Matthew V. Bilskie

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EDUCATION

Ph.D.	Civil Engineering, Louisiana State University	2016
M.S.	Civil Engineering, University of Central Florida	2012
B.S.	Civil Engineering, University of Central Florida	2009

PROFESSIONAL APPOINTMENTS

2020 – Present	Assistant Professor School of Environmental, Civil, Agricultural and Mechanical Engineering University of Georgia
2016 – 2020	Research Scientist Center for Coastal Resiliency Louisiana State University

PUBLICATIONS

Refereed Journal Articles (†Student Supervised)

1. †Gao, S., **Bilskie, M.V.**, Hagen, S.C., 2022, "PyVF: A Python Program for Extracting Vertical Features from LiDAR-DEMs," *Environmental Modelling and Software*, In Press. Accepted Aug. 15.

2. Alizad, K.D., Morris, J.T., **Bilskie, M.V.**, Passeri, D.L., Hagen, S.C., 2022, "Integrated Modeling of Dynamic Marsh Feedbacks and Evolution Under Sea-level Rise in a Mesotidal Estuary (Plum Island, MA, USA)," *Water Resources Research*, 58, doi: doi.org/10.1029/2022WR032225.

3. Del-Angel, D.C., Yoskowitz, D., **Bilskie, M.V.**, Hagen, S.C., 2022, "A Socio-Economic Dataset of the Risk Associated with the 1% and 0.2% Return Period Stillwater Flood Elevation Under Sea-Level Rise for the Northern Gulf of Mexico," *Data*, 7(6), doi: 10.3390/data7060071.

4. **Bilskie, M.V.**, DelAngel, D., Yoskowitz, D., Hagen, S.C., 2022, "Future Flood Risk Exacerbated by the Dynamic Impacts of Sea Level Rise," *Earth's Future*, 10(4). doi: 10.1029/2021EF002414.

5. **Bilskie, M.V.**, Asher, T.G., Miller, P.W., Fleming, J.G., Hagen, S.C., Luettich, R.A., 2022, "Real-time Simulated Storm Surge Predictions during Hurricane Michael (2018)," *Weather & Forecasting*, 37(7), pp. 1085-1102, doi: 10.1175/WAF-D-21-0132.1

6. †Santiago-Collazo, F.L., **Bilskie, M.V.**, Bacopoulos, P., Hagen, S.C., 2021, "An Examination of Compound Flood Hazard Zones for Past, Present and Future Low-gradient Coastal Land-margins," *Frontiers in Climate*. 3, doi:10.3389/fclim.2021.684035.

7. Passeri, D.L., **Bilskie, M.V.**, Hagen, S.C., Mickey, R.C., Dalyander, P.S., Gonzalez, V.M., 2021, "Assessing the effectiveness of nourishment in decadal barrier island morphological resilience," *Water*. 13(7), doi:10.3390/w1307094.

8. **Bilskie, M.V.**, H. Zhao, D. Resio, J. Atkinson, Z. Cobell, S.C. Hagen, 2021, "Enhancing flood hazard assessments in coastal Louisiana through coupled hydrologic and surge processes." *Frontiers in Water*., 3. doi: 10.3389/frwa.2021.609231.

9. Plumlee, M., T.G. Asher, W. Chang, **M.V. Bilskie**, 2020, "High-fidelity hurricane surge forecasting using emulation and sequential experiments." *Annals of Applied Statistics*. 15(1), doi: 10.1214/20-AOAS1398,

10. DeLorme, D.E., S.H. Stephens, **M.V. Bilskie**, S.C. Hagen, 2020, "Coastal decision-makers' perspectives on updating storm surge guidance tools." *Journal of Contingencies and Crisis Management*. 28, 158-168, doi: 10.1111/1468-5973.12291.

11. Cyriac, R. J.C. Dietrich, C.A. Blain, C. Dawson, K. Dresback, A. Fathi, **M.V. Bilskie**, H.C. Graber, S.C. Hagen, R. Kolar, 2020, "Wind and tide effects on the Choctawhatchee Bay Plume and Implications for Surface Transport at Destin Inlet," *Regional Studies in Marine Sciences*, 35, doi:10.1016/j.rsma.2020.101131.

12. Siverd, C.G., S.C. Hagen, **M.V. Bilskie**, D.H. Braud, R.R. Twilley, 2020, "Quantifying storm surge and risk reduction costs: A case study for Lafitte, Louisiana," *Climatic Change*, 161(1). doi:10.1007/s10584-019-02636-x.

13. **Bilskie, M.V.**, S.C. Hagen, S.C. Medeiros, 2020, "Unstructured finite element mesh decimation for real-time hurricane storm surge forecasting," *Coastal Engineering*. Vol. 156, doi:10.1016/j.coastaleng.2019.103622.

