

CONNOR H. LIGEIKIS

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EDUCATION

University of Michigan

Ph.D. in Civil Engineering
Concentration: Intelligent Systems
Adviser: Prof. Jeffrey Scruggs
NSF Graduate Research Fellow

Ann Arbor, MI
September 2019 – May 2023 (Anticipated)

University of Michigan

M.S. in Electrical & Computer Engineering, GPA 3.947/4.0
Concentration: Control Systems

Ann Arbor, MI
September 2019 – May 2021

University of Connecticut

M.S. in Civil Engineering, GPA: 4.164/4.0
Concentration: Structural Engineering
Adviser: Prof. Richard Christenson
US Dept. of Education GAANN Fellow

Storrs, CT
August 2017 – May 2019

University of Connecticut

B.S.E in Civil Engineering, GPA: 3.986/4.0
Summa Cum Laude | Honors Scholar | Minor in Computer Science

Storrs, CT
August 2013 – May 2017

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, University of Michigan

August 2019 – Present

Graduate R&D Intern, Sandia National Laboratories

June 2019 – August 2019

Graduate Research Assistant, University of Connecticut

June 2017 – May 2019

Undergraduate Research Assistant, University of Connecticut

Spring 2017

Transportation Construction Inspector, NYS Dept. of Transportation

Summers 2014, 2015, 2016

JOURNAL ARTICLES

Published/Accepted:

1. Abbiati, G., Marelli, S., **Ligeikis, C.**, Christenson, R., & Stojadinovic, B. (2022). Training of a classifier for structural component failure based on hybrid simulation and kriging. *ASCE Journal of Engineering Mechanics*, 148(1), 04021137.
2. **Ligeikis, C.**, & Christenson, R. (2020). Identifying stochastic frequency response functions using real-time hybrid substructuring, principal component analysis, and kriging metamodeling. *Experimental Techniques*, 44(6), 763-786. [Special Issue on New Frontiers and Innovative Methods for Hybrid Simulation]
3. **Ligeikis, C.**, & Christenson, R. (2020). Assessing structural reliability using real-time hybrid substructuring. *International Journal of Lifecycle Performance Engineering*, 4(1-3), 158-183. [Special Issue on Hybrid Simulation for Multi-Hazard Engineering]

In Review:

1. **Ligeikis, C., & Scruggs, J.** On the feasibility of self-powered linear feedback control. [Submitted to *IEEE Transactions on Automatic Control*]

In Preparation:

1. **Ligeikis, C., & Scruggs, J.** Experimental validation of a three-phase vibratory energy harvester employing vector control. [To be submitted to *IEEE Transactions on Control Systems Technology*]
2. **Ligeikis, C., & Scruggs, J.** Causal, constrained model predictive control of wave-energy converters in stochastic waves. [To be submitted to *IEEE Transactions on Sustainable Energy*]
3. Fang, Q., **Ligeikis, C.**, Johnson, E., Christenson, R., & Wojtkiewicz, S. Experimental verification of optimal clipped linear strategies for controllable damping through real-time hybrid simulation.

PEER-REVIEWED CONFERENCE PAPERS

1. **Ligeikis, C., & Scruggs, J.** (2022, accepted). An LQG-inspired framework for self-powered feedback control. *2022 IEEE Conference on Decision and Control*, Cancun, Mexico, December 6-9.
2. **Ligeikis, C., & Scruggs, J.** (2022). Discrete-time, performance-guaranteed control of vibratory systems with power directionality constraints. *2022 American Control Conference*, Atlanta, GA, USA, June 8-10.
3. **Ligeikis, C., & Scruggs, J.** (2021). Feasibility and synthesis of finite-dimensional, linear time-invariant synthetic admittances for self-powered systems. *2021 IEEE Conference on Decision and Control*, Austin, TX, USA, December 13-15.
4. **Ligeikis, C., & Scruggs, J.** (2021). Nonlinear feedback controllers for self-powered systems with non-ideal energy storage subsystems. *2021 American Control Conference*, New Orleans, LA, USA, May 26-28.

