics of bottom-founded offshore wind turbines with large diameter monopiles

*EWEM: European Wind Energy Master – theses supervised in collaboration with TU Delft.

PROFESSIONAL MEMBERSHIPS

Society of Naval Architects and Marine Engineers

Tau Beta Pi Engineering Honors Society

Tekna (Teknisk-naturvitenskapelig forening)

INTERESTS

Studentersamfundets Symfoniorkester (2010-present, seminar committee 2012, 2014, 2016)

Trondheim Triatlonklubb (2012 – present)

(University of Michigan) Campus Symphony Orchestra (2005-2009), co-principal cellist (2005-2008)

Michigan Pops Orchestra (2005-2009), co-principal cellist (2006-2009)

Running, bicycling, swimming, cross-country skiing