Yong Hoon Lee, Ph.D.

Assistant Professor Department of Mechanical Engineering Herff College of Engineering The University of Memphis

Address: 312 Engineering Science Building, Memphis, TN 38152, USA Email: yhlee@memphis.edu · Work Phone: +1 (901) 678-5004 Website: https://yonghoonlee.com Google Scholar: https://scholar.google.com/citations?user=t-F0slQAAAAJ



Education

•	Ph.D. Mechanical Engineering Dissertation: "Methods for the integrated design of viscoelastic materials and structural geome Advisors: James T. Allison, Ph.D. and Randy H. Ewoldt, Ph.D. <i>University of Illinois at Urbana-Champaign</i> , Urbana, IL, USA	Aug 10, 2020 try"
•	M.S. Mechanical Engineering Thesis: "A study on the application of Navier-Stokes equations to the unstructured grid system Advisor: Yun-Ho Choi, Ph.D. <i>Ajou University</i> , Suwon, South Korea	Aug 20, 2010
•	B.S. Mechanical Engineering Recognition: Top graduate in the College of Engineering <i>Ajou University</i> , Suwon, South Korea	Aug 21, 2008

Professional Appointments and Experiences

Assistant Professor Department of Mechanical Engineering The University of Memphis, Memphis, TN, USA	Aug 15, 2022 – present
• Postdoctoral Research Associate Engineering System Design Laboratory University of Illinois at Urbana-Champaign, Urbana, IL, USA	Jul 27, 2020 – Aug 14, 2022
• Research Assistant Engineering System Design Laboratory Teaching Assistant Dept. of Industrial & Enterprise Systems Engineering Teaching Assistant Dept. of Mechanical Science & Engineering University of Illinois at Urbana-Champaign, Urbana, IL, USA	Aug 16, 2015 – Jul 20, 2020 Aug 16, 2019 – Dec 31, 2019 Jan 1, 2019 – May 15, 2019
• Instructor Dept. of Mechanical and Automotive Engineering Masan University, Changwon, South Korea	Mar 11, 2014 – Jun 29, 2014
CAE/CFD Research Engineer Nuclear Energy Division Korea Nuclear Engineering and Services Corp., Seoul, South Korea	Jun 28, 2010 – Aug 26, 2013
• Research Assistant Computational Fluid Dynamics Laboratory Teaching Assistant Dept. of Mechanical Engineering <i>Ajou University</i> , Suwon, South Korea	Sep 1, 2008 – Aug 20, 2010 Sep 1, 2008 – Aug 20, 2010
• Student Researcher Thermal Hydraulics Safety Research Division Korea Atomic Energy Research Institute, Daejeon, South Korea	Sep 1, 2008 – Sep 1, 2009

Honors, Awards, and Media Coverage

• ASME 50th Design Automation Conference Papers of Distinction Announced in: 2024 ASME IDETC/CIE Conference Final Program (pp. 12–13) <i>American Society of Mechanical Engineers (ASME)</i> , New York, NY, USA	Aug 28, 2024
• UofM Research+Innovation Newsletter Coverage in News and Impact Section Title: "Wind Energy with Integrated Servo-Control: Floating offshore wind turbines, in able energy systems" <i>The University of Memphis</i> , Memphis, TN, USA	Apr 1, 2024 nnovative renew-
• Outstanding Lecture Award "Enabling Design of Floating Offshore Wind Energy Systems" in <i>Ygnite 2023</i> <i>Korean-American Scientists and Engineers Association</i> , Vienna, VA, USA	Jan 21, 2023
• Mavis Fellowship Mavis Future Faculty Fellows Program Grainger College of Engineering,, University of Illinois at Urbana-Champaign, Urbana, IL, USA	Aug 2019 – May 2020
• List of Teachers Ranked as Excellent by their Students University of Illinois at Urbana-Champaign, Urbana, IL, USA	Dec 2019
• 2017 Journal of Mechanical Design Editor's Choice Award: Honorable Mention Announced in: DOI 10.1115/1.4041528 Yong Hoon Lee, et al., J. Mech. Design, 139(5):053401, May 2017. DOI 10.1115/1.403 American Society of Mechanical Engineers (ASME), New York, NY, USA	Oct 18, 2018 36133
• 2009 ATES Paper Contest for ANSYS Fluent Academic Users: Finalist Award Yong Hoon Lee, et al., in <i>ATES Paper Contest for ANSYS Fluent Academic Users</i> <i>Advanced Technology Engineering Service (ATES)</i> , Seoul, South Korea	Aug 18, 2009

