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Ahmad Vaselbehagh

Associate Professor of Mechanical and Aerospace Engineering,
University of South Florida[1]
813.974.7664 | vaselbehagh@usf.edu | tdlab.info

36 journal articles · 11 book chapters · 3 edited books · 10 edited proceedings volumes · 30 conference papers · $2.9M in research funding (personal share)

EDUCATION

Postdoc	Ocean Engineering	University of Delaware	US	2015-2017
Ph.D.	Mechanical Engineering	University of Windsor	Canada	2011-2015
M.Sc.	Mechanical Engineering	Ferdowsi University	Iran	2008-2011
B.Sc.	Mechanical Engineering	Ferdowsi University	Iran	2004-2008

PROFESSIONAL APPOINTMENTS

Aerospace Engineering Program Director, University of South Florida, 2025–

Associate Professor, Mechanical & Aerospace Engineering, University of South Florida, 2024–

Associate Professor, Mechanical & Nuclear Engineering, Tennessee Tech University, 2023

Assistant Professor, Mechanical & Nuclear Engineering, Tennessee Tech University, 2017–2023

Adjunct Professor, Engineering, East Tennessee State University, 2019–2020, and 2022

GRANTS AWARDED ($2,915,394 of $15,123,007)

Current ($1,838,981)

University of South Florida

- PI (Co-PIs: Tansel Yucelen, Arman Sargolzaei, Sonya Tiomkin), "The First AI-Controlled Gust Wind Tunnel for Testing in Challenging Environments," Emil Buehler Perpetual Trust, 07/2026–06/2028, $500,000.
- PI (Co-PIs: Yogi Goswami, Arman Sargolzaei), "Management of Unwanted Vegetation at Solar Power Plants: A Feasibility Study," Tampa Electric Company (TECO) and Florida High Tech Corridor, 07/2025–06/2026, $202,006.
- PI, "Deicing Condensers using Robot-Operated CO2 Lasers," Tennessee Valley Authority (TVA), 01/2024–01/2026, $338,450.
- Co-PI (PI: Rory Roberts, Tennessee Tech University; other Co-PIs: Bruce Jo, Michael Sumption, John Hull, Don Cao, Mohammed Akbar, John Kim, Roland Dixon, and Mike Ikeda), "CarbonLess Electric AviatioN (CLEAN)," NASA, 05/2023–04/2027, $7,999,452 (5.56% share; 94% of this share transferred from Tennessee Tech to USF).
- PI, "NSF CAREER: CAS-Climate: Understanding Thermal Transport Processes in Atmospheric

[1] 4202 E. Fowler Avenue, Tampa, FL 33620, USA

Boundary Layer with Utility-Scale Solar Photovoltaic Plants," National Science Foundation (NSF), 07/2022–06/2027, $500,493 (awarded at Tennessee Tech; $380,442 transferred to USF).

Past ($1,076,413)

Tennessee Tech University

- Senior Personnel (PI: Holly Stretz), "Fiber Reactor Extraction Simulations," Visionary Fiber Technologies, 08/2022–07/2024, $75,051 (6% share).
- Senior Personnel (PI: Pingen Chen; Co-PIs: Joseph Ojo, Jie Cui, Steven Anton, and Nan Chen), "Second-life Battery in Mobile E.V. Charging Application for Rural Transportation (SMART)," U.S. Department of Energy (DOE), 05/2023–04/2027, $4,531,642 (3% share).
- PI (Co-PI: Charles Van Neste), "High-Precision Heat Delivery to Partly Melt Inaccessible Ice at a Nuclear Plant's Condenser," Tennessee Valley Authority (TVA), 01/2023–10/2023, $277,975.
- PI (Co-PI: Satish Mahajan), "Thermal Treatment of Nuclear Plants' Ice Condensers using CO2 Lasers," Tennessee Valley Authority (TVA), 01/2022–12/2022, $250,000.
- PI, "Developing an Experimental Setup to Demonstrate the First and Second Laws of Thermodynamics," Tennessee Tech College of Engineering, 06/2021–05/2022, $11,000.
- PI, "Faculty Research Award: Understanding and Modeling of Thermal Transport Processes within Near-Ground Atmosphere in the Presence of Utility-Scale Solar," Tennessee Tech Office of Research, 06/2020–06/2021, $10,000.
- PI (Co-PI: Satish Mahajan), "Development of a Laser-Based System for the Maintenance of Ice Condensers," Tennessee Valley Authority (TVA), 09/2020–12/2021, $185,000.
- Co-PI (PI: Cristina Archer), "Advanced Wake Loss Modeling for Large Wind Farms with Variable Wind Speed and Direction," U.S. Department of the Interior, 2019–2020, $186,244 (11% share).
- PI, "Investigating the Impact of Wind Turbines on Surface Fluxes using Computational Fluid Dynamics," HKF Technologies LLC, 2019–2020, $10,619.

University of Delaware

- PI, "Investigating the Impact of Wind Turbines on Surface Fluxes using Computational Fluid Dynamics," First State Marine Wind LLC, 2016, $45,076.

SELECTED AWARDS, HONORS

University of South Florida

- 2026 Excellence in Research and Entrepreneurship Award, College of Engineering
- 2026 Engineering Expo Most Valuable Player Award, College of Engineering

Tennessee Tech University

- 2024 Wings Up 100
- 2023 Brown-Henderson Outstanding Faculty Award
- 2023 Wings Up 100
- 2022 Wings Up 100

- 2021 ASME Distinguished Researcher, ASME Student Chapter, Tennessee Tech University
- 2021 Wings Up 100
- 2020: ASME Outstanding Advisor

University of Windsor

- 2016 T&E Theorist, Turbulence and Energy Laboratory, University of Windsor
- 2015 Mitacs-Accelerate Internship Award ($21,000), Mitacs, Canada
- 2015 Innovative Researcher, Turbulence and Energy Laboratory, University of Windsor
- 2014 Prolific Scientific Writer, Turbulence and Energy Laboratory, University of Windsor
- 2013 Graduate Student Award, 24th Canadian Congress of Applied Mechanics, Saskatoon, Canada
- (2011–2015) Ontario Trillium Scholarship ($160,000), Government of Ontario, Canada
- 2011 Doctoral Entrance Scholarship ($6,000), University of Windsor, Canada

Ferdowsi University

- 2009 Outstanding Mechanical Engineering Researcher, Ferdowsi University Research Foundation

RESEARCH AREAS

Aerospace propulsion and aerodynamics; aviation–atmosphere interactions (contrails, infrared laser transmission); rarefied gas dynamics for low Earth orbit spacecraft; computational and experimental fluid dynamics; thermal transport; wind and solar energy.