14. Siverd, C.G., S.C. Hagen, **M.V. Bilskie**, D.H. Braud, R.H. Peele, M.R. Foster-Martinez, R.R. Twilley, 2019, "Coastal Louisiana landscape and storm surge evolution: 1850-2100," *Climatic Change*, Vol. 157, pp. 445-468, doi:10.1007/s10584-019-02575-7.

15. †Santiago-Collazo, F.L., **M.V. Bilskie**, S.C. Hagen, 2019, "A comprehensive review of compound inundation models in low-gradient coastal watersheds" *Environmental Modelling & Software*, Vol. 119, pp. 166-181, doi:10.1016/j.envsoft.2019.06.002.

16. Siverd, C.G., S.C. Hagen, **M.V. Bilskie**, D.H. Braud, S. Gao, R.H. Peele, R.R. Twilley, 2019. "Assessment of the temporal evolution of storm surge across coastal Louisiana" *Coastal Engineering*, Vol. 150, pp. 59-78, doi:10.1016/j.coastaleng.2019.04.010.

17. Elko N., J.C. Dietrich, M. Cialone, H. Stockdon, **M.V. Bilskie**, B. Boyd, B. Charbonneau, D. Cox, K.M. Dresback, S. Elgar, V. Tomiczek, A. Lewis, J. Long, T.C. Massey, T. Mayo, K. McIntosh, N. Nadal, B. Raubenheimer, A. Wargula, 2019. "Advancing the understanding of storm processes and impacts," *Shore & Beach*, 87(1), 41-45.

18. **Bilskie, M.V.**, S.C. Hagen, J.L. Irish, 2018. "Development of return period stillwater floodplains for the northern Gulf of Mexico under the coastal dynamics of sea level rise," *ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering*, 145(2). doi:10.1061/(ASCE)WW.1943-5460.0000468.

19. Alizad, K., S.C. Hagen, S.C. Medeiros, **M.V. Bilskie**, J.T. Morris, L. Balthis, C.A. Buckel, 2018. "Dynamic responses and implications to coastal wetlands and the surrounding regions under sea level rise," *PLOS ONE*, Vol. 13 (10). doi:10.1371/journal.pone.0205176.

20. Xiao, X., D. Wang, S.C. Medeiros, **M.V. Bilskie**, S.C. Hagen, C.R. Hall, 2018. "Exploration of the effects of storm surge on the extent of saltwater intrusion into the surficial aquifer in coastal east-central Florida (USA)," *Science of the Total Environment*, Vol. 648, pp. 1002-1017, doi:10.1016/j.scitotenv.2018.08.199.

21. D.L. Passeri, **Bilskie, M.V.**, N.G. Plant, J.W. Long, S.C. Hagen, 2018. "Dynamic modeling of barrier island response to hurricane storm surge under future sea level rise," *Climatic Change*, Vol. 149 (3), pp. 413-425, doi:10.1007/s10584-018-2245-8.

22. DeLorme, D.E., Stephens, S.H., Hagen, S.C., **Bilskie, M.V.**, 2018. "Communicating with coastal decision-makers and environmental educators via sea level rise decision-support tools," *Journal of Science Communication* 17 (03), A03. doi:10.22323/2.17030203.

23. Siverd, C.G., S.C. Hagen, **M.V. Bilskie**, D.H. Braud, R.H. Peele, R.R. Twilley, 2018. "Hydrodynamic storm surge model simplification via application of land to water isopleths in coastal Louisiana," *Coastal Engineering*, Vol. 137, pp. 28-42, doi:10/1016/j.coastaleng.2018.03.006.

24. **Bilskie, M.V.**, S.C. Hagen, 2018. "Defining flood zone transitions in low-gradient coastal regions," *Geophysical Research Letters*, Vol. 45 (6), pp. 2761-2770, doi:10.1002/2018GL077524.

25. **Bilskie, M.V.**, P. Bacopoulos, S.C. Hagen, 2017. "Astronomic tides and non-linear tidal dispersion for a tropical coastal estuary with engineered features (causeways): Indian River lagoon system," *Estuarine, Coastal, and Shelf Science*, 216, pp. 54-70, doi:10.1016/j.ecss.2017.11.009.

26. Passeri, D.L., J.W. Long, N.G. Plant, **M.V. Bilskie**, S.C. Hagen, 2017. "The influence of bed friction variability due to land cover on storm-driven barrier island morphodynamics, *Coastal Engineering*, Vol. 132, pp. 82-94, doi:10.1016/j.coastaleng.2017.11.005

27. Alizad, K., S.C. Hagen, J.T. Morris, S.C. Medeiros, **M.V. Bilskie**, J.F. Weishampel, 2016. "Coastal wetland response to sea-level rise in a fluvial estuarine system," *Earth's Future*, Vol. 4 (11), doi:10.1002/2016EF000385.