Publications

Refereed Journal Articles

([†]: corresponding author)

- Saeid Bayat, Yong Hoon Lee, and James T. Allison. "Nested control co-design of a spar buoy horizontal-axis floating offshore wind turbine". *Ocean Engineering* 328 (June 2025): 121037. https: //doi.org/10.1016/j.oceaneng.2025.121037. (SCIE, IF 4.6)
- Yong Hoon Lee[†], Saeid Bayat, James T. Allison, Md Sanower Hossain, and D. Todd Griffith. "Multidisciplinary modeling and control co-design of a floating offshore vertical-axis wind turbine system". *Journal of Mechanical Design* 147, no. 6 (June 2025): 061702. https://doi.org/10.1115/1. 4068072. (SCIE, IF 2.9)
- Athul K. Sundarrajan, Yong Hoon Lee, James T. Allison, Daniel S. Zalkind, and Daniel R. Herber. "Open-loop control co-design of semisubmersible floating offshore wind turbines using linear parameter-varying models". *Journal of Mechanical Design* 146, no. 4 (Apr. 2024): 041704. https://doi.org/10.1115/1.4063969. (SCIE, IF 2.9)
- Albert Patterson, Yong Hoon Lee, and James T. Allison. "Generation and enforcement of processdriven manufacturability constraints: A survey of methods and perspectives for product design". *Journal of Mechanical Design* 143, no. 11 (Apr. 2021): 110801. https://doi.org/10.1115/1. 4050740. (SCIE, IF 3.4)
- 4. Yong Hoon Lee[†], Jonathon K. Schuh, Randy H. Ewoldt, and James T. Allison. "Simultaneous design

of non-Newtonian lubricant and surface texture using surrogate-based multiobjective optimization". *Structural and Multidisciplinary Optimization* 60, no. 1 (July 2019): 99–116. https://doi.org/10.1007/s00158-019-02201-1. (SCIE, IF 3.9)

- 3. Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "Design-driven modeling of surface-textured full-film lubricated sliding: Validation and rationale of nonstandard thrust observations". *Tribology Letters* 65, no. 2 (June 2017): 35. https://doi.org/10.1007/s11249-017-0818-8. (SCIE, IF 2.2)
- Yong Hoon Lee, Jonathon K. Schuh, Randy H. Ewoldt, and James T. Allison. "Enhancing full-film lubrication performance via arbitrary surface texture design". *Journal of Mechanical Design* 139, no. 5 (May 2017): 053401. https://doi.org/10.1115/1.4036133. Presetned with the Honorable Mention of the 2017 Journal of Mechanical Design Editor's Choice Award. (SCIE, IF 2.8)
- Dong-Gyu Lee, Jea-Ho Park, Yong Hoon Lee, Chang-Yeol Baeg, and Hyung-Jin Kim. "Natural convection heat transfer characteristics in the canister with horizontal installation of dual purpose cask for spent nuclear fuel". *Nuclear Engineering and Technology* 45, no. 7 (Dec. 2013): 969–978. https://doi.org/10.5516/NET.06.2012.092. (SCIE, IF 2.6)

Preprints

([†]: corresponding author)

Yong Hoon Lee[†], Saeid Bayat, and James T. Allison. "Wind turbine control co-design using dynamic system derivative function surrogate model (DFSM) based on OpenFAST linearization". *Applied Energy*, Submitted on January 10, 2025, revision submitted on May 6, 2025. Under review. (SCIE, IF 10.1)

Refereed Conference Proceedings Papers

([†]: corresponding, [‡]: presenting author)