PUBLICATIONS

Graduate students are indicated by an **asterisk *.**
Undergraduate students are indicated by a **dagger †.**
The corresponding author's name is underlined.

Publications appear under both Vasel-Be-Hagh, A. (or A.R.) and Vaselbehagh, A.

Thesis/Dissertation

David S.-K. Ting and Rupp Carriveau (Advisors). "Hydrodynamics of an Underwater Compressed Air Energy Storage Plant," Doctoral dissertation, University of Windsor (Canada), May 2015.

Javad Abolfazli Esfahani (Advisor). "Lattice Boltzmann Simulation of Flow over Circular Bluff Bodies," Master of Science thesis, Ferdowsi University (Iran), August 2011.

Books

B1. Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.). (2021). *Utility-Scale Wind Turbines and Wind Farms*. The Institution of Engineering and Technology (IET), London, UK. https://doi.org/10.1049/PBPO171E

B2. Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.). (2020). *Environmental Management of Air, Water, Agriculture, and Energy*. Routledge, Taylor & Francis, Boca Raton, FL, USA. https://doi.org/10.1201/9780429196607

B3. Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.). (2019). *Advances in Sustainable Energy*. Lecture Notes

in Energy, Vol. 70. Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-030-05636-0

Published Chapters

C1. Ting, D.S.-K., & Vasel-Be-Hagh, A. (2026). Chapter 7: Flow friction reduction via slippering surface texturing. In: Ting, D.S.-K., & Vasel-Be-Hagh, A. (Eds.), *Sustaining Tomorrow with Minimal Entropy Generation*, Springer Proceedings in Energy (pp. 171–196). Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-032-13357-1_7

C2. Roland*, D., & Vasel-Be-Hagh, A. (2025). Chapter 9: A prerequisite to computational fluid dynamics of airplane condensation trails. In: Stagner, J., & Ting, D.S.-K. (Eds.), *Renewable Energy Systems: The Way Forward* (pp. 9-1–9-21). IOP Publishing, Bristol, UK. https://doi.org/10.1088/978-0-7503-6179-8ch9

C3. Cannon*, D.T., & Vasel-Be-Hagh, A. (2025). Chapter 4: Measuring heat flux at solar photovoltaic plants. In: Stagner, J., & Ting, D.S.-K. (Eds.), *Renewable Energy Systems: The Way Forward* (pp. 4-1–4-14). IOP Publishing, Bristol, UK. https://doi.org/10.1088/978-0-7503-6179-8ch4

C4. Hagan*, T., & Vasel-Be-Hagh, A. (2024). Chapter 5: A preliminary investigation of three-phase homogeneous boiling. In: Ting, D.S.-K., & Vasel-Be-Hagh, A. (Eds.), *Brightening Tomorrow Together 2024*, Springer Proceedings in Energy (pp. 93–102). Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-031-73486-1_5

C5. Hosseini*, A., Cannon*, D.T., & Vasel-Be-Hagh, A. (2023). Chapter 11: Real-time optimization of yaw angle and tip-speed ratio for a six-turbine plant of NREL 5-MW wind turbine. In: Ting, D.S.-K., & Vasel-Be-Hagh, A. (Eds.), *Engineering to Adapt*, Springer Proceedings in Energy (pp. 217–226). Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-031-47237-4_11

C6. Hackler*, M., Vasel-Be-Hagh, A., & Ting, D.S.-K. (2021). Chapter 1: The current status of wind power. In: Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.), *Utility-Scale Wind Turbines and Wind Farms* (pp. 1–15). The Institution of Engineering and Technology (IET), London, UK. https://doi.org/10.1049/PBPO171E_ch1

C7. Unser†, L., & Vasel-Be-Hagh, A. (2021). Chapter 3: Scaling utility-scale wind turbines. In: Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.), *Utility-Scale Wind Turbines and Wind Farms* (pp. 39–47). The Institution of Engineering and Technology (IET), London, UK. https://doi.org/10.1049/PBPO171E_ch3

C8. Unser†, L., & Vasel-Be-Hagh, A. (2020). Chapter 10: A preliminary evaluation on the performance of diffuser-augmented vertical axis wind turbines. In: Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.), *Complementary Resources for Tomorrow*, Springer Proceedings in Energy (pp. 163–174). Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-030-38804-1_10

C9. Long*, C.S., & Vasel-Be-Hagh, A. (2020). Chapter 6: Storage-integrated energy harvesters. In: Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.), *Environmental Management of Air, Water, Agriculture, and Energy* (pp. 119–140). Routledge, Boca Raton, FL, USA. https://doi.org/10.1201/9780429196607

C10. Dittner*, M.E., & Vasel-Be-Hagh, A. (2019). Chapter 3: Advances in wind power forecasting. In: Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.), *Advances in Sustainable Energy*, Lecture Notes in Energy, Vol. 70 (pp. 37–57). Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-030-05636-0_3

C11. Vasel-Be-Hagh, A. (2017). Chapter 3: Optimization of wind farms for communities. In: Vasel-Be-Hagh, A., & Ting, D.S.-K. (Eds.), *Wind and Solar Based Energy Systems for Communities* (pp. 27–61). The Institution of Engineering and Technology (IET), London, UK. https://doi.org/10.1049/PBPO130E_ch3

Published Peer-Reviewed Journal Articles

J1. Bohlken*, T., Hagan, T., Vasel-Be-Hagh, A., & Takshi, A. (2026). Photovoltaic plant losses: Spectral mismatch. *Energy Materials*, 6(3), 600030. https://doi.org/10.20517/energymater.2025.156

J2. Shahrouri†, K., Tolba*, A., Doranehgard, M.H., & Vaselbehagh, A. (2026). Optical losses in photovoltaic solar panels: Mechanisms, modeling approaches, and mitigation strategies. *Thermal Science and Engineering Progress*, 71, 104557. https://doi.org/10.1016/j.tsep.2026.104557

J3. Roland*, D., & Vasel-Be-Hagh, A. (2026). The effect of air moisture on the energy transfer rate via a 10.6-µm infrared laser beam. *Applied Thermal Engineering*, 289, 129871. https://doi.org/10.1016/j.applthermaleng.2026.129871

J4. Ayeni*, O.O., Stretz, H.A., & Vasel-Be-Hagh, A. (2025). Effects of fiber arrangement on flow characteristics along a four-fiber element of fiber extractors. *Micromachines*, 16(4), 425. https://doi.org/10.3390/mi16040425