28. Ghosh, D., D. Wang, **M.V. Bilskie**, S.C. Hagen, 2016. "Quantifying changes of effective springshed area and net recharge through recession analysis of spring flow," *Hydrological Processes*, Vol. 30 (26), pp. 5053-5062, doi:10.1002/hyp.10970.

29. **Bilskie, M.V.**, S.C. Hagen, S.C. Medeiros, A. Cox, M. Salisbury, D. Coggin, 2016, "Data and numerical analysis of astronomic tides, wind-waves, and hurricane storm surge along the northern Gulf of Mexico," *Journal of Geophysical Research – Oceans*, Vol. 121 (5), pp. 3625-3658, doi:10.1002/2015JC011400.

30. **Bilskie, M.V.**, S.C. Hagen, K. Alizad, S.C. Medeiros, D.L. Passeri, H. Needham, A. Cox, 2016. "Dynamic simulation and numerical analysis of hurricane storm surge under sea level rise with geomorphologic changes along the northern Gulf of Mexico," *Earth's Future*, Vol. 4 (5), pp 177-193, doi:10.1002/2015EF000347.

31. Passeri, D.L., S.C. Hagen, N.G. Plant, **M.V. Bilskie**, S.C. Medeiros, K. Alizad, 2016, "Tidal hydrodynamics under sea level rise scenarios with coastal morphology in the northern Gulf of Mexico," *Earth's Future*, Vol. 4 (5), pp 159-176, doi:10.1002/2015EF000332.

32. Alizad, K., S.C. Hagen, J.T. Morris, P. Bacopoulos, **M.V. Bilskie**, J.F. Weishampel, S.C. Medeiros, S.C., 2016. "A coupled, two-dimensional hydrodynamic-marsh model with biological feedback," *Ecological Modeling*, Vol. 327, pp. 29-43, doi:10.1016/j.ecolmodel.2016.01.013.

33. **Bilskie, M. V**., D. Coggin, S. C. Hagen, and S.C. Medeiros, 2015. "Terrain-driven unstructured mesh development through semi-automatic vertical feature extraction," *Advances in Water Resources*, Vol. 86, Part A, pp. 102-118, doi:0.1016/j.advwatres.2015.09.020.

34. Passeri, D.L., S.C. Hagen, S.C. Medeiros, **M.V. Bilskie**, 2015. "Impacts of historic morphology and sea level rise on tidal hydrodynamics in a microtidal estuary (Grand Bay, Mississippi)," *Continental Shelf Science*, Vol. 111, Part B, pp. 150-158, doi:10.1016/j.csr.2015.08.001.

35. Passeri, D.L., S.C. Hagen, S.C. Medeiros, **M.V. Bilskie**, K. Alizad, D. Wang, 2015. "The dynamic effects of sea level rise on coastal landscapes: a review," *Earth's Future*, Vol. 3 (6), pp. 159-181, doi:10.1002/2015EF000298.

36. Taylor, N.R., J.L. Irish, I.E. Udoh, **M.V. Bilskie**, 2015. "Development and uncertainty quantification of hurricane storm surge response functions for hazard assessment in coastal bays," *Natural Hazards*, Vol. 77 (2), pp. 1103-1123, doi:10.1007/s11069-015-1646-5.

37. Passeri, D.L., S.C. Hagen, **M.V. Bilskie**, S.C. Medeiros, 2014. "On the significance of incorporating shoreline changes for evaluating coastal hydrodynamics under sea level rise scenarios," *Natural Hazards*, Vol. 75 (2), pp. 1599-1617, doi:10.1007/s11069-014-1386-y.

38. **Bilskie, M.V.**, S.C. Hagen, S.C. Medeiros, D.L. Passeri, 2014 "Dynamics of sea level rise and coastal flooding on a changing landscape," *Geophysical Research Letters*, Vol. 41, doi:10.1002/2013GL058759.

39. Reece, J.S., D. Passeri, L. Ehrhart, S.C. Hagen, A. Hays, C. Long, R.F. Noss, **M.V. Bilskie**, C. Sanchez, M.V. Schwoerer, B. Von Holle, J. Weishampel, S. Wolf, 2013. "Climate change, sea level rise, and land use influence on the distribution of loggerhead (Caretta caretta) nests at Melbourne Beach, Florida," *Marine Ecology Press Series*, Vol. 493, pp. 259-274, doi:10.3354/meps10531.

40. **Bilskie, M.V.**, S.C. Hagen, "Topographic accuracy assessment of bare earth lidar-derived unstructured meshes," *Advances in Water Resources*, Vol. 52, pp. 165-177, doi:10.1016/j.advwatres.2012.09.003.

Book Chapters

1. Hagen, S.C., D.L. Passeri, **M.V. Bilskie**, D.E. DeLorme, D. Yoskowitz, 2017. "Systems approaches for coastal hazard assessment and resilience," *Oxford Research Encyclopedia of Natural Hazard Science*, doi:10.1093/acrefore/9780199389407.013.28.