- 15. Yong Hoon Lee^{†‡}, Saeid Bayat, James T. Allison, Md. Sanower Hossain, and D. Todd Griffith. "Modeling and control co-design of a floating offshore vertical-axis wind turbine system". In ASME IDETC/CIE Conference, 1–10. DETC2024-143495. Washington, DC, USA, Aug. 2024. https:// doi.org/10.1115/DETC2024-143495
- 14. Austin L. Griffin and Yong Hoon Lee[†]. "Experimentally supported design optimization of marine hydrokinetic turbine systems with adaptive duct contraction control". In *ASME IDETC/CIE Conference*, 1–10. DETC2024-143861. Washington, DC, USA, Aug. 2024. https://doi.org/10.1115/DETC2024-143861
- Nowsheen Sharmili, Yong Hoon Lee[†], and James T. Allison. "Battery thermal management systems design considering model fidelity levels and design optimization utility". In *AIAA SciTech Forum and Exposition*, 1–10. AIAA 2024-2363. Orlando, FL, USA, Jan. 2024. https://doi.org/10.2514/6.2024-2363
- Prajwal Chinthoju, Yong Hoon Lee, Ghanendra K. Das, Kai A. James, and James T. Allison. "Optimal design of eVTOLs for urban mobility using analytical target cascading (ATC)". In AIAA SciTech Forum and Exposition, 1–13. AIAA 2024-2235. Orlando, FL, USA, Jan. 2024. https://doi.org/ 10.2514/6.2024-2235
- Chandler S. Cain and Yong Hoon Lee[†]. "Hydro-structural design exploration of floating platform for offshore energy systems". In *ASME International Mechanical Engineering Congress and Exposition* (*IMECE*), 1–8. IMECE2023-112479. New Orleans, LA, USA, Oct. 2023. https://doi.org/10. 1115/IMECE2023-112479
- 10. Athul K. Sundarrajan, Yong Hoon Lee, James T. Allison, and Daniel R. Herber. "Open-loop control co-design of floating offshore wind turbines using linear parameter-varying models". In *ASME*

IDETC/CIE Conference, 1–13. DETC2021-67573. Virtual Conference, Aug. 2021. https://doi.org/10.1115/DETC2021-67573

- Yong Hoon Lee^{†‡}, Vedant, Randy H. Ewoldt, and James T. Allison. "Strain-actuated solar arrays for spacecraft attitude control assisted by viscoelastic damping". In *Advances in Structural and Multidisciplinary Optimization, Proceedings of the 13th World Congress of Structural and Multidisciplinary Optimization (Beijing, China)*, 149–155. Dalian: Dalian University of Technology Electronic & Audio-Visual Press, Dec. 2019
- Albert E. Patterson, Yong Hoon Lee[‡], and James T. Allison. "Overview of the development and enforcement of process-driven manufacturability constraints in product design". In ASME IDETC/CIE Conference, 1–11. DETC2019-97384. Anaheim, CA, USA, Aug. 2019. https://doi.org/10.1115/DETC2019-97384
- Chendi Lin, Daniel R. Herber, Vedant, Yong Hoon Lee, Alexander Robin Mercantini Ghosh, Randy H. Ewoldt, and James T. Allison. "Attitude control system complexity reduction via tailored viscoelastic damping co-design". In AAS Guidance and Control Conference. AAS 18-103. Breckenridge, CO, USA, Feb. 2018
- Yong Hoon Lee^{†‡}, Jonathon K. Schuh, Randy H. Ewoldt, and James T. Allison. "Simultaneous design of non-Newtonian lubricant and surface texture using surrogate-based optimization". In *AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, AIAA SciTech Forum*, 1–14. AIAA 2018-1906. Kissimmee, FL, USA, Jan. 2018. https://doi.org/10.2514/6.2018-1906
- Chendi Lin, Yong Hoon Lee, Jonathon K. Schuh, Randy H. Ewoldt, and James T. Allison. "Efficient optimal surface texture design using linearization". In Advances in Structural and Multidisciplinary Optimization: Proceedings of the 12th World Congress of Structural and Multidisciplinary Optimization (Braunschweig, Germany), ed. by A. Schumacher, T. Vietor, S. Fiebig, K. U. Bletzinger, and K. Maute, 632–647. Cham: Springer, Jan. 2018. https://doi.org/10.1007/978-3-319-67988-4_48
- 4. Yong Hoon Lee^{†‡}, R. E. Corman, Randy H. Ewoldt, and James T. Allison. "A multiobjective adaptive surrogate modeling-based optimization (MO-ASMO) framework using efficient sampling strategies". In *ASME IDETC/CIE Conference, Volume 2B: 43rd Design Automation Conference*, V02BT03A023. DETC2017-67541. Cleveland, OH, USA, Aug. 2017. https://doi.org/10.1115/DETC2017-67541
- 3. Yong Hoon Lee[‡], Jonathon K. Schuh, Randy H. Ewoldt, and James T. Allison. "Shape parameterization comparison for full-film lubrication texture design". In *ASME IDETC/CIE Conference, Volume 2B: 42nd Design Automation Conference*, V02BT03A037. DETC2016-60168. Charlotte, NC, USA, Aug. 2016. https://doi.org/10.1115/DETC2016-60168
- Dong-Gyu Lee, Yong Hoon Lee, Wi-Soo Jeong, and Jea-Ho Park. "Heat transfer analysis around transport cask under transport hood". In *The 8th International Symposium on Radiation Safety Management*, 1–6. Gyeongju, Korea, Nov. 2011
- Yong Hoon Lee[‡], Jin-Won Seo, Jae-Hong Park, and Yun-Ho Choi. "Numerical study on performance assessment and installation conditions of an automotive air cleaner". In *Korean Society for Computational Fluids Engineering Spring Conference*, 263–270. 60115923. Jeju, Korea, May 2010. http: //www.riss.kr/link?id=A60115923