J5. Medlin†, R., Meeks†, S., Vasel-Be-Hagh, A., Damazo, J., & Roberts, R. (2025). Ammonia versus kerosene contrails: A review. *Progress in Aerospace Sciences*, 153, 101074. https://doi.org/10.1016/j.paerosci.2024.101074

J6. Hagan*, T., & Vasel-Be-Hagh, A. (2025). Homogeneous boiling over melting ice. *Scientific Reports*, 15(1), 198. https://doi.org/10.1038/s41598-024-84470-5

J7. Hosseini*, A., Cannon*, D.T., & Vasel-Be-Hagh, A. (2025). Wind farm active wake control via concurrent yaw and tip-speed ratio optimization. *Applied Energy*, 377, 124625. https://doi.org/10.1016/j.apenergy.2024.124625

J8. Cannon*, T., Hagan*, T., Kramer, T., Schafer, D., Meeks†, S., Medlin†, R., Roland*, D., Vasel-Be-Hagh, A., & Roberts, R. (2024). Thermodynamic evaluation of contrail formation from a conventional jet fuel and an ammonia-based aviation propulsion system. *Communications Engineering*, 3, 165. https://doi.org/10.1038/s44172-024-00312-2

J9. Cannon*, D.T., & Vasel-Be-Hagh, A. (2024). Daytime thermal effects of solar photovoltaic systems: Field measurements. *Journal of Renewable and Sustainable Energy*, 16, 056501. https://doi.org/10.1063/5.0219179

J10. Ayeni*, O.O., Stretz, H.A., & Vasel-Be-Hagh, A. (2024). A core element CFD model for a two-phase microfluidic fiber extractor. *Chemical Engineering and Processing: Process Intensification*, 202, 109842. https://doi.org/10.1016/j.cep.2024.109842

J11. Nouri*, R., & Vasel-Be-Hagh, A. (2024). Deciphering unknown upstream conditions and downstream turbulent flow evolution via neural networks. *Ocean Engineering*, 297, 116977. https://doi.org/10.1016/j.oceaneng.2024.116977

J12. Ma, Y., Archer, C.L., & Vasel-Be-Hagh, A. (2022). The Jensen wind farm parameterization. *Wind Energy Science*, 7, 2407–2431. https://doi.org/10.5194/wes-7-2407-2022

J13. Ma, Y., Archer, C.L., & Vasel-Be-Hagh, A. (2022). Comparison of individual versus ensemble wind farm parameterizations inclusive of sub-grid wakes for the WRF model. *Wind Energy*, 25(9), 1573–1595. https://doi.org/10.1002/we.2758

J14. Hosseini*, A., Cannon*, D.T., & Vasel-Be-Hagh, A. (2022). Tip speed ratio optimization: More energy production with reduced rotor speed. *Wind*, 2(4), 691–710. https://doi.org/10.3390/wind2040036

J15. Hackler*, M., Vasel-Be-Hagh, A., & Pardue, B. (2022). On the effect of Reynolds number and structural parameters on vortex-induced vibrations. *International Journal of Fluid Mechanics Research*, 49(4), 17–30. https://doi.org/10.1615/InterJFluidMechRes.2022042820

J16. Nash*, R., Nouri*, R., & Vasel-Be-Hagh, A. (2021). Wind turbine wake control strategies: A review and concept proposal. *Energy Conversion and Management*, 245, 114581. https://doi.org/10.1016/j.enconman.2021.114581

J17. Nouri*, R., Vasel-Be-Hagh, A., & Archer, C.L. (2020). The Coriolis force and the direction of rotation of the blades significantly affect the wake of wind turbines. *Applied Energy*, 277, 115511. https://doi.org/10.1016/j.apenergy.2020.115511

J18. Archer, C.L., & Vasel-Be-Hagh, A. (2020). Corrigendum to "Review and evaluation of wake loss models for wind energy applications" [Applied Energy 226 (2018) 1187–1207]. *Applied Energy*, 266, 114845.

J19. Archer, C.L., & Vasel-Be-Hagh, A. (2019). Wake steering via yaw control in multi-turbine wind farms: Recommendations based on large-eddy simulation. *Sustainable Energy Technologies and Assessments*, 33, 34–43. https://doi.org/10.1016/j.seta.2019.03.002

J20. Archer, C.L., Wu, S., Vasel-Be-Hagh, A., Brodie, J.F., Delgado, R., St. Pé, A., Oncley, S., & Semmer, S. (2019). The VERTEX field campaign: Observations of near-ground effects of wind turbine wakes. *Journal of Turbulence*, 20, 64–92. https://doi.org/10.1080/14685248.2019.1572161

J21. Zhang, W., Maleki, A., Gholipour Khajeh, M., Zhang, Y., Mortazavi, S.M., & Vasel-Be-Hagh, A. (2019). A novel framework for integrated energy optimization of a cement plant: An industrial case study. *Sustainable Energy Technologies and Assessments*, 35, 245–256. https://doi.org/10.1016/j.seta.2019.06.001

J22. Archer, C.L., Vasel-Be-Hagh, A., Wu, S., Pan, Y., Yan, C., Brodie, J.F., & Maguire, E. (2018). Review and evaluation of wake loss models for wind energy applications. *Applied Energy*, 226, 1187–1207. https://doi.org/10.1016/j.apenergy.2018.05.085

J23. Vasel-Be-Hagh, A., & Iakovidis, F. (2017). The effect of wind direction on the performance of solar PV plants. *Energy Conversion and Management*, 153, 455–461. https://doi.org/10.1016/j.enconman.2017.09.077

J24. Vasel-Be-Hagh, A., & Archer, C.L. (2017). Wind farm hub height optimization. *Applied Energy*, 195, 905–921. https://doi.org/10.1016/j.apenergy.2017.03.089

J25. Vasel-Be-Hagh, A., & Archer, C.L. (2017). Wind farms with counter-rotating wind turbines. *Sustainable Energy Technologies and Assessments*, 24, 19–30. https://doi.org/10.1016/j.seta.2016.10.004

J26. Vasel-Be-Hagh, A., Carriveau, R., Ting, D.S.-K., & Turner, J.S. (2015). Drag of buoyant vortex rings. *Physical Review E*, 92(4), 043024. https://doi.org/10.1103/PhysRevE.92.043024

J27. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2015). A balloon bursting underwater. *Journal of Fluid Mechanics*, 769, 522–540. https://doi.org/10.1017/jfm.2015.126

