

**Ahmad Vasel-Be-Hagh (Vaselbehagh)**Assistant Professor of Mechanical Engineering,  
Tennessee Technological University+1-931-372-6468 | [avaselbehagh@tntech.edu](mailto:avaselbehagh@tntech.edu) | <https://sites.tntech.edu/fmrl/>**EDUCATION**

Postdoc	Ocean & Atmosphere Eng.	University of Delaware	US	9/2015-8/2017
Ph.D.	Mechanical Engineering	University of Windsor	Canada	9/2011-8/2015
M.Sc.	Mechanical Engineering	Ferdowsi University	Iran	9/2008-8/2011
B.Sc.	Mechanical Engineering	Ferdowsi University	Iran	9/2004-8/2008

**PROFESSIONAL APPOINTMENTS**

8/2023–present	Associate Professor	Mechanical Engineering	Tennessee Tech University
9/2017–8/2023	Assistant Professor	Mechanical Engineering	Tennessee Tech University
1/2022–12/2022	Adjunct <sup>1</sup>	Mechanical Engineering	East Tennessee State Univ.
8/2019–5/2020	Adjunct	Mechanical Engineering	East Tennessee State Univ.

**GRANTS AWARDED**

Total: \$14,082,552

Share: \$2,243,215

*Pending*

1. Principal Investigator (co-PIs: Rory Roberts, Doug Talbert, and Jim Steck), “Emergency Advanced Pilot Assistance (EAPA) to Increase Flight Resilience,” 07/2023-06/2027, U.S. Department of Defense, \$4,621,411 (33% share)
2. Co-PI (PI: Kaitlyn A Suarez, co-PIs: Thomas Thundat, Abdelaziz Lawani, Charles Van Neste, Stephanie Patsalis, Katherine Ayers, Craig Henderson, Michael Aikens, Steven Anton, Caela O’Connell, Joumana Rahime, Jeffrey D. Spitler, Forbes Walker, Hao Gan, Daniel Collins, Eleanor Phillips Lopez, Ray Emanuel, Charles J. Sentell, ), “NSF Engines: Type-2: Preserving Traditions and Innovating for the Future: Sustainable Agriculture and Energy Practices in Tennessee,” 07/2023-06/2025, National Science Foundation (NSF), \$14,999,999 (4% share)

*Current*

3. Co-PI (PI: Rory Roberts, co-PIs: Bruce Jo, Michael Sumption, John Hull, Don Cao, Mohammed Akbar, John Kim, Roland Dixon, and Mike Ikeda), “CarbonLess Electric Aviation (CLEAN),” 05/2023-04/2027, NASA, \$7,999,452 (10% share)
4. Principal Investigator (co-PI: Charles Van Neste), “High-Precision Heat Delivery to Partly Melt Inaccessible Ice at a Nuclear Plant’s Condenser,” 01/2023-10/2023, Tennessee Valley Authorities (TVA), \$277,975 (90% share)
5. Principal Investigator, “NSF CAREER: CAS-Climate: Understanding Thermal Transport Processes in Atmospheric Boundary Layer with Utility-Scale Solar Photovoltaic Plants,” 07/2022-06/2027, National Science Foundation (NSF), \$500,493 (100% share)

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<sup>1</sup> Taught online courses simultaneously with my Tennessee Tech lectures

6. Senior Personnel (PI: Holly Stretz), “Fiber Reactor Extraction Simulations,” 08/2022-07/2024, Visionary Fiber Technologies, \$75,051 (6% share)
7. 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),” 05/2023-04/2027, U.S. Department of Energy (DOE), \$4,531,642 (3% share)