Invited Talk in Conference and Workshop

2. Yong Hoon Lee. "Design of floating offshore wind turbines using OpenMDAO and Dymos". In *OpenMDAO Workshop*. NASA Glenn Research Center, Cleveland, OH, USA, Oct. 2022. https:

//openmdao.org/2022-workshop-proceedings/. Invited

1. Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "1G.3 Rheological design for efficient fluid power". In *CCEFP Webinar Series*. Feb. 2016. Schuh and Lee contributed equally. Schuh presented part I and Lee presented part II. Invited

Invited Talk in University and Industry

- 2. Yong Hoon Lee. "Multidisciplinary design optimization in floating offshore wind turbines". In *MAE* 5350: Multidisciplinary Design Optimization. Ithaca, NY, USA: Cornell University, Apr. 2023. Invited
- 1. Yong Hoon Lee. "System-level integrated and multidisciplinary design on floating offshore wind turbine and engineered materials applications". In *Engineering Technology & Industrial Distribution Seminar Series (Departmental Seminar for Graduate Students)*. Texas A&M University, College Station, TX, USA, Oct. 2021. Invited

Abstract-Only Presentations and Posters ([†]: corresponding, [‡]: presenting author)

- 22. Nowsheen Sharmili, Yong Hoon Lee[†], and James T. Allison. "Enhancing collaborative multidisciplinary optimization through surrogate modeling". In *ASME IDETC/CIE Conference*, 1–4. DETC2024-148473. Washington, DC, USA, Aug. 2024. Extended Abstract
- Austin L. Griffin and Yong Hoon Lee[†]. "Experimental identification of reduced order model parameters for hydrokinetic energy system design". In *ASME International Mechanical Engineering Congress and Exposition (IMECE)*, 1–6. IMECE2023-113489. New Orleans, LA, USA, Oct. 2023. Extended Abstract
- Yong Hoon Lee^{†‡} and Yue Guan. "Multi-body modeling for conceptual design of co-located ocean renewable energy and aquaculture systems". In *ASME IDETC/CIE Conference*, 1–4. DETC2023-117954. Boston, MA, USA, Aug. 2023. Extended Abstract
- Yong Hoon Lee^{†‡}. "Enabling design of floating offshore wind energy systems". In Korean-American Scientists and Engineers Association, 19th Young Generation Technical and Leadership Conference. San Jose, CA, USA, Jan. 2023. Presented with the Outstanding Lecture Award
- Yong Hoon Lee^{†‡}, Saeid Bayat, and James T. Allison. "Control co-design using a nonlinear wind turbine dynamic model based on OpenFAST linearization". In *Applied Energy Symposium: MIT A+B*. Cambridge, MA, USA, July 2022
- Saeid Bayat, Yong Hoon Lee[†], and James T. Allison. "Nested control co-design of a spar buoy horizontal-axis floating offshore wind turbine". In *Applied Energy Symposium: MIT A+B*. Cambridge, MA, USA, July 2022
- 16. Yong Hoon Lee^{†‡}, Sung Youn Boo, and James T. Allison. "A framework for integrating hydrostatics, hydrodynamics, and rigid-body dynamics for the control co-design of floating offshore vertical-axis wind turbine systems". In *Wind Energy Science Conference*, 9.80. 1345. Hannover, Germany, May 2021
- 15. Saeid Bayat, Yong Hoon Lee, and James T. Allison. "Control co-design of horizontal floating offshore wind turbines using a simplified low order model". In *Wind Energy Science Conference*, 9.78. Hannover, Germany, May 2021
- Yong Hoon Lee^{†‡}, Vedant, and James T. Allison. "Computationally-efficient modeling and optimization of strain-actuated solar arrays with tailored viscoelastic damping for spacecraft attitude control". In AAS Guidance and Control Conference. Breckenridge, CO, USA, Feb. 2020