J28. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2015). Flow over submerged energy storage balloons in closely and widely spaced floral configurations. *Ocean Engineering*, 95, 59–77. https://doi.org/10.1016/j.oceaneng.2014.11.030

J29. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2015). Structural analysis of an underwater energy storage accumulator. *Sustainable Energy Technologies and Assessments*, 11, 165–172. https://doi.org/10.1016/j.seta.2014.11.004

J30. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2014). Flow past an accumulator unit of an underwater energy storage system: Three touching balloons in floral configuration. *Journal of Marine Science and Application*, 13(4), 467–476. https://doi.org/10.1007/s11804-014-1277-3

J31. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2014). Underwater compressed air energy storage improved through vortex hydro energy. *Sustainable Energy Technologies and Assessments*, 7, 1–5. https://doi.org/10.1016/j.seta.2014.02.001

J32. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2013). Numerical simulation of flow past an underwater energy storage balloon. *Computers & Fluids*, 88, 272–286. https://doi.org/10.1016/j.compfluid.2013.09.017

J33. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2013). Energy storage using weights hydraulically lifted above ground. *International Journal of Environmental Studies*, 70(5), 792–799. https://doi.org/10.1080/00207233.2013.810043

J34. Vasel-Be-Hagh, A., Ting, D.S.-K., & Carriveau, R. (2013). Correlating flow pattern with force coefficients in air flow past a tandem unit of three circular cylinders. *International Journal of Fluid Mechanics Research*, 40(3), 235–253. https://doi.org/10.1615/InterJFluidMechRes.v40.i3.40

J35. Esfahani, J.A., & Vasel-Be-Hagh, A. (2013). A numerical study on shear layer behavior in flow over a square unit of four cylinders at Reynolds number of 200 using the lattice Boltzmann method. *Progress in Computational Fluid Dynamics*, 13(4), 103–119. https://doi.org/10.1504/PCFD.2013.052425

J36. Esfahani, J.A., & Vasel-Be-Hagh, A. (2012). LB simulation of heat transfer in flow past a square unit of four isothermal cylinders. *Comptes Rendus Mécanique*, 340(7), 526–535. https://doi.org/10.1016/j.crme.2012.03.011

Conference Papers and Presentations

P1. Fazal*, M.A., Doranehgard, M.H., Goswami, D.Y., Vaselbehagh, A., & Tolba*, A. (2026, November 8–12). Enhancing utility-scale solar efficiency through ground-based passive cooling [paper presentation]. *2026 AIChE Annual Meeting*, Minneapolis, MN, USA.

P2. Bohlken*, T., Doranehgard, M.H., & Vasel-Be-Hagh, A. (2026, March 9–12). Preliminary simulation of contrails from ammonia-powered airplanes [paper presentation]. *11th Thermal and Fluids Engineering Conference*, Tempe, AZ, USA.

P3. Edgemon*, M., Doranehgard, M.H., & Vasel-Be-Hagh, A. (2026, March 9–12). Resolving near-wall heat fluxes in the atmospheric boundary layer [paper presentation]. *11th Thermal and Fluids Engineering Conference*, Tempe, AZ, USA.

P4. Keisi*, Y., Abassi, M., Vaselbehagh, A., & Roberts, R. (2026, January 11–15). Lift-to-drag

enhancement of NACA 2412 via emergent trailing-edge surface oscillations: A CFD–genetic algorithm study [paper presentation]. *AIAA SciTech Forum*, Orlando, FL, USA.

P5. Abassi, M.A., Rahman, M.M., Abdelrady*, A., Akbar, M., Vaselbehagh, A., & Roberts, R. (2026, January 11–15). Aerodynamic investigation and optimization of the 3D SUGAR Volt BACJ-IL wing using genetic algorithm [paper presentation]. *AIAA SciTech Forum*, Orlando, FL, USA.

P6. Rahman, M.M., Abdelrady*, A., Abassi, M., Akbar, M., Vaselbehagh, A., Jo, B., & Roberts, R. (2026, January 11–15). Aerodynamic optimization of truss-braced wing aircraft using CFD simulation for sustainable high-efficiency aviation applications [paper presentation]. *AIAA SciTech Forum*, Orlando, FL, USA.

P7. Vanderlan*, S., Vasel-Be-Hagh, A., & Cui, J. (2025, March 9–12). Computational fluid dynamics model of heat transfer in the vicinity of photovoltaic panels [paper presentation]. *10th Thermal and Fluids Engineering Conference*, Washington, DC, USA.

P8. Jo, B., Saha, A., Akbar, M., Rahman, M.M., Barrit*, E., Vasel-Be-Hagh, A., & Kim, T. (2024, July 29–August 2). Towards the conversion to electrified commercial aircraft, the Boeing 737 Max 800 field data analysis [paper presentation]. *AIAA Aviation Forum*, Las Vegas, NV, USA.

P9. Gong, M., Vasel-Be-Hagh, A., Tharpe, A., & Roberts, R. (2024, July 29–August 2). Preliminary hazard identification and risk assessment for liquid ammonia fuel safety in zero-emission fuel-cell-hybrid electric aircraft [paper presentation]. *AIAA Aviation Forum*, Las Vegas, NV, USA.

P10. Hagan*, T., & Vasel-Be-Hagh, A. (2024, June 20). Homogeneous boiling above-ice-liquid interface [paper presentation]. *Brightening Tomorrow Together*, Windsor, ON, Canada.

P11. Medlin†, R., Meeks†, S., & Vasel-Be-Hagh, A. (2024, June 20). On the contrails of hydrogen-powered airplanes [paper presentation]. *Brightening Tomorrow Together*, Windsor, ON, Canada.

P12. Nouri*, R., Vasel-Be-Hagh, A., & Foti, D. (2024, April 21–24). The effect of latitude on wind farm power generation [paper presentation]. *9th Thermal and Fluids Engineering Conference*, Corvallis, OR, USA.

P13. Roland*, D., & Vasel-Be-Hagh, A. (2024, April 21–24). Exploring the influence of relative humidity and temperature on CO_2 laser beams [paper presentation]. *9th Thermal and Fluids Engineering Conference*, Corvallis, OR, USA.

P14. Hagan*, T., & Vasel-Be-Hagh, A. (2024, April 21–24). Enhanced thermocavitation via impeded convection and instabilities induced by temperature and pressure gradients [paper presentation]. *9th Thermal and Fluids Engineering Conference*, Corvallis, OR, USA.