Refereed Conference Papers

1. **Bilskie, M.V.**, 2013. "Hydrodynamic modeling of tides and hurricane storm surge for pre- and post-dredging conditions in the lower St. Johns River, Florida," 2013 ASCE COPRI PORTS, Seattle, WA, 25-29 August, pp. 1955-1965, doi:10.1061/9780784413067.200.

2. Passeri, D.L., **M.V. Bilskie**, S.C. Hagen, 2012. "Tidal asymmetry analysis of the Grand Bay, MS estuarine system and its effect on sediment transport," Proceedings of the 2012 International Conference on Hydroscience and Engineering, Orlando, FL, 4-7 November.

3. Bacopoulos, P., **M.V. Bilskie**, S.C. Hagen, 2011. "Florida's intracoastal waterway in a storm surge setting: Longwave physics and mesh resolution," 12th International Conference on Estuarine and Coastal Modeling, 7-9 November, pp. 188-200, doi:10.1061/9780784412411.00011.

4. **Bilskie, M.V.**, R. Akavian, S.C. Hagen, 2011. "Bare earth lidar to gridded topography for the Pascagoula River, MS: An accuracy assessment," 12th International Conference on Estuarine and Coastal Modeling, 7-9 November, pp. 295-314, doi:10.1061/9780784412411.00018.

5. **Bilskie, M.V.**, S.C. Hagen, M. Salisbury, D. Coggin, 2011. "Low- versus high-resolution finite element modeling of storm surge in the Yellow River, FL," Solutions to Coastal Disasters, 25-29 June, pp. 65-76, doi:10.1061/41185(417)7.

AWARDS & HONORS

2021 Most Cited Paper Award (2019), *Environmental Modelling & Software*
†Santiago-Collazo, F.L., **M.V. Bilskie**, S.C. Hagen, 2019, "A comprehensive review of compound inundation models in low-gradient coastal watersheds" *Environmental Modelling & Software*, Vol. 119, pp. 166-181, doi:10.1016/j.envsoft.2019.06.002.

2017 Distinguished Dissertation Award – Honorable Mention "Science, Technology, Engineering and Mathematics," Louisiana State University]

2017 Distinguished Dissertation Award, College of Engineering, Louisiana State University

2015 Graduate Student Conference Competition (2nd Place), Department of Civil & Environmental Engineering, Louisiana State University

2013 ASCE PORTS Best Student Paper (2nd Place)

2013 Graduate Research Forum Award – Engineering, Computer Science, and Modeling and Simulation, University of Central Florida

GRANTS

Funded

2022 – 2023 **Bilskie, et al.**, "Flooding Dynamic Modeling Tools for Optimized Planning of CORE MPO Transportation Infrastructure Systems," Chatham County & Savannah MPC. $150,000, Role: PI.

2022 - 2025 Pippin, S. et al., "Proposal to Establish an Engineering With Nature® Regional Engagement Network in the Southeastern U.S. for Military Installations and Surrounding Communities," US Department of Army. $1,500,000, Role: Co-PI.

2022 – 2023 **Bilskie, M.V. et al.**, "Assessing the Socio-Economic Value of Salt Marsh Ecosystems for Climate Resilience Financing in Georgia," Georgia Sea Grant, $131,159. Role: PI

2021 - 2024 Luettich, R., **Bilskie, M.V.**, Blanton, B., Z. Cobell, D. Cox, Dietrich. C., Fleming, J., Ginis, I., Twilley, R., National Oceanographic Partnership Program / Office of Naval Research, "Forecasting Coastal Impacts from Tropical Cyclones along the US East and Gulf Coasts using the ADCIRC Prediction System." $1,400,000 (Bilskie: $230,000). Role: Co-PI.

2021 - 2022 **Bilskie, M.V.**, US Geological Survey, "Integrative hydrodynamic modeling approaches to investigate storm-driven coastal morphology along the US coast." $150,000. Role: PI.

2020 – 2022 Bledsoe, B., "Engineering With Nature Initiative," US Department of Army, $2,500,000. Role: Co-PI.

2020-2023 Passeri, D.L., Smith, C., Smith, K., **Bilskie, M.V.**, Hagen, S.C., Yurek, S., Martin, J., Alizad, K., NOAA National Centers for Coastal Ocean Science, "EESLR 2019 Integrated Modeling of the Effects of Sea Level Rise Across Estuaries, Marshes and Barrier Islands," $750,000 (Bilskie: $107,983). Role: Co-PI.

2018-2021 Hagen, S.C., **Bilskie, M.V.**, Twilley R., Louisiana Coastal Protection and Restoration Authority, "Implementation and Maintenance of ASGS/CERA (ADCIRC Surge Guidance System / Coastal Emergency Risks Assessment)," Yearly Contract, $129,910. Role: Co-PI.