- 13. Yong Hoon Lee^{†‡}, R. E. Corman, Randy H. Ewoldt, and James T. Allison. "Continuous relaxation spectra and its reduced-dimensionality descriptions for engineering design with linear viscoelasticity". In ASME 2019 International Mechanical Engineering Congress and Exposition. IMECE2019-13370. Salt Lake City, UT, USA, Nov. 2019. Extended Abstract
- 12. Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "Designing with nonlinear viscoelastic fluids". In *The 70th Annual Meeting of the American Physical Society - Division of Fluid Dynamics*. Denver, CO, USA, Nov. 2017
- R. E. Corman, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "Selecting design-appropriate material descriptions for linear viscoelastic materials". In *The Society of Rheology 89th Annual Meeting*. Denver, CO, USA, Oct. 2017
- Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "Toward co-design of surface textures and non-Newtonian fluids for decreased friction in lubricated viscous sliding". In *The Society of Rheology 89th Annual Meeting*. Denver, CO, USA, Oct. 2017
- Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "A validated computational model for the design of surface textures in full-film lubricated sliding". In *The 69th Annual Meeting of the American Physical Society - Division of Fluid Dynamics*. Portland, OR, USA, Nov. 2016
- Yong Hoon Lee[‡], Jonathon K. Schuh, Randy H. Ewoldt, and James T. Allison. "Generalization of surface texture shape reduces friction and increases load capacity simultaneously in sliding contact with full-film lubrication". In CCEFP Fluid Power Innovation & Research Conference. Minneapolis, MN, USA, Oct. 2016
- Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "Design appropriate modeling for determining optimal friction reduction with surface textures". In CCEFP Fluid Power Innovation & Research Conference. Minneapolis, MN, USA, Oct. 2016
- Jonathon K. Schuh, Yong Hoon Lee, James T. Allison, and Randy H. Ewoldt. "Surface textures and non-Newtonian fluids for decreasing friction in lubricated sliding contact". In CCEFP Fluid Power Innovation & Research Conference. Minneapolis, MN, USA, Oct. 2015
- Yong Hoon Lee^{†‡}, Duk Woon Jeong, and Jea Ho Park. "Preliminary design of a transport package for fresh fuels using LS-DYNA". In *LS-DYNA Korea User Conference*. Seoul, Korea, Nov. 2012
- Yong Hoon Lee^{†‡}. "Thermal design technology for casks considering spent fuel burnup credit". In International Technical Seminar on SNF Storage and Transportation. Daejeon, Korea, Nov. 2010
- Yong Hoon Lee^{†‡}, Dong-Gyu Lee, Jea-Ho Park, Tae-Man Kim, and Hyung-Jin Kim. "Thermal design technology for spent nuclear fuel transport cask". In *Korea ANSYS User Conference*. Gyeongju, Korea, Sept. 2010. Extended Abstract
- Yong Hoon Lee[‡], Jin-Won Seo, and Yun-Ho Choi. "A study of the assessment process of the performance of automotive HVAC system using FLUENT". In *Advanced Technology Engineering Service (ATES) Paper Contest for Academic Users*. Seoul, Korea, Sept. 2009. Nominated for the Best Paper Award and presented with the Finalist Award
- Jin-Won Seo, Ji-Yeon Kim, Yong Hoon Lee, Yun-Ho Choi, Bongha Song, and Jongpaek Ha. "Numerical study for efficient air distribution in automotive HVAC system". In *The Korean Society of Automotive Engineers (KSAE) Annual Conference and Exhibition*, 594. 76306949. Daejeon, Korea, Nov. 2008. http://www.riss.kr/link?id=A76306949