*Past*

8. Principal Investigator (co-PI: Satish Mahajan), “Thermal Treatment of Nuclear Plants’ Ice Condensers using CO<sub>2</sub> Lasers,” 01/2022-12/2022, TVA, \$250,000 (85% share)
9. Principal Investigator, “Developing an Experimental Setup to Demonstrate the First and Second Laws of Thermodynamics,” 06/2021-05/2022, Tennessee Tech’s College of Engineering, \$11,000 (100% share)
10. Principal Investigator, “Faculty Research Award: Understanding and Modeling of Thermal Transport Processes within Near-Ground Atmosphere in the Presence of Utility-Scale Solar,” 06/2020-06/2021, Tennessee Tech University’s Research Office, \$10,000 (100% share)
11. Principal Investigator (co-PI: Satish Mahajan), “Development of a Laser-Based System for the Maintenance of Ice Condensers,” 09/2020-12/2021, TVA, \$185,000 (80% share)
12. Co-PI (PI: Cristina Archer), “Advanced Wake Loss Modeling for Large Wind Farms with Variable Wind Speed and Direction,” 2019-2020, U.S. Department of Interior, \$186,244 (11% share)
13. Principal Investigator, “Investigating the Impact of Wind Turbines on Surface Fluxes using Computational Fluid Dynamics,” 2019-2020, HKF Technologies LLC, \$10,619 (100% share)
14. Principal Investigator, “Investigating the Impact of Wind Turbines on Surface Fluxes using Computational Fluid Dynamics,” 2016, First State Marine Wind LLC, \$45,076 (100% share)

**SELECTED AWARDS, HONORS**

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|------|---|
| 2023 | Wings Up 100, Tennessee Tech University   |
| 2023 | Brown-Henderson Outstanding Faculty Award, Tennessee Tech University                |
| 2022 | Wings Up 100, Tennessee Tech University   |
| 2021 | ASME Distinguished Researcher, ASME Student Chapter, Tennessee Tech University      |
| 2021 | Wings Up 100, Tennessee Tech University   |
| 2020 | ASME Outstanding Advisor, ASME Student Chapter, Tennessee Tech University           |
| 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
- 2011–15 Ontario Trillium Scholarship (\$160,000), Government of Ontario, Canada
- 2011 Doctoral Entrance Scholarship (\$6,000 per year), University of Windsor, Canada
- 2009 Outstanding Mechanical Engineering Researcher, Ferdowsi University

## ACADEMIC AREAS OF SPECIALIZATION

### Teaching

#### *Tennessee Technological University*

Turbulence (Fall 2021)

Atmospheric Fluid Mechanics (Fall 2022 and Spring 2021)

Fluid Mechanics (Spring 2022, Fall 2021, Fall 2020, Spring 2020, Spring 2019, Fall 2018 (two sections), Spring 2018, Fall 2017)

Intermediate Fluid Mechanics (Fall 2020)

Aerodynamics of Damaged Wings (Spring 2020 and Fall 2021)

Modeling Atmospheric Flows (Spring 2023)

Atmospheric Measurements (Fall 2022)

Thermodynamics I (Spring 2023, Fall 2022, Spring 2021, Spring 2020, and Fall 2019)

Conduction Heat Transfer (Spring 2022 and Fall 2019)

Phase Change Flows (Spring 2023 and Spring 2021)

Integrated Storage Technologies (Fall 2019)

#### *East Tennessee State University*

Thermodynamics I (Fall 2022 and Fall 2019)

Fluid Mechanics (Spring 2022 and Spring 2020)

### Research

Thermal Transport Process, Turbulence, Boundary Layer, Computational Fluid Dynamics, Wind Tunnel Testing, and Field Campaigns

## PUBLICATIONS

(Vasel-Be-Hagh's graduate and undergraduate students are identified with an asterisk\* and a dagger†, respectively. The corresponding author's name is underlined.)

**Note:** My work with Douglas Clark, my former Ph.D. student, on modeling and testing the interactions of Uranium and fire sponsored by and conducted at Y12 National Security Complex could not be published due to classification and security considerations. We are following up with them to identify what can be published and what needs to remain confidential.