2019-2020 Hagen, S.C. & **M.V. Bilskie**, U.S. Geological Survey, "Hydrodynamic Modeling to Support Barrier Island Evolution Assessments," $75,000. Role: Co-PI.

2018-2020 Hagen, S.C., **M.V. Bilskie,** S.C. Medeiros, Department of Homeland Security, Coastal Resilience Center of Excellence at the University of North Carolina Chapel Hill, "Development of an optimized tide and hurricane storm surge model for the west coast of FL for use with the ADCIRC Surge Guidance Center," $200,000 (LSU: $150,000). Role: Co-PI.

2017-2020 Hagen, S.C., **Bilskie, M.V.**, Roberts, H., Resio D., The Water Institute of the Gulf, Restore Center of Excellence for Louisiana, "Coupling hydrologic, tide and surge processes to enhance flood risk assessments for the Louisiana Coastal Master Plan," $499,882. Role: Co-PI.

*Information about pending and unsuccessful proposals can be provided upon request.

Allocations

2020-Present Hagen, S.C., **M.V. Bilskie**, Louisiana Optical Network Initiative (LONI), "Louisiana State University Center for Coastal Resiliency," 750,000 cpu-hours on LONI Queenbee2.

2020-Present Hagen, S.C., **M.V. Bilskie**, Louisiana State University High Performance Computing, "Hurricane Storm Surge Modeling," 1,000,000 on SuperMIC.

2019-Present **Bilskie, M.V.**, S.C. Hagen, S.C. Medeiros, F. Santiago-Collazo, NSF XSEDE Research Allocation, "Tidal and hurricane storm surge modeling in the northern Gulf of Mexico", 26,000 node-hours on TACC Stampede2 and 45 TB of storage on TACC Ranch.

2019-2020 Hagen, S.C., **M.V. Bilskie**, Louisiana Optical Network Initiative (LONI), "Louisiana State University Center for Coastal Resiliency," 2,500,000 cpu-hours on LONI Queenbee2.

2019-2020 Hagen, S.C., **M.V. Bilskie**, Louisiana State University High Performance Computing, "Hurricane Storm Surge Modeling," 500,000 cpu-hours on SuperMike2 and 1,500,000 on SuperMIC.

2018-2019 Hagen, S.C., **M.V. Bilskie**, Louisiana Optical Network Initiative (LONI), "Louisiana State University Center for Coastal Resiliency," 2,500,000 cpu-hours on LONI Queenbee2.

2018-2019 Hagen, S.C., **M.V. Bilskie**, Louisiana State University High Performance Computing, "Hurricane Storm Surge Modeling," 750,000 cpu-hours on SuperMike2 and 1,000,000 on SuperMIC.

2018-Present **Bilskie, M.V.**, S.C. Hagen, K. Alizad, S.C. Medeiros, NSF XSEDE Research Allocation, "Tidal and hurricane storm surge modeling in the northern Gulf of Mexico," 43,000 node-hours on TACC Stampede2 and 22.5 TB of storage on TACC Ranch, $12,341.80 value.

2017-2018 Hagen, S.C., **M.V. Bilskie**, Louisiana Optical Network Initiative (LONI), "Louisiana State University Center for Coastal Resiliency," 2,000,000 cpu-hours on LONI Queenbee2.

2017-2018 Hagen, S.C., **M.V. Bilskie**, Louisiana State University High Performance Computing, "Hurricane Storm Surge Modeling," 750,000 cpu-hours on SuperMike2 and 250,000 on SuperMIC.

2016-2017 Hagen, S.C., **M.V. Bilskie**, Louisiana Optical Network Initiative (LONI), "Hurricane Storm Surge Modeling," 2,500,000 cpu-hours on LONI Queenbee2.

2016-2017 Hagen, S.C., **M.V. Bilskie**, Louisiana State University High Performance Computing, "Hurricane Storm Surge Modeling," 1,000,000 cpu-hours on SuperMike2.

2016-2017 Hagen, S.C., **M.V. Bilskie**, S.C. Medeiros, NSF XSEDE Research Allocation, "Tidal and hurricane storm surge modeling in the northern Gulf of Mexico," 3 million CPU-hours on TACC Stampede, $107k value.

2015-2016 Hagen, S.C., **M.V. Bilskie**, Louisiana Optical Network Initiative (LONI), "Hurricane Storm Surge Modeling," 1,000,000 cpu-hours on LONI Queenbee2.

2015-2016 Hagen, S.C., **M.V. Bilskie**, Louisiana State University High Performance Computing, "Hurricane Storm Surge Modeling," 1,000,000 cpu-hours on SuperMike2.