OTHER CONFERENCE PROCEEDINGS & PRESENTATIONS

1. **Ligeikis, C., & Scruggs, J.** (2022). Self-powered synthetic admittances for linear feedback control. *9th IFAC Symposium on Mechatronic Systems*, Los Angeles, CA, USA, September 7-9. [Abstract]
2. **Ligeikis, C., & Scruggs, J.** (2022). Causal, constrained model predictive control of wave energy converters in stochastic waves. *16th International Conference on Motion and Vibration Control*, Los Angeles, CA, USA, September 7-9. [Abstract]
3. **Ligeikis, C.**, Bouma, A., Shim, J., Manzato, S., Kuether, R., & Roettgen, D. (2020). Modeling and experimental validation of a pylon subassembly mockup with multiple nonlinearities. *38th International Modal Analysis Conference*, Houston, TX, USA, February 10-13. [Full paper]
4. Abbiati, G., Marelli, S., **Ligeikis, C.**, Christenson, R., Sudret, B. & Stojadinovic, B. (2019). Active learning of the buckling domain of an elastically restrained beam based on hybrid simulation and kriging surrogate modeling. *HYSIM19 – Joint ETH-MECHS Workshop: New Frontiers and Innovative Methods for Hybrid Simulation*. Zurich, Switzerland, March 13-15. [Abstract]

5. **Ligeikis, C.** & Christenson, R. (2019). Incorporating uncertainty in the physical substructure during hybrid substructuring. *37th International Modal Analysis Conference*, Orlando, FL, USA, January 28-31. [Extended abstract]
6. **Ligeikis, C.**, Freeman, A., & Christenson, R. (2018). Assessing structural reliability at the component test stage using real-time hybrid substructuring. *36th International Modal Analysis Conference*, Orlando, FL, USA, February 12-15. [Extended abstract]
7. Dahmani, A., Dahan, F., Qweider, F., **Ligeikis, C.**, Mulqueen, J., Bagtzoglou, C., Albino, R., Beach, R., Damon, S., & Anzinger, E. (2018). Sand cap stabilization and sediment resuspension mitigation optimization using innovative protein polysaccharide biopolymers (PPBs). *Western Dredging Association Dredging Summit & Expo '18*, Norfolk, VA, USA, June 25-28. [Full paper]
8. Dahmani, A., Dahan, F., **Ligeikis, C.**, Qweider, F., Mulqueen, J., Albino, R., Beach, R., & Damon, S. (2018). Sand cap stabilization, sediment resuspension mitigation and GAC/PAC amendment transport optimization using innovative protein polysaccharide biopolymers (PPBs). *11th International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, Palm Springs, CA, USA, April 8-12. [Poster]

TECHNICAL REPORTS

1. Christenson, R. & **Ligeikis, C.** (2018). National Institute for Undersea Vehicle Technology (NIUVT) Test Report 08-2018-01 submitted to General Dynamics Electric Boat, 16 pages.
2. Christenson, R. & **Ligeikis, C.** (2018). National Institute for Undersea Vehicle Technology (NIUVT) Test Report 08-2018-02 submitted to General Dynamics Electric Boat, 17 pages.
3. Christenson, R. & **Ligeikis, C.** (2018). National Institute for Undersea Vehicle Technology (NIUVT) Test Report 08-2018-03 submitted to General Dynamics Electric Boat, 35 pages.

THESES

1. **Ligeikis, C.** (in progress). Self-powered systems for structural control: theory and experiment. Ph.D. Thesis. University of Michigan.
2. **Ligeikis, C.** (2019). Exploring uncertainty in real-time hybrid substructuring. Master's Thesis. University of Connecticut.
3. **Ligeikis, C.** (2017). Effect of surface modifying biopolymers on sand cohesion. Undergraduate Honors Thesis. University of Connecticut.