### 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

1. Vasel-Be-Hagh, A., & Ting, D. (Editors). 2021. “Utility-scale Wind Turbines and Wind Farms,” The Institution of Engineering and Technology (IET), London, UK. [10.1049/PBPO171E](https://doi.org/10.1049/PBPO171E)
2. Vasel-Be-Hagh, A., & Ting, D. (Editors). 2020. “Environmental Management of Air, Water, Agriculture, and Energy,” Routledge, Taylor and Francis, FL, USA. <https://doi.org/10.1201/9780429196607>
3. Vasel-Be-Hagh, A., & Ting, D. (Editors). 2019. “Advances in Sustainable Energy,” Springer, Switzerland. <https://doi.org/10.1007/978-3-030-05636-0>

### Published Chapters

5. Hackler,\* M., Vasel-Be-Hagh, A., & Ting, D. (2021). Chapter 1: The Current Status of Wind Power. In A. Vasel-Be-Hagh & D. Ting (Eds.), *Utility-Scale Wind Turbines and Wind Farms* (pp. 1-15). London, UK: The Institute of Engineering and Technology. [10.1049/pbpo171e\\_ch1](https://doi.org/10.1049/pbpo171e_ch1)
4. Unser, † L., & Vasel-Be-Hagh, A. (2021). Chapter 3: Scaling Utility-Scale Wind Turbines. In A. Vasel-Be-Hagh & D. Ting (Eds.), *Utility-Scale Wind Turbines and Wind Farms* (pp. 39-47). London, UK: The Institute of Engineering and Technology. [10.1049/PBPO171E\\_ch3](https://doi.org/10.1049/PBPO171E_ch3)
3. Unser, † L., & Vasel-Be-Hagh, A. (2020). Chapter 10: A Preliminary Evaluation on the Performance of Diffuser-augmented Vertical Axis Wind Turbines. In A. Vasel-Be-Hagh & D. Ting (Eds.), *Complementary Resources for Tomorrow* (pp. 163-174). Switzerland: Springer Nature. [10.1007/978-3-030-38804-1\\_10](https://doi.org/10.1007/978-3-030-38804-1_10)
2. Long,\* C.S., & Vasel-Be-Hagh, A. (2020). Chapter 6: Storage-Integrated Energy Harvesters. In A. Vasel-Be-Hagh & D. Ting (Eds.), *Environmental Management of Air, Water, Agriculture, and Energy* (pp. 119-140). Boca Raton, FL, USA: Routledge. [10.1201/9780429196607](https://doi.org/10.1201/9780429196607)
1. Vasel-Be-Hagh, A. (2017) Chapter 3: Optimization of wind farms for communities. In A. Vasel-Be-Hagh & D. Ting (Eds.), *Wind and Solar Based Energy Systems for Communities* (pp. 27-61), London, UK: The Institute of Engineering and Technology. [10.1049/PBPO130E\\_ch3](https://doi.org/10.1049/PBPO130E_ch3)