2015-2016 Hagen, S.C., **M.V. Bilskie**, D.L. Passeri, S.C. Medeiros, NSF XSEDE Research Allocation, "Tidal and hurricane storm surge modeling in the northern Gulf of Mexico," 1.6 million CPU-hours on TACC Stampede & 12 TB on TACC Ranch, $56k value.

WORKSHOPS

2019 Future Directions for Enabling Coastal Storm Flooding Prediction for High-Resolution Forecasts and Climate Scenarios, Columbia University, Funded, New York, NY, 25, 26.

2018 Envisioning risk of hurricane storm surge and sea level rise, National Center for Atmospheric Research (NCAR), BRIGHTE Workshop Series, NCAR Funded, Boulder, CO, July 31 – August 3.

INVITED TALKS

2022 Consideration of Natural Infrastructure for Flood Hazard Reduction, *Network for Engineering With Nature Knowledge Series*, Virtual, July 20.

2022 Engineering With Nature to Reduce Flood Risk, *Readiness and Environmental Protection Integration (REPI) Webinar*, Feb. 16.

2021 Coupling hydrologic and surge processes: to examine coastal flood transition zones., *16th US National Congress of Computational Mechanics*, Virtual (Chicago, IL). July 25.

2020 Development and deployment of state-of-the-art computational inundation models to enhance coastal resilience. School of Environmental, Civil, Agricultural, and Mechanical Engineering, University of Georgia, 23 January.

2020 Development and deployment of state-of-the-art computational inundation models to enhance coastal resilience. School of Environmental, Civil, Agricultural, and Mechanical Engineering, University of Georgia, 23 January.

2019 The development and application of large-scale computational hurricane storm surge models – to support decision support. Department of Civil and Environmental Engineering, University of Houston, 24 September.

2019 Unstructured finite element mesh decimation for real-time hurricane storm surge forecasting, 15th U.S. Congress on Computational Mechanics, Austin Texas, 31 July.

2019 The development and application of large-scale computational hurricane storm surge models. Department of Civil and Environmental Engineering, University of Michigan, 21 February.

2019 The development and application of large-scale computational hurricane storm surge models. Department of Civil and Environmental Engineering, Rice University, 28 January.

2018 Coastal inundation modeling of hurricane storm surge in the northern Gulf of Mexico. 2018 Louisiana Council of Information and Services of Directors (CISD) Conference and Expo, Baton Rouge, LA, 9 October. One of twelve invited speakers. 60 minute talk.

2015 Assessment of coastal flood risk in a changing climate. University of Cambridge, Cambridge, UK, 9 July.

2014 Modeling hurricane waves and storm surge under climate change in the northern Gulf of Mexico. Louisiana State University, Baton Rouge, LA, 10 October.

2014 High performance computing of oceanic and nearshore hydrodynamic processes. HPC User Group of Orlando, Orlando, FL, 28 October.

2013 Tide, surge, and wave modeling in the northern Gulf of Mexico: development and application. Central Florida EWRI Luncheon, Orlando, FL, 17 October.

CONFERENCE ACTIVITY

Session Organization

2022 Organizer, Implementing Natural- and Nature-based Features: The Nexus of Flood Protection & Biodiversity, AGU Fall Meeting, Chicago, IL. (Organization in Progress), 12-16 December.

2022 Co-Organizer, Multi-Hazard Surface Flood Modeling: From Inland to Coast. Frontiers in Hydrology Meeting 2022, San Juan, Puerto Rico, 19-24 June.

2021 Organizer, Advancements in natural infrastructure to mitigate impacts of coastal hazards. 26th Biennial Coastal & Estuarine Research Federation (CERF), Virtual, 9 November.

2021 Organizer, The Louisiana Watershed Initiative and Coastal Flood Transition Zones: Modeling. Louisiana State of the Coast 2020, New Orleans, LA, 26-28 May.

2019 Co-Organizer, Exploring interdisciplinary and collaborative sea-level rise research for coastal adaptation. 25th Biennial Coastal & Estuarine Research Federation (CERF) Conference, Mobile, AL, 3-7 November.

Oral Presentations

2022 Mesh Decimation as a Means to Develop Accurate and Timely Predictions of Coastal Flooding, *Ocean Sciences Meeting 2022*, Virtual (Honolulu, HI), 3 March.

2021 Development & Applications in Coastal Hydrodynamic Modeling. Guest Lecture (*CE 635/OC 635 Applied Modeling of Nearshore Processes*), Oregon State University (Virtual), 13 October.

2021 Coastal flood transition zone modeling: an historic perspective to future possibilities, *2021 Louisiana State of the Coast Conference* (Virtual), 2 June.

2020 Coupling hydrologic and surge processes to examine two distinct flood transition zones in coastal Louisiana. AGU Fall Meeting, Virtual, 17 December.