P15. Cannon*, D.T., & Vasel-Be-Hagh, A. (2024, April 21–24). Improving heat flux measurement accuracy in solar farm environmental studies: A corrective equation approach [paper presentation]. *9th Thermal and Fluids Engineering Conference*, Corvallis, OR, USA.

P16. Sims*, W., & Vasel-Be-Hagh, A. (2024, April 21–24). Exploring the thermal effects of utility-scale photovoltaic integration on atmospheric boundary layer: Insights from a field campaign [paper presentation]. *9th Thermal and Fluids Engineering Conference*, Corvallis, OR, USA.

P17. Hosseini*, A., & Vasel-Be-Hagh, A.R. (2023, June 22–23). Instantaneous real-time control of tip speed ratio and yaw for wind farms [paper presentation]. *Engineering to Adapt*, Windsor, ON, Canada.

P18. Hagan*, T., Roland*, D., Hill, T., & Vasel-Be-Hagh, A. (2023, June 22–23). Precise remote heat

delivery for thermal treatment of a nuclear plant's condensers. *Engineering to Adapt*, Windsor, ON, Canada.

P19. Hosseini*, A., Cannon*, T., & Vasel-Be-Hagh, A.R. (2022, September). Active tip speed ratio control can significantly increase annual energy production [paper presentation]. *North American Wind Energy Academy Conference*, DE, USA.

P20. Nouri*, R., Nash*, R., & Vasel-Be-Hagh, A.R. (2022, June 23–24). Wind turbine wake redirection via external vanes [paper presentation]. *Responsible Engineering & Living Symposium*, Windsor, ON, Canada.

P21. Ayeni*, O.O., Stretz, H.A., & Vasel-Be-Hagh, A. (2022). Modelling of fluid flow and mass transfer in multiple parallel microfluidics channels using computational fluid dynamics. *American Chemical Society SciMeetings*, 3(2).

P22. Nouri*, R., & Vasel-Be-Hagh, A.R. (2019, June 20–21). Negative yaw versus positive yaw: The impact of Coriolis or the direction of rotation of the blades [paper presentation]. *Energy and Resources for Tomorrow*, Windsor, ON, Canada.

P23. Ajayi, O.O., Ojo, O., & Vasel-Be-Hagh, A. (2019). On the need for the development of low wind speed turbine generator system. *IOP Conference Series: Earth and Environmental Science*, 331, 012062. https://doi.org/10.1088/1755-1315/331/1/012062

P24. Vasel-Be-Hagh, A., & Archer, C.L. (2016, December). Hub height optimization to increase energy production of wind farms [paper presentation]. *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, USA.

P25. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2014, July). Flow-induced vibrations of an underwater energy storage accumulator. *Offshore Energy and Storage Symposium (OSES)*, Windsor, ON, Canada.

P26. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2013, June 2–6). Flow past an isolated underwater balloon [paper presentation]. *24th Canadian Congress of Applied Mechanics (CANCAM)*, Saskatoon, SK, Canada.

P27. Abolfazli Esfahani, J., & Vasel-Be-Hagh, A. (2011). Employment of lattice Boltzmann method in simulating flow past two equal diameter cylinders [paper presentation]. *8th Saudi Engineering Conference (SEC 8)*, Buraydah, Saudi Arabia.

P28. Abolfazli Esfahani, J., & Vasel-Be-Hagh, A. (2011, March). A lattice Boltzmann study of flow past moderately and widely spaced units of four cylinders: Flow structure simulation [paper presentation]. *Iranian Aerospace Society International Conference*, Tehran, Iran.

P29. Abolfazli Esfahani, J., & Vasel-Be-Hagh, A. (2010, July 12–14). A lattice Boltzmann simulation of crossflow around four cylinders in a square arrangement [paper presentation]. *ASME 2010 10th Biennial Conference on Engineering Systems Design and Analysis*, Istanbul, Turkey.

P30. Abolfazli Esfahani, J., & Vasel-Be-Hagh, A. (2009, March). Studying the lattice Boltzmann method by simulating Couette flow [paper presentation]. *Iranian Aerospace Society International Conference*, Isfahan, Iran.

TEACHING EXPERIENCE

Ratings are out of 5, with n = number of student responses. USF: overall instructor rating. Tennessee Tech: IDEA

summary score (adjusted), averaged over sections weighted by responses.

University of South Florida

EGN 3343 Thermodynamics I (undergraduate) – Fall 2026 · 99 students · evaluations pending

EAS 3810L Aerospace Laboratory (undergraduate; new course, developed) – Spring 2026

EML 6930 / EAS 4930 Turbulence (graduate/undergraduate, cross-listed) – Fall 2025 · 13 students · 4.8 graduate (n = 5), 5.0 undergraduate (n = 2)

EML 4419 Propulsion I (undergraduate) – Spring 2025 · 40 students · 4.6 (n = 27)

EML 6930 Propulsion (graduate) – Spring 2025 · 7 students · 5.0 (n = 6)

EML 3701 Fluid Systems (undergraduate) – Fall 2024 · 76 students · 4.7 (n = 52)

EML 4930 Propulsion (undergraduate) – Spring 2024 · 24 students · 5.0 (n = 12)

Tennessee Tech University

ME 7100 Turbulence (graduate) – Fall 2023, Fall 2021 · Fall 2021: 6 students, 4.5 (n = 4)

ME 6040 Intermediate Fluid Mechanics (graduate) – Fall 2023, Fall 2020 · Fall 2020: 13 students, 4.5 (n = 10)

ME 7970 Modeling Atmospheric Flows (graduate) – Spring 2023

ME 3210 Thermodynamics I (undergraduate) – Spring 2023, Fall 2022, Spring 2021, Spring 2020, Fall 2019 · 2019–2021: 144 students, 4.5 (n = 95)

ME 4900 Phase Change Flows (undergraduate; offered as graduate ME 6970 in Spring 2021) – Spring 2023, Spring 2021

ME 7970 Atmospheric Fluid Mechanics (graduate; offered as ME 6970 in Spring 2021) – Fall 2022, Spring 2021

ME 7970 Atmospheric Measurements (graduate) – Fall 2022

ME 3720 Fluid Mechanics (undergraduate) – 10 sections, Fall 2017–Spring 2022 · 447 students · 4.4 (n = 296)

ME 6010 Conduction Heat Transfer (graduate) – Spring 2022, Fall 2019 · 19 students · 4.9 (n = 11), 4.8 (n = 7)