### Published Peer-Reviewed Journal Articles

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

25. 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. [10.1002/we.2758](https://doi.org/10.1002/we.2758)
24. 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. [10.3390/wind2040036](https://doi.org/10.3390/wind2040036)
23. 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. [10.1615/InterJFluidMechRes.2022042820](https://doi.org/10.1615/InterJFluidMechRes.2022042820)
22. 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. [10.1016/j.enconman.2021.114581](https://doi.org/10.1016/j.enconman.2021.114581)
21. Nouri,\* R., Vasel-Be-Hagh, A., & Archer, C. (2020). "The Coriolis Force and the Direction of Rotation of the Blades Significantly Affect the Wake of Wind Turbines," *Applied Energy*, 277, 115511. [10.1016/j.apenergy.2020.115511](https://doi.org/10.1016/j.apenergy.2020.115511)
20. 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].
19. 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. [10.1016/j.seta.2019.03.002](https://doi.org/10.1016/j.seta.2019.03.002)
18. Dittner,\* M.E., & Vasel-Be-Hagh, A. (2019). "Advances in Wind Power Forecasting," *Lecture Notes in Energy*, 70, 37-57. [10.1007/978-3-030-05636-0\\_3](https://doi.org/10.1007/978-3-030-05636-0_3)
17. Archer, C.L., Wu, S., Vasel-Be-Hagh, A., Brodie, J.F., Delgado, R., St. Pe, 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. [10.1080/14685248.2019.1572161](https://doi.org/10.1080/14685248.2019.1572161)
16. 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. [10.1016/j.seta.2019.06.001](https://doi.org/10.1016/j.seta.2019.06.001)
15. 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. [10.1016/j.apenergy.2018.05.085](https://doi.org/10.1016/j.apenergy.2018.05.085)
14. 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. [10.1016/j.enconman.2017.09.077](https://doi.org/10.1016/j.enconman.2017.09.077)
13. Vasel-Be-Hagh, A., & Archer, C. (2017). "Wind Farm Hub Height Optimization," *Applied Energy*, 195C, 905-921. [10.1016/j.apenergy.2017.03.089](https://doi.org/10.1016/j.apenergy.2017.03.089)

12. Vasel-Be-Hagh, A., & Archer, C. (2017). "Wind Farms with Counter-Rotating Wind Turbines," *Sustainable Energy Technologies and Assessments*, 24, 19-30. [10.1016/j.seta.2016.10.004](https://doi.org/10.1016/j.seta.2016.10.004)
11. Vasel-Be-Hagh, A., Carriveau, R., Ting, D.S.-K., & Turner, J.S. (2015). "Drag of Buoyant Vortex Rings," *Physical Review E*, 92(4), 1-5. [10.1103/PhysRevE.92.043024](https://doi.org/10.1103/PhysRevE.92.043024)
10. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2015). "A Balloon Bursting Underwater," *Journal of Fluid Mechanics*, 769, 522 – 540. [10.1017/jfm.2015.126](https://doi.org/10.1017/jfm.2015.126)
9. 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. [10.1016/j.oceaneng.2014.11.030](https://doi.org/10.1016/j.oceaneng.2014.11.030)
8. 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. [10.1016/j.seta.2014.11.004](https://doi.org/10.1016/j.seta.2014.11.004)
7. 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. [10.1007/s11804-014-1277-3](https://doi.org/10.1007/s11804-014-1277-3)
6. 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. [10.1016/j.seta.2014.02.001](https://doi.org/10.1016/j.seta.2014.02.001)
5. Vasel-Be-Hagh, A., Carriveau, R., & Ting, D.S.-K. (2013). "Numerical Simulation of Flow past an Underwater Energy Storage Balloon," *Computers and Fluids*, 88, 272 – 286. [10.1016/j.compfluid.2013.09.017](https://doi.org/10.1016/j.compfluid.2013.09.017)
4. 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. [10.1080/00207233.2013.810043](https://doi.org/10.1080/00207233.2013.810043)
3. 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. [10.1615/InterJFluidMechRes.v40.i3.40](https://doi.org/10.1615/InterJFluidMechRes.v40.i3.40)
2. 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. [10.1504/PCFD.2013.052425](https://doi.org/10.1504/PCFD.2013.052425)
1. 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 Mecanique*, 340(7), 526 – 535. [10.1016/j.crme.2012.03.011](https://doi.org/10.1016/j.crme.2012.03.011)