2020 Unstructured finite element mesh decimation for real-time hurricane storm surge forecasting. 2020 ADCIRC Users' Group Meeting, Virtual, 31 March.

2019 Climate Change Impacts Along the northern U.S. Gulf Coast. AGU Fall Meeting, San Francisco, CA, 10 December.

2018 Development of a Computationally Efficient Unstructured Mesh for use in Real-Time Hurricane Storm Surge Modeling. 15th Estuarine and Coastal Modeling Conference, Seattle, WA, 25 June.

2018 *What Could Possibly Happen?:* Coastal Decision Makers Perspectives on Storm Surge Forecasting Tools. 2018 Louisiana State of the Coast, New Orleans, LA. 31 May. Co-Presented with D.E. DeLorme.

2018 Development of return period stillwater floodplains under the coastal dynamics of sea level rise across the northern Gulf of Mexico. 2018 ADCIRC Users Group Meeting, College Park, MD. 12 April.

2017 Development and application of percent annual chance coastal inundation maps to support decision-making in the northern Gulf of Mexico. AGU Fall Meeting, New Orleans, LA. 11 December.

2017 Development of return period stillwater floodplains for the coast of Alabama under sea level rise scenarios. Alabama Association of Floodplain Managers (AAFM) Annual Fall Meeting, Orange Beach, AL, 25 September.

2017 Development of an optimized tide and hurricane storm surge model for the northern Gulf of Mexico for use with the ADCIRC surge guidance system. ADCIRC User's Group Meeting, Norwood, MA, 4 May.

2017 High performance computing to support Louisiana coastal resiliency. Scientific Computing Across Louisiana (SCALA) Conference, New Orleans, LA, 17 March.

2016 Flood inundation modeling in a changing climate. 14th International Estuarine and Coastal Modeling Conference, Kingston, RI, 13 June.

2016 Hurricane storm surge forecasting along the northern Gulf of Mexico. Louisiana State of the Coast, New Orleans, LA, 3 June.

2015 A dynamic flood inundation model framework to assess coastal flood risk in a changing climate. 2015 AGU Fall Meeting, San Francisco, CA, 18 December.

2015 Development of future tropical cyclone 100-year floodplains in a changing climate. 36th International Association for Hydro-Environment Engineering and Research (IAHR) World Congress, Delft-The Hague, The Netherlands, 2 June.

2015 Tide, wind-wave, and hurricane storm surge modeling in the northern Gulf of Mexico under climate change. 2015 ASCE Louisiana Section Spring Conference, Baton Rouge, LA, 16 April.

2015 Tide, wind-wave and hurricane storm surge modeling in the northern Gulf of Mexico | climate change. ADCIRC User's Group Meeting, Silver Spring, MD, 31 March.

2014 Sea level rise and tidal hydrodynamics in the Indian River Lagoon, Florida. 34th International Conference on Coastal Engineering (ICCE), Seoul, Korea, 19 June.

2013 Sensitivity of hurricane storm surge to land cover and topography under various sea level rise scenarios along the Mississippi coast. AGU Fall Meeting, San Francisco, CA, 10 December.

2013 Hydrodynamic modeling of tides and hurricane storm surge for pre- and post-dredging conditions in the lower St. Johns River, Florida. ASCE COPRI PORTS, Seattle, WA, 25 August.

2013 Development of a high-resolution tide, wind-, and wave-driven ocean circulation model for the northern Gulf of Mexico. 12th International Congress on Computational Mechanics (ICCM), Raleigh, NC, 22 July.

2013 Development of a high-resolution wind-wave, tide, and hurricane storm surge model for Mississippi and Alabama. ADCIRC User's Group Meeting, Vicksburg, MS, 29 April.

2012 Development of a high-resolution, wind-wave, tide, and hurricane storm surge model for southern Mississippi. International Conference on Hydroscience and Engineering (ICHE), Orlando, FL, 3 November.

2012 Influence of topographic elevation error on modeled storm surge. ADCIRC User's Group Meeting, Silver Spring, MD, 23 April.

2011 Bare earth lidar to gridded topography for the Pascagoula River, MS: an accuracy assessment. 12th International Conference on Estuarine and Coastal Modeling, St. Augustine, FL, 7 November.

2011 Low- versus high-resolution finite element modeling of storm surge in the Yellow River, FL. Solutions to Coastal Disasters, Anchorage, AK, 26 June.