Tech Reports, Computer Codes, and Others

- 13. Joshua A. Polk. *MECH 4391 Mechanical Engineering Project: Optimizing wind farm design: Lever-aging FLORIS for wake steering and flow control.* Technical Report. The University of Memphis, May 2024. Project supervised by Dr. Yong Hoon Lee
- 12. Saeid Bayat, Yong Hoon Lee, and James T. Allison. Nested control co-design of a spar buoy horizontal-axis floating offshore wind turbine. ArXiv e-prints. Oct. 2023. https://doi.org/10.48550/arXiv.2310.15463
- 11. Yong Hoon Lee. *Fluid Mechanics Laboratory: Lab Manual*. Technical Manual. The University of Memphis, July 2023
- 10. Yong Hoon Lee. Thesis and Dissertation LaTeX Template for the University of Memphis. Computer Code. The University of Memphis, Feb. 2023. https://github.com/yonghoonlee/UofM-thesis-template
- 9. Yong Hoon Lee and Saeid Bayat. Derivative function surrogate model-based control co-design of nonlinear floating offshore wind turbine models. Computer Code. Feb. 2021. https://github.com/WEIS-UIUC-CSU/WEIS/tree/uiuc-dfsm
- 8. Saeid Bayat and Yong Hoon Lee. Simplified low-order floating offshore wind turbine model-based control co-design implementation for WEIS. Computer Code. Jan. 2021. https://github.com/WEIS-UIUC-CSU/WEIS/tree/uiuc-proxy
- 7. Yong Hoon Lee. Integrated design analysis and optimization tool for floating offshore vertical-axis wind turbines. Computer Code. Dec. 2020. https://github.com/FloatVAWT/FloatVAWT-CapytaineDriver
- 6. Yong Hoon Lee, Daniel R. Herber, and Athul Krishna Sundarrajan. *Control co-design driver for linear OpenFAST wind turbine model*. Computer Code. Oct. 2020. https://github.com/WEIS-UIUC-CSU/FASTLin_DTQP_Driver
- 5. Tais Rocha Pereira, Albert Patterson, Yong Hoon Lee, and Sherri L. Messimer. *Critical buckling load of thin-walled plastic cylinders in axial and radial loading: overview and FEA case study*. EngrXiv e-prints. Aug. 2019. https://doi.org/10.31224/osf.io/2mtfu
- 4. Yong Hoon Lee. *Multiobjective adaptive surrogate modeling-based optimization (MO-ASMO) toolbox II*. Computer Code. Aug. 2018. https://github.com/yonghoonlee/MO-ASMO-II
- 3. Yong Hoon Lee. *Multiobjective adaptive surrogate modeling-based optimization (MO-ASMO) toolbox I*. Computer Code. Aug. 2017. https://github.com/yonghoonlee/MO-ASMO-I
- 2. Daniel R. Herber, Yong Hoon Lee, and James T. Allison. *DT QP Project*. Computer Code. June 2017. https://github.com/danielrherber/dt-qp-project
- 1. Yong Hoon Lee. A modular code for teaching surrogate modeling-based optimization. Computer Code. Apr. 2017. https://github.com/yonghoonlee/SMB0_TeachingTool