## TALKS/SEMINARS

- June 2023      Precise remote heat delivery for thermal treatment of a nuclear plant's condensers  
*Engineering to Adapt Symposium, University of Windsor, Canada*
- June 2023      Instantaneous real-time control of tip speed ratio and yaw for wind farms  
*Engineering to Adapt Symposium, University of Windsor, Canada*
- April 2023      Clean Energy: Our Commitment to a Sustainable Future  
*Department of Mechanical and Aerospace Engineering, University at Buffalo*
- March 2023      Modeling Atmospheric Thermal and Momentum Transport Processes using Computational Fluid Dynamics  
*CEE Distinguished Seminar Series, Northeastern University*
- September 2022      Active Tip Speed Ratio Control Can Significantly Increase Annual Energy Production  
*The North American Wind Energy Academy Conference, Delaware, USA*
- June 2022      Wind Turbine Wake Redirection via External Vanes  
*Responsible Engineering & Living Symposium, Windsor, ON, Canada*
- June 2018      Negative yaw vs. positive yaw: The Coriolis or the rotor's direction of rotation  
*Energy and Sustainability Conference, Windsor, Canada*
- December 2017      Wind Farm Layout Optimization  
*University of Windsor, Windsor, ON, Canada*
- December 2016      Hub Height Optimization to Increase Energy Production of Wind Farms  
*American Geophysical Union Fall Meeting, San Francisco, USA*
- July 2014      Flow-Induced Vibrations of an Underwater Energy Storage Accumulator  
*Offshore Energy and Storage Symposium, Windsor, Canada*
- June 2013      Flow past an Isolated Underwater Balloon  
*Canadian Congress of Applied Mechanics, Saskatoon, Canada*
- December 2011      Employment of Lattice Boltzmann Method in Simulating Flow past Two Equal Diameter Cylinders  
*Saudi Engineering Conference, Buraydah, Saudi Arabia*
- March 2011      A Lattice Boltzmann Study of Flow past Moderately and Widely Spaced Units of Four Cylinders: Flow Structure Simulation  
*Iranian Aerospace Society International Conference, Tehran, Iran*
- July 2010      A Lattice Boltzmann Simulation of Cross-Flow around Four Cylinders in a Square Arrangement  
*ASME Conference on Engineering Systems Design and Analysis. Istanbul, Turkey*

February 2009      Studying the Lattice Boltzmann Method by Simulating Couette Flow  
*Iranian Aerospace Society International Conference, Isfahan, Iran*

## **STUDENTS ADVISED/EVALUATED**

### Clubs

Men's Soccer Club, Tennessee Tech University, 2018 - present

### Dissertation/Thesis in Progress

1. Elijah Barritt, Ph.D., Fall 2023–present, “Condensation Trails of a Fuel Cell-Based Propulsion System,” expected graduation Summer 2026.
2. Devin Threet, M.Sc., Spring 2021–present, “Mitigating the Impact of Battle-Induced Damages to a NACA-4409 Airfoil,” expected graduation Summer 2023
3. Daniel T Cannon, Ph.D., Fall 2020–present, “Large-Eddy Simulations of the Thermal and Mechanical Interactions of Utility-Scale Photovoltaic Plants and Atmospheric Boundary Layer,” passed the qualifying exam in February 2023, degree expected Spring 2024
4. Ty Hagan, Ph.D., Summer 2021–present, “Thermal Cavitation Induced by Extreme Temperature Gradients,” degree expected Fall 2024
5. Devin Roland, M.Sc., Summer 2022–present, “Understanding the Impact of Humidity and Turbulence Intensity on the Direction and Intensity of an Infrared Beam,” expected graduation Fall 2023
6. Scott Vanderlan, Ph.D., Summer 2022–present, “Large-Eddy Simulations of the Thermal Processes in the Near Vicinity of Photovoltaic Panels,” degree expected Fall 2024 (co-advisor: Jie Cui)
7. Warren Sims, Ph.D., Fall 2022 –present, “A measurement field campaign at West Tennessee Solar Farm to Investigate the Thermomechanical Interactions of a Photovoltaic Canopy and the Viscous Sublayer,” degree expected Spring 2025