ME 4900 Aerodynamics of Damaged Wings (undergraduate) – Fall 2021, Spring 2020

ME 4900 Integrated Storage Technologies (undergraduate) – Fall 2019

East Tennessee State University

Thermodynamics I (undergraduate) – Fall 2022, Fall 2019

Fluid Mechanics (undergraduate) – Spring 2022, Spring 2020

OTHER INVITED TALKS/SEMINARS

(2026) "Engineering a Sustainable Decarbonization," Keynote Speaker at the Cleaner Earth & Atmosphere Conference, Canada

(2023) "Atmospheric Thermo-Fluids: Unraveling Aerospace and Renewable Energy Effects," Department of Mechanical and Aerospace Engineering, University of South Florida

(2023) "Clean Energy: Our Commitment to a Sustainable Future," Department of Mechanical and Aerospace Engineering, University at Buffalo

(2023) "Modeling Atmospheric Thermal and Momentum Transport Processes using Computational Fluid Dynamics," CEE Distinguished Seminar Series, Northeastern University

(2017) "Wind Farm Layout Optimization," University of Windsor

(2016) "Wind Energy Conversion and Storage," Northern Illinois University

(2016) "Wind Energy Conversion and Storage," Tennessee Tech University

RESEARCH PROFESSORS

1. Mohammad Hossein Doranehgard, 2026–

POST-DOCTORAL RESEARCH ASSOCIATES

2. Mohamed Abbasi, University of South Florida, 2025–, Sponsor: NASA
3. Ty Hagan, 2024–2026, Sponsor: TVA
4. Mohammad Hossein Doranehgard, 2025–2026, Sponsor: TECO

STUDENTS ADVISED/EVALUATED

Clubs

Advisor, AIAA Student Chapter, University of South Florida, 2025 – present

Advisor, ASHRAE Student Chapter, University of South Florida, 2025 – present

Advisor, Men's Soccer Club, Tennessee Tech University, 2018 - 2023

Ph.D. Dissertation in Progress

1. **Dexter Limcangco**, Fall 2026, GSS Fellowship Recipient
2. **Sara Arroyave**, Fall 2026
3. **Yoseph Keisi**, Fall 2026
4. **Torge Bohlken**, Fall 2025, Sponsor: NASA
5. **Abdo Abdelrady**, Fall 2025, Sponsor: NASA
6. **Ahmed Gamal Tolba**, Fall 2024, Sponsor: NSF
7. **Michael Edgemon**, Fall 2024, Sponsor: NSF
8. **Devin Roland**, Spring 2024, Sponsor: NASA
9. **Elijah Barritt**, Fall 2023, Sponsor: NASA

M.S. Student in Progress

10. **Mian Fazal**, Fall 2024, Sponsor: TECO

Ph.D. Dissertations Directed

Tennessee Tech University

11. **Scott Vanderlan** (2022–2025, Co-advisor: Jie Cui)
    Sponsor: ORNL

Dissertation: "Computational Fluid Dynamics Model of Heat Transfer in the Vicinity of Photovoltaic Panels."

Employed at the Oak Ridge National Laboratory (Scientist)

12. **Ty Hagan** (2021–2024)

    Sponsor: TVA

    Dissertation: "Thermal Cavitation Induced by Extreme Temperature Gradients."

    Employed at the University of South Florida (Postdoctoral Researcher)

13. **Daniel T Cannon** (2020–2024)

    Sponsor: NSF

    Dissertation: "Understanding the Impact of Photovoltaic Solar Panels on the Near-Ground Atmosphere: A Pilot Study"

    Employed at Tennessee Tech University (Postdoctoral Researcher)

14. **Reza Nouri** (2019–2023)

    Dissertation: "The Need to Go Deeper: The Employment of Convolutional Neural Networks to Analyze Turbulent Flows Frequency Content,"

    Employed at the University of Memphis (Postdoctoral Researcher)

15. **Doug Clark** (2018–2021)

    Sponsor: ORNL

    Dissertation: "Multiphysics-Modeling of Fire-Induced Uranium Aerosol Formation – A-Posteriori Benchmarking of Experiments,"

    Employed at Oak Ridge National Laboratory (Scientist)

M.S. Theses Directed

16. **Warren Sims**, 2022-2024, "Design, Engineering, and Fabrication of a Weather Tower," employed at Oak Ridge National Laboratory.
17. **Devin Roland**, 2022–2023, "Understanding the Impact of Humidity and Turbulence Intensity on the Direction and Intensity of an Infrared Beam," employed at the University of South Florida (Ph.D. graduate assistant).
18. **Michael Hackler**, 2020–2021, "On the Effect of Reynolds Number and Structural Parameters on Vortex-Induced Vibrations of Circular Cylinders," employed at Y-12 National Security Complex.
19. **Hollee Sadler**, 2020–2021, "Aerodynamics of a Damaged Wing," employed at the University of Central Florida (Ph.D. graduate assistant).
20. **Cody Long**, 2018–2020, "Vortex-Induced Vibrations of Oscillating Bluff Bodies for Energy Storage/Conversion Applications," employed at Y12 National Security Complex.
21. **Ryan R Nash**, 2018–2020, "Wind Farm Wake Control," employed at Arnold Air Force Base.
22. **Madison Dittner**, 2018–2020, "Development of a Geometry Optimization Platform Using an In-House Developed Genetic Algorithm: Case of a Bladeless Wind Turbine," employed at the U.S. Patent Office.