OUTREACH TALKS

2014 Tides, wind-waves, and hurricane storm surge in the northern Gulf of Mexico. Elks Lodge #286, Ocala, FL, 15 August.

TEACHING EXPERIENCE

University of Georgia
Engineering Hydrology and Hydraulics (Spring 2020, Spring 2021)
ENVE4900 – Undergraduate, ENVE6450 - Graduate
Coastal & Estuarine Processes with Engineering Applications (Spring 2021)
ENVE4900 – Undergraduate, ENGR 6990 - Graduate
First Year Odyssey (1 credit hr), The Coastal Impacts of Climate Change – Problems & Solutions (Fall 2021, Spring 2021, Fall 2022)

Louisiana State University, 2015 - 2019
Graduate Courses (Co-Instructor)
Tides, Surges, and Relative Sea-Levels (Fall 2016, Fall 2017, Fall 2018, Fall 2019)
Applied Coastal Modeling I (Fall 2015)

Graduate Courses, Guest Lecture
Tidal Model Theory (Fall 2016) - Tidal analysis; Introduction to storm surge modeling
Applied Coastal Modeling I (Fall 2015) - Tidal analysis; Introduction to storm surge modeling
University of Central Florida, 2013 - 2014
Graduate Courses, Guest Lecture
Numerical Methods in Civil & Environmental Engineering (Spring 2014)
Newton forward interpolation; Chebyshev roots & Hermite interpolating polynomials
Hydraulic Engineering (Fall 2013) - Introduction to lidar

STUDENT AND POST-DOC SUPERVISION

University of Georgia

2022 – Present	Aditya Gupta (Post-Doc)
2022 - Present	Nashid Mumtaz (PhD Student)
2021 - Present	Robert Fiegelist (MS Student)
2021 - Present	Rebecca Stanley (MS Student, Co-Advisor)
2021 - Present	Caraline Miller (MS Student)
2022 - Present	Ada Chimzulukeme Agbogu (MS Student, Co-Advisor)
2022 - Present	Oscar Villegas Gutierrez (MS Student, Co-Advisor)
2022 - Present	Sarah Moore (Undergraduate Research Assistant)
2022 - Present	Kendall Lippe (Undergraduate Research Assistant)
2021 - 2022	Felix Santiago-Collazo (Research Scientist)
2020 - 2022	Sheppard Medline (MS Student)
2021	Roshen Jegajeevan (Undergraduate Research Assistant)
2021	Hithaishi Hewageegana (Post-Doc)

University of Georgia Young Dawgs Program

2021 Gretchen Hinger, Clarke County High School

Louisiana State University

Current Shu Gao (PhD Student), Felix Santiago-Collazo (PhD Student)
2018 Christopher Siverd (PhD Student – Graduated 2019)
2017 Sabrina Welch, Jackson State University, Summer Research Experience (SUMREX)
2016 Felix Santiago, University of Puerto Rico, Recinto de Mayagüez, Summer Research Experience (SUMREX)

Selected Undergraduate Research Supervision

2017 Diego Delgado, University of Puerto Rico, Recinto de Mayagüez. Summer Research Experience (SUMREX) funded by DHS S&T

SERVICE

To Profession

Technical Review

2021-Present Technical Reviewer, Texas Integrated Flooding Framework (TIFF)

Proposal Reviews

2019-Present Reviewer, National Science Foundation Graduate Research Fellowship Program

Organizations

2020 - Present COPRI Coastal Engineering and Science Committee
2017 - Present Conference Organizing Committee, Estuarine and Coastal Modeling

Journal Editor
2022 – Present Associate Editor, Frontiers in Water and Built Environment

Journal Referee

Journal of Hydrology
Computers and Geosciences
Earths' Future
Estuarine, Coastal and Shelf Science
Geophysical Research Letters
Hydrology
Hydrology Research
Journal of Geophysical Research
Journal of Marine Science and Eng.
Journal of Wtwy, Port, Coast, and Oc. Eng.
Natural Hazards
Natural Hazards Review
Integrated Env. Assessment and Mgmt.
Nature - Scientific Reports
Nature Communications
Ocean Engineering
Risk Analysis
Water Resources Research

To University of Georgia

UGA Facilities Committee, 2021 - Present

To University of Central Florida

UCF EXCEL Program (Undergraduate STEM Retention), 2013 - 2014
UCF COMPASS Program (Undergraduate STEM Recruitment), 2013 – 2014
UCF Campus Connect (Under-represented STEM Recruitment), 2013 – 2014

RELATED PROFESSIONAL TRAINING

2010 State of Florida, Licensed Engineer in Training, No. 1100014131

2014 XSEDE Training: Parallel Computing on Stampede
2011 ADCIRC Boot Camp, Seahorse Coastal Consulting and Aquaveo, LLC
2010 Coastal Circulation and Wave Modeling with SMS, Aquaveo, LLC

NON-ACADEMIC WORK

2018-Present Consulting Engineer. Self-Employed

PROFESSIONAL MEMBERSHIPS & SOCIETY AFFILIATIONS

American Geophysical Union (AGU)
American Society of Civil Engineers (ASCE)
American Shore & Beach Preservation Association (ASBPA)
Coastal & Estuarine Research Federation (CERF)
Georgia Coastal Research Council Affiliate (GCRC)