### Dissertations/Theses Directed

8. Reza Nouri, Ph.D., 2019–2023, “The Need to Go Deeper: The Employment of Convolutional Neural Networks to Analyze Turbulent Flows Frequency Content,” employed at the University of Memphis.
9. Doug Clark, Ph.D., 2018–2021, “Multiphysics-Modeling of Fire-Induced Uranium Aerosol Formation – A-Posteriori Benchmarking of Experiments,” employed at Oak Ridge National Laboratory.
10. Michael Hackler, M.Sc., 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
11. Hollee Sadler, M.Sc., 2020–2021, “Aerodynamics of a Damaged Wing,” employed at the University of Central Florida (Ph.D. graduate assistant)
12. Cody Long, M.Sc., 2018–2020, “Vortex-Induced Vibrations of Oscillating Bluff Bodies for Energy Storage/Conversion Applications,” employed at Y12 National Security Complex



13. Ryan R Nash, M.Sc., 2018–2020, “Wind Farm Wake Control,” employed at Arnold Air Force Base
14. Madison Dittner, M.Sc., 2018–2020, “Development of a Geometry Optimization Platform Using an In-House Developed Genetic Algorithm: Case of a Bladeless Wind Turbine,” employed at U.S. Patent Office

Service on Thesis Committees Other than Own Advisees

*Tennessee Tech*

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|-------------------------|-------|------------------------|---------------------------|
| 15. Miles Nevills       | Ph.D. | Mechanical Engineering | Advisor: Ethan Languri    |
| 16. Musayyibi Shuaibu   | Ph.D. | Electrical Engineering | Advisor: Dr. Joseph Ojo   |
| 17. Sainand Jadhav      | Ph.D. | Manufacturing          | Advisor: Dr. DuckBong Kim |
| 18. Jimmy Meacham       | M.Sc. | Mechanical Engineering | Advisor: Dr. Rory Roberts |
| 19. Trevor Kramer       | Ph.D. | Mechanical Engineering | Advisor: Dr. Rory Roberts |
| 20. Saiful Islam        | Ph.D. | Manufacturing          | Advisor: Dr. DuckBong Kim |
| 21. Seyi Ayeni          | Ph.D. | Chemical Engineering   | Advisor: Dr. Holly Stretz |
| 22. Saanyol Igbax       | Ph.D. | Mechanical Engineering | Advisor: Dr. Steve Idem   |
| 23. Chaitanya Kodali    | Ph.D. | Mechanical Engineering | Advisor: Dr. Steve Idem   |
| 24. Jason Cook          | Ph.D. | Mechanical Engineering | Advisor: Dr. Pinggen Chen |
| 25. Zhicheng Zhang      | Ph.D. | Manufacturing          | Advisor: Dr. Ismail Fidan |
| 26. Mushrif Choudhury   | Ph.D. | Mechanical Engineering | Advisor: Dr. Jie Cui      |
| 27. Mahdi Mohammadizade | Ph.D. | Manufacturing          | Advisor: Dr. Ismail Fidan |
| 28. Drew E. Winder      | Ph.D. | Mechanical Engineering | Advisor: Dr. Sally Pardue |
| 29. Tyler R Qualls      | M.Sc. | Mechanical Engineering | Advisor: Dr. Pinggen Chen |
| 30. Joseph Staller      | M.Sc. | Mechanical Engineering | Advisor: Dr. Steve Idem   |
| 31. Byron Harrington    | M.Sc. | Mechanical Engineering | Advisor: Dr. Rory Roberts |

*University of Rhode Island*

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|-------------------|-------|-------------------|---------------------------|
| 32. Boma Kresning | Ph.D. | Ocean Engineering | Advisor: Dr. Reza Hashemi |
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Undergraduate Research Assistant

33. Jordan Frerichs, Fall 2022 –, Assisting with the design and fabrication of a gantry system with extreme space constraints
34. Brian Hawkins, Fall 2021 –, Assisting with wind tunnel lab maintenance
35. Pierce Wooten, Fall 2021 –Spring 2022, Researching the impact of background flow on the propagation of I.R. laser beams (employed by Oak Ridge National Lab)