Service on Advisory Committees Other than Own Advisees

University of South Florida

23. Majid Torof, Ph.D. Student in Civil Engineering, Advisor: Jeff Cunningham

Tennessee Tech University

24. Miles Nevills, Ph.D. in Mechanical Engineering, Advisor: Ethan Languri
25. Christopher Johnson, Ph.D. in Electrical Engineering, Advisor: Dr. Charles Van Neste
26. Musayyibi Shuaibu, Ph.D. in Electrical Engineering, Advisor: Dr. Joseph Ojo
27. Sainand Jadhav, Ph.D. in Manufacturing, Advisor: Dr. DuckBong Kim
28. Jimmy Meacham, M.S. in Mechanical Engineering, Advisor: Dr. Rory Roberts
29. Trevor Kramer, Ph.D. in Mechanical Engineering, Advisor: Dr. Rory Roberts
30. Saiful Islam, Ph.D. in Manufacturing, Advisor: Dr. DuckBong Kim
31. Seyi Ayeni, Ph.D. in Chemical Engineering, Advisor: Dr. Holly Stretz
32. Saanyol Igbax, Ph.D. in Mechanical Engineering, Advisor: Dr. Steve Idem
33. Chaitanya Kodali, Ph.D. in Mechanical Engineering, Advisor: Dr. Steve Idem
34. Jason Cook, Ph.D. in Mechanical Engineering, Advisor: Dr. Pingen Chen
35. Zhicheng Zhang, Ph.D. in Manufacturing, Advisor: Dr. Ismail Fidan
36. Mushrif Choudhury, Ph.D. in Mechanical Engineering, Advisor: Dr. Jie Cui
37. Mahdi Mohammadizade, Ph.D. in Manufacturing, Advisor: Dr. Ismail Fidan
38. Drew E. Winder, Ph.D. in Mechanical Engineering, Advisor: Dr. Sally Pardue
39. Tyler R. Qualls, M.S. in Mechanical Engineering, Advisor: Dr. Pingen Chen
40. Joseph Staller, M.S. in Mechanical Engineering, Advisor: Dr. Steve Idem
41. Byron Harrington, M.S. in Mechanical Engineering, Advisor: Dr. Rory Roberts
42. Michael Tidwell, M.S. in Mechanical Engineering, Advisor: Dr. Van Neste

University of Rhode Island

43. Boma Kresning, Ph.D. in Ocean Engineering, Advisor: Dr. Reza Hashemi

Undergraduate Research Assistants

University of South Florida

1. Zachary Tephford (2026–present)
2. Kevin Ferrer Sanchez (2025–present)
3. Sara Arroyave (2025–2026)
4. Yoseph Keisi (2025–2026)
5. Dexter Limcangco (2025–2026). “Verifying TSR Optimization’s Effectiveness on Wind Farm Energy Generation via Scaled Laboratory Experiments.”
6. Mateo Acosta (2025). “A Literature Survey on Aerodynamics Concepts for Enhancing Hybrid-Electric Propulsion Systems Performance”
7. Benjamin Mannino (2025). “Simulating the drag coefficient of a low Earth orbit satellite using START-CCM.”
8. Andrew Drysdale (2025). “Simulating the drag coefficient of a low Earth orbit satellite using

ANSYS Fluent."

9. Natalie Geer (2024–2025). "Laboratory Experiments to Understand Hydrogen vs. Kerosene Contrails."
10. Isabella Ribaldo (2024). "Verifying TSR Optimization's Effectiveness on Wind Farm Energy Generation via Scaled Laboratory Experiments."
11. Ebert Brits (2024). "Setting up EULAG for simulating contrail effects."
12. Karam Shahrouri (2024–2025). "Solar Photovoltaic Losses."
13. Stephanie Lue (Spring 2025). "A Literature Survey on Aerodynamics Concepts for Enhancing Hybrid-Electric Propulsion Systems Performance."
14. Torge Bohlken (2024–2025) "Solar Photovoltaic Losses."
15. Chiara Deangelis (2024). "Developing an Educational Mobile Application: ATMOSPORT."

Tennessee Tech University

16. Ryan Medlin (2023 – 2024). "Condensation Trails of Hydrogen versus Kerosene: A Literature Review," currently employed by Westinghouse.
17. Spencer Meeks (2023 – 2024), "Condensation Trails of Hydrogen versus Kerosene: A Literature Review," currently employed by Oak Ridge National Lab.
18. Jordan Frerichs (2022–2023). "Contributing to the Design of a Vertical Traverse System."
19. Brian Hawkins (2021–2022). "Wind Tunnel Laboratory Maintenance."
20. Pierce Wooten (2021–2023). "Investigating the Impact of Turbulence and Humidity on Infrared Beam Power Transmission: A Literature Review," currently employed by Oak Ridge National Lab.
21. Luke Olson (2021–2023). "Designing and Fabricating a Wind Turbine Speed Controller," currently employed by Oak Ridge National Lab.
22. Koltar Houser (2021–2022). "Constructing a Steam Engine Setup for Investigating the First Law of Thermodynamics," currently employed by Designed Conveyor Systems, LLC.
23. Nathaniel Lee (2022). "Wind Tunnel Traverse Maintenance and Collaborating with the GSET R&D Team."
24. Olivia Cline (2021). "Designing a Wind Turbine Speed Controller."
25. William McCarty (2020–2021). "Designing an Interface for Simultaneous Visualization of CFD Simulations Conducted on an HPC Cluster."
26. Wesley Upshur (2020–2021). "Harvesting Electricity from a Vehicle's Suspension System," currently employed by GE Aerospace.
27. Caleb Dunlap (2020–2021). "Harvesting Electricity from a Vehicle's Suspension System," currently a Ph.D. student at TN Tech.
28. Christophe Blair (2020–2021). "Harvesting Electricity from a Vehicle's Suspension System."
29. Ty Hagan (2020–2021). "Generating CAD Files and 3D Printing Essential Components for Various Projects," currently a Ph.D. student at TN Tech.
30. Henry Pace (2020). "Modeling Linear-to-Rotary Conversion Mechanism using ANSYS," currently a Ph.D. student at Georgia Tech.
31. Stephen Foltz (2020). "Engineering an Underwater Energy Storage System," currently employed by National Aerospace Solutions.
32. Adam Becklehimer (2020). "Developing an AI-based Signal Classifier using Python," currently

employed by Fast Enterprises, LLC.

33. Andrew Davis (2019 – 2020). "Performing a Comprehensive Literature Review on the Aerodynamics of Damaged Wings," currently a graduate student at Colorado State University.
34. Logan Unser (2019 – 2020). "Scaling Wind Turbines for Wind Tunnel Testing," currently employed at QuEST Global.
35. Josh Nichols (2019 – 2020). "Aided in the Development of an Algorithm to Identify, Curve-fit, and Calculate Area under Peaks within Irregular Signals," employed at ProviderTrust.
36. John Stephenson (2018). "Contributed to the Fabrication of the Wind Tunnel's Traverse System."
37. Trenton Preston (2018). "Designing and Fabricating a Vortex Gun."
38. Yixing Wang (2021 – 2022). "Exploring the Aerodynamics of a Scaled Aircraft Under Damage Conditions," currently a graduate student at Tennessee Tech University.
39. Benjamin Cooper (2019 and 2021). "Wind Turbine Speed Control."