SELECTED AWARDS/HONORS

Cyber-Physical Systems Rising Star 2022 , University of Virginia	May 2022
Graduate Research Fellowship , National Science Foundation	2019 – 2023
GAANN Fellowship , U.S. Dept. of Education	2017 – 2019
Honors Scholar , University of Connecticut	May 2017
The Moles Scholarship , The Moles Organization, New York City, NY	Fall 2016
Transportation Undergraduate Research Fellowship , University of Connecticut	Summer 2016
Lawrence S. St. John Scholarship , UConn School of Engineering	Fall 2016
Jack E. Stephens Scholarship , UConn School of Engineering	Fall 2015
Pratt & Whitney Leadership, Teaching, & Mentoring Fellowship , UConn School of Engineering	Fall 2014

Academic Excellence Scholarship , University of Connecticut	2013 – 2017
Babbidge Scholar , University of Connecticut	2014, 2016
New England Scholar , University of Connecticut	2015

TEACHING, MENTORING, & OUTREACH

Graduate Student Instructor , University of Michigan	
<i>CEE 375 Sensors, Circuits, and Signals</i>	Winter 2022
- Facilitated lab sessions, graded lab submissions, held office hours	
<i>CEE 373 Statistical Methods for Data Analysis and Uncertainty Modeling</i>	Fall 2022
- Prepared exams/HW assignments, guest lectured, supervised undergraduate graders, graded exams, held office hours	
Invited Speaker , University of Connecticut Naval Science & Technology Program	Fall 2018
<i>ENGR 3109 Undergraduate Navy STEM Professional Seminar</i>	
	Fall 2018
Guest Lecturer , University of Connecticut	
<i>CE 2110 Applied Mechanics I (Statics)</i>	
- Presented lecture material on shear and moment diagrams	
Senior Design Project Advisor , University of Connecticut	August 2017 – May 2018
<i>CE 4900W Civil Engineering Projects</i>	
- Advised a group of four senior civil engineering students as they completed their senior design project over the course of two semesters	
Undergraduate Teaching Assistant , University of Connecticut	
<i>ENVE 3120 Fluid Mechanics</i>	Spring 2016, Fall 2016
<i>CE 2110 Applied Mechanics I (Statics)</i>	Fall 2014, Fall 2015
- Graded HW assignments, held office hours	
Tutor , Windham Heights After School Program, Willimantic, CT	Fall 2014 – Spring 2016
- Helped elementary and middle school students with their math, science, and reading homework	

LEADERSHIP & SERVICE

CEE Faculty Search Committee Graduate Student Representative , University of Michigan	Fall 2021 – Spring 2022
- Reviewed applications, interviewed candidates, participated in committee meetings	
CEE Graduate Student Advisory Council Member , University of Michigan	Fall 2020 – Present
- GSAC serves as an advisory body to the CEE Dept. Chair and Associate Dept. Chair of Graduate Programs	
- Responsible for developing and facilitating social/professional events for CEE graduate students	
Graduate Advisor , Concrete Canoe Association, University of Connecticut	Fall 2017 – Spring 2019
Paper Reviewer	Present
- <i>Joint 9th IFAC Symposium on Mechatronic Systems and 16th International Conference on Motion and Vibration Control</i>	
- <i>2022 American Control Conference</i>	
- <i>Experimental Techniques</i> (A journal of the Society for Experimental Mechanics)	

PROFESSIONAL CERTIFICATIONS

Engineer-in-Training
EIT.0011805

State of Connecticut
Issued: July 7, 2017

WORKSHOPS ATTENDED

Cyber-Physical Systems (CPS) Rising Stars Workshop 2022, University of Virginia, Charlottesville, VA, May 26, 2022.

PREEMPTIVE (Pacific Rim Earthquake Engineering Mitigation Protective Technologies International Virtual Environment) Advanced Studies Institute, University of Costa Rica, San Jose, Costa Rica, February 7-13, 2019.

Substructuring in Engineering Dynamics: Emerging Numerical and Experimental Techniques – Short Course, International Center for Mechanical Sciences, Udine, Italy, July 23-27, 2018.