36. Luke Olson, Fall 2021 – Spring 2023, Developing a wind turbine speed controller using external loading (employed by Oak Ridge National Lab)
37. Koltar Houser, Fall 21 – Summer 22, Fabricating a steam engine set up to investigate the first law of thermodynamics (employed by Designed Conveyor Systems, LLC)
38. Nathaniel Lee, Spring and Summer 22, Maintaining the wind tunnel's traverse and assisting with the GSET R&D team
39. Olivia Cline, Fall 21, Wind turbine speed control
40. William McCarty, Spring 20 –Fall 21, Assisted with submitting CFD simulations to a High-Performance Computing Cluster
41. Wesley Upshur, Fall 20 and Spring 21, Generating electricity from a vehicle's suspension system (employed by GE Aerospace)
42. Caleb Dunlap, Fall 20 and Spring 21, Generating electricity from a vehicle's suspension system (currently a Ph.D. student at TN Tech)
43. Christophe Blair, Fall 20 and Spring 21, Generating electricity from a vehicle's suspension system
44. Ty Hagan, Summer 20 – Spring 21, Assisting the lab with creating CAD files and 3D printing parts required for several projects (currently a Ph.D. student at TN Tech)
45. Henry Pace, Summer 20 and Fall 20, Modeling a linear-to-rotary conversion mechanism via ANSYS (currently a Ph.D. student at Georgia Tech)
46. Stephen Foltz, Spring and Summer 20, Engineering an Underwater Energy Storage System (employed by National Aerospace Solutions)
47. Adam Beckleheimer, Spring 20, Developing an AI-based signal classifier using Python (employed by Fast Enterprises, LLC)
48. Andrew Davis, Summer 19 – Fall 20, Conducting a literature review on the aerodynamics of broken wings (graduate student at Colorado State University)
49. Logan Unser, Summer 19 – Fall 20, Scaling turbines for wind tunnel testing (employed at QuEST Global)
50. Josh Nichols, Summer 19 – 20, Assisted with developing an algorithm to identify, curve-fit, and calculate the area under peaks within irregular signals (employed at ProviderTrust)
51. John Stephenson Summer 2018, Assisted with the fabrication of the wind tunnel's traverse system
52. Trenton Preston, Summer 2018, Designing and fabricating a vortex gun
53. Yixing Wang, Fall 21 and Spring 22, Investigating the aerodynamics of a damaged scaled aircraft (currently graduate student at Tennessee Tech University)
54. Benjamin Cooper, Spring 19 – Summer 21, Wind Turbine Speed Control

#### Special Achievements of Graduate Students

- 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, Creative Inquiry Summer Experience (CISE) award, \$4,000 (Summer 2021)
- Reza Nouri, 2021 Eminence Award for the Doctor of Philosophy Best Paper
- Stephen Foltz, Creative Inquiry Summer Experience (CISE) award, \$4,000 (Summer 2020)
- Logan Unser, Creative Inquiry Summer Experience (CISE) award, \$4,000 (Summer 2020)
- Logan Unser, Creative Inquiry Summer Experience (CISE) award, \$4,000 (Summer 2019)
- Trenton Preston, Creative Inquiry Summer Experience (CISE) award, \$4,000 (Summer 2018)

## SERVICE

### Editorial Records

#### *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 and Francis, 2018 – 20

“Further Integration and Advancement of Sustainability,” Sustainable Energy Technologies and Assessments, Elsevier, 2018-19

“Natural Resources and Energy Usage,” Sustainable Energy Technologies and Assessments, Elsevier, 2017-18

#### *Proceedings*

Vasel-Be-Hagh, A., & Ting, D. (Eds.). (In press). *Engineering to Adapt*. Switzerland: Springer International Publishing.

Vasel-Be-Hagh, A., & Ting, D. (Eds.). (2022). *Responsible Engineering and Living*. Switzerland: Springer International Publishing.