Special Achievements of Graduate Students

University of South Florida

Torge Bohlken	2026 Exceptional Eco-Friendly Paper/Poster Award, 9th Cleaner Earth and Atmosphere Conference, Windsor, ON, Canada

Tennessee Tech University

Michael Hackler	2023 Eminence Award for the M.Sc. Best Paper
Reza Nouri	2022 Best Mechanical Engineering Ph.D. Student Poster Award, Tennessee Tech's Research and Creative Inquiry Day
William McCarty	2021 Creative Inquiry Summer Experience (CISE) award, $4,000
Reza Nouri	2021 Eminence Award for the Doctor of Philosophy Best Paper
Stephen Foltz	2020 Creative Inquiry Summer Experience (CISE) award, $4,000
Logan Unser	2020 Creative Inquiry Summer Experience (CISE) award, $4,000
Logan Unser	2019 Creative Inquiry Summer Experience (CISE) award, $4,000
Trenton Preston	2018 Creative Inquiry Summer Experience (CISE) award, $4,000

SERVICE

Editor, Conference Proceedings

Springer Proceedings in Energy volumes co-edited with David S.-K. Ting

A Multi-pronged Approach to Bettering Tomorrow, 2026
Sustaining Tomorrow with Minimal Entropy Generation, 2025
Brightening Tomorrow Together, 2024
Engineering to Adapt, 2023
Responsible Engineering and Living, 2022
Mitigating Climate Change, 2022
Sustaining Tomorrow, 2021

Complementary Resources for Tomorrow, 2020

The Energy Mix for Sustaining Our Future: Selected Papers from Energy and Sustainability, 2018

Other proceedings

Proceedings of the International Conference on Numerical Analysis and Applied Mathematics, AIP, 2017

Guest Editor, Special Issues

"Advances in Photovoltaics," *Sustainable Energy Technologies and Assessments* (Elsevier), 2023

"Tomorrow Energy & Resources," *Sustainable Energy Technologies and Assessments* (Elsevier), 2021

"Future and Sustainability," *International Journal of Sustainable Energy* (Taylor & Francis), 2018–2020

"Further Integration and Advancement of Sustainability," *Sustainable Energy Technologies and Assessments* (Elsevier), 2018–2019

"Natural Resources and Energy Usage," *Sustainable Energy Technologies and Assessments* (Elsevier), 2017–2018

Conference Organization

Technical Program Chair, Cleaner Earth and Atmosphere Conference, 2018–present

Session Chair, "Computational Methods/Tools in Thermal-Fluid Systems" and "Turbomachinery," 12th Thermal and Fluids Engineering Conference (TFEC 2027), American Society of Thermal and Fluids Engineers, Dallas, TX, USA, 2027

Session Chair, AIAA Aviation Forum, Las Vegas, NV, USA, 2024

Session Chair, 9th Thermal and Fluids Engineering Conference (TFEC 2024), American Society of Thermal and Fluids Engineers, Corvallis, OR, USA, 2024

Symposium Organizer, International Conference of Numerical Analysis and Applied Mathematics, Thessaloniki, Greece, 2017

Session Chair and Communication Chair, Natural Gas and Hydrogen Storage Symposium, Windsor, ON, Canada, 2015

Logistics Coordinator, Offshore Energy and Storage Symposium, Windsor, ON, Canada, 2014

Logistics Coordinator, Canadian Science Writers Association Annual Conference, 2014

Proposal Review

National Science Foundation: panelist on 5 panels; ad hoc reviewer for 3 proposals

Thermal Transport Processes Program: panelist (2), ad hoc reviewer (1)

Fluid Dynamics Program: panelist (2), ad hoc reviewer (1)

Major Research Instrumentation (MRI) Program: panelist (1)

Environmental Sustainability Program: ad hoc reviewer (1)

Journal Review

45 manuscript reviews for 13 journals: *Applied Energy* (10), *Energy Conversion and Management* (10), *Sustainable Energy Technologies and Assessments* (10), *Energies* (5), *Wind Energy Science* (2), *AIMS Energy*, *Atmosphere*, *Fluid Dynamics Research*, *International Journal of Energy Research*, *International Journal of Engineering and Technology Innovation*, *International Journal of Numerical Methods for Heat & Fluid Flow*, *Journal of Energy Resources Technology* (ASME), and

Journal of Testing and Evaluation (1 each)

Professional Committees and Memberships

Member, Fluid Dynamics Technical Committee, American Society of Thermal and Fluids Engineers (ASTFE), 2026–present
Member, Working Group, Florida University Space Research Consortium, 2025–present
Member, Sigma Xi, The Scientific Research Honor Society

University Service

University of South Florida (2024–present)

Chair, Aerospace Engineering Committee (department), 2024–present
Member, Space Committee (college), 2026–present
Member, Undergraduate Laboratory Development Committee (department), 2026–present
Member, Graduate Council (university), 2025–present
Champion, Strategic Plan Development, Discovery Pillar (college), 2025–2026
Chair, Tenure/Tenure-Track Faculty Search Committee (department), 2024–2025, 2025–2026
Member, Department Chair Search Committee (department), 2025–2026
Member, Faculty of Instruction Search Committee (department), 2024–2025

Tennessee Tech University (2017–2024)

Member, Goals and Assessment Committee (department), 2021–2024
Member, Tenure/Tenure-Track Search Committee (department), 2021–2022
Member, Planning Committee, New Engineering Building Fluids Laboratory (college), 2020–2021
Member, Graduate Committee (department), 2018–2021
Member, Curriculum Committee (department), 2018
Member, Lecturer Search Committee (department), 2017–2018

Outreach

University of South Florida (2024–present)

Camp Director, Week-long Aerospace Engineering Summer Camp, USF Youth Experiences, 2026
Organizer, Aerospace Engineering Booth, USF Engineering Expo, 2025, 2026
Organizer, Aerospace Engineering Booth, Bulls Family Fest, 2026
Speaker, Monthly Aerospace Information Sessions, 2025–present
Speaker, Admitted Student Events (Aerospace Engineering), 2025–present
Speaker, Foundations of Engineering Course (Aerospace Engineering), Fall 2025
Participant, USF Open House Events, Fall 2024, Fall 2025

Tennessee Tech University (2017–2023)

Organizer (2023), Co-Organizer (2021, 2022), and Participant (2020), Explorations in Engineering and Computing Camp (Mechanical Engineering)
R&D Team Leader, Governor's School for Emerging Technologies (Wind Energy), 2022, 2023
Speaker, Governor's School for Emerging Technologies, 2018, 2020 (Wind Energy)
Participant, University Open House Events: Wind Tunnel Lab Demonstrations, 2017–2023

Judge, Tennessee's FIRST LEGO League Tournament, 2022
Judge, Tennessee Tech Research and Creative Inquiry Day, 2018, 2022