Vasel-Be-Hagh, A., & Ting, D. (Eds.). (2022). *Mitigating the Climate Change*. Switzerland: Springer International Publishing.

Vasel-Be-Hagh, A., & Ting, D. (Eds.). (2021). *Sustaining Tomorrow*. Switzerland: Switzerland: Springer International Publishing.

Vasel-Be-Hagh, A., & Ting, D. (Eds.). (2020). *Complementary Resources for Tomorrow*. Switzerland: Springer International Publishing.

Vasel-Be-Hagh, A., & Ting, D. (Eds.). (2018). *The Energy Mix for Sustaining Our Future: Selected Papers from Proceedings of Energy and Sustainability*. Switzerland: Springer International Publishing.

Vasel-Be-Hagh, A. (Ed.). (2017) *Proceedings of the International Conference of Numerical Analysis and Applied Mathematics*. American Institute of Physics (AIP).

### Committees

#### Tennessee Tech University, Mechanical Engineering Department

Fall 2021 – present	Goals and Assessment Committee	Member
Fall 2021 – Spring 2022	Search Committee	Member
Fall 2018 – Spring 2021	Graduate Committee	Member
Fall 2017 – Spring 2018	Search Committee	Member
Spring 2018	Curriculum Committee	Member

#### Tennessee Tech University, College of Engineering

2020-2021	Planning the Hydraulics Lab for the A.I. Engineering Building	Member
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### Outreach

#### Tennessee Tech University, TN, USA

Summer 23	Explorations in Engineering and Computing Camp	Departmental Co-Leader
Summer 23	Governor’s School for Emerging Technologies	R&D Team Leader
Summer 22	Explorations in Engineering and Computing Camp	Departmental Co-Leader
Summer 22	Governor’s School for Emerging Technologies	R&D Team Leader
Summer 21	Explorations in Engineering and Computing Camp	Departmental Co-Leader
Summer 20	Governor’s School for Emerging Technologies	Speaker
Summer 20	Explorations in Engineering and Computing Camp	Participant
Summer 18	Governor’s School for Emerging Technologies	Speaker
Fall 17 – present	Showcase Events	Presenting Fluids lab

#### University of Windsor, ON, Canada

2015	The Natural Gas and Hydrogen Storage Symposium	Communication Chair
2014	Offshore Energy and Storage Symposium	Logistics
2014	Canadian Science Writers Association Annual Conference	Logistics

### Reviewer

#### National Science Foundation

Thermal Transport Processes Program	Panelist (Panel 2)	2022
	Panelist (Panel 1)	2022
	Ad Hoc Reviewer	2022
Environmental Sustainability Program	Ad Hoc Reviewer	2022
	Ad Hoc Reviewer	2020
Fluid Dynamics Program	Panelist	2021

Major Research Instrumentation Program      Panelist      2020

Journals

Journal of Testing and Evaluation  
Wind Energy Science  
Atmosphere  
Applied Energy  
Sustainable Energy Technologies and Assessments  
Energy Conversion and Management  
Fluid Dynamics Research  
Energies  
International Journal of Numerical Methods for Heat & Fluid Flow  
AIMS Energy  
International Journal of Engineering and Technology Innovation  
Journal of Energy Resources Technology (Transactions of the ASME)  
International Journal of Energy Research

**Conferences**

2023	Engineering to Adapt	Windsor, ON, Canada	Program/Session Chair
2022	Responsible Engineering & Living	Windsor, ON, Canada	Program/Session Chair
2020	Mitigating Climate Change	Windsor, ON, Canada	Program Chair
2019	Energy & Resources for Tomorrow	Windsor, Canada	Program/Session Chair
2018	Energy and Sustainability	Windsor, Canada	Program/Session Chair
2017	International Conference of Numerical Analysis and Applied Mathematics	Thessaloniki, Greece	Symposium organizer
2015	Natural Gas and Hydrogen Storage	Windsor, Canada	Session Chair

**Judge**

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