Instruction

Primary Instructions

8. MECH 4305/6305 Fluid Mechanics II

Fall 2025, Spring 2023

7. MECH 3335 Fluid Mechanics Lab

Fall 2025, Spring 2025, Fall 2024, Spring 2024, Fall 2023, Spring 2023

6.	MECH 3319 Engineering Econ and Project Mgmt	Spring 2025
5.	MECH 4316/6316 Energy Systems/Optimization	Fall 2024
4.	MECH 7901/8901 ST: Design Optimization	Spring 2024
3.	MECH 7341/8341 Engineering Analysis I	Fall 2023
2.	MECH 3331 Fluid Mechanics I	Fall 2022
1.	Machine Component Design (Masan University, Changwon, South Korea)	Spring 2014
Gue	st Lectures and Other Instructions	
8.	MECH 4314 Senior Design I Oct 26, 2023: Engineering design optimization: practical tutorial Nov 8, 2022: Engineering design optimization: practical tutorial	Fall 2023, Fall 2022
7.	MAE 5350 Multidisciplinary Design Optimization (at Cornell University, Ithac Apr 25, 2023: Multidisciplinary design optimization and control co-design in re- tems design	a, NY) Spring 2023 newable energy sys-
6.	SE 413 Engineering Design Optimization Spring 2020: guest lecture on surrogate-based optimization Spring 2017: assisted curriculum development + guest lecture on surrogate-based (University of Illinois at Urbana-Champaign, Urbana, IL)	Spring 2017, Spring 2020 d optimization
5.	SE 320 Control Systems (Laboratory teaching assistant, University of Illinois at Urbana-Champaign, Urba	Fall 2019 ana, IL)
4.	ME 310 Fundamentals of Fluid Dynamics (Laboratory teaching assistant, University of Illinois at Urbana-Champaign, Urba	Spring 2019 ana, IL)
3.	Numerical Analysis (Teaching assistant, Ajou University, Suwon, South Korea)	Spring 2009, Spring 2010
2.	Computational Fluid Dynamics (Co-Instructor, Teaching assistant, Ajou University, Suwon, South Korea)	Fall 2009

Student Research Supervision

Advisees (and My Role)

6. Sophie M. Nieder, M.S. ABM Student (Director of Thesis Research)	May 2025 – present
5. Sunil Tamang, Ph.D. Student (Director of Dissertation Research)	Aug 2024 – present
4. Nowsheen Sharmili, Ph.D. Student (Co-Director of Dissertation Research)	Dec 2022 – present
3. Josh A. Polk, B.S. Student (Undergraduate Research Supervisor)	Spe 2023 – May 2024
2. Austin L. Griffin, M.S. Student (Director of Thesis Research)	Oct 2022 – May 2024
1. Chandler S. Cain, M.S. ABM Student (Director of Thesis Research)	Aug 2022 – May 2024

Mentees (and My Role)

16.	Dhritiman Roy, M.S. Student (Thesis Research Mentor)	Mar 2023 – present
15.	Yu Wang, Non-Thesis M.S. Student (Project Mentor)	Mar 2023 – Dec 2023
14.	Nowsheen Sharmili, Ph.D. Student (Dissertation Research Mentor)	May 2022 – Aug 2022
13.	Prerna Rathi, Non-Thesis M.S. Student (Project Mentor)	Jan 2022 – Aug 2022
12.	Mika Lew, B.S. Student (Undergraduate Research Mentor)	Sep 2021 – May 2022
11.	Dario Rodriguez Claudio, M.S. Student (Thesis Research Mentor)	Jun 2021 – Aug 2022
10.	Annabella Console, B.S. Student (Undergraduate Research Mentor)	Jun 2021 – Sep 2021
9.	Jane Li, B.S. Student (Undergraduate Research Mentor)	Jan 2021 – May 2021
8.	Sagar Sachdev, B.S. Student (Undergraduate Research Mentor)	May 2020 – Apr 2021
7.	Daniel Moreno, B.S. Student (Undergraduate Research Mentor)	May 2020 – Aug 2020
6.	Kinga Wrobel, B.S. Student (Undergraduate Research Mentor)	Dec 2019 – May 2020
5.	Gayatri Dandu, B.S. Student (Undergraduate Research Mentor)	Jan 2019 – Dec 2019
4.	Abbey Merges, B.S. Student (Undergraduate Research Mentor)	Jan 2019 – Dec 2019
3.	Angad Paintal, M.S. Student (Thesis Research Mentor)	May 2017 – Aug 2018
2.	Chendi Lin, B.S. Student (Undergraduate Research Mentor)	May 2016 – May 2018
1.	Abhinab Choudhury, Non-Thesis M.S. Student (Project Mentor)	Jan 2016 – Dec 2016

Senior Design Team Supervision

5.	Wave Generating Pool Student Lead: Saylor Price Team Members: Elizabeth Lumsdaine, Timothy Warburton, Parker Ruffin	Sep 2024 – May 2025
4.	Fill'er Up! Soap Manufacturing Process Improvement External Support: Donation of \$10,000 from Vanguard Soap Company Student Lead: Karston Salsbury Team Members: Daquala Butler, Zaid Mohamad, Nathan Kleiser	Sep 2024 – May 2025
3.	Aerodynamic Design of Offshore Wind Turbine External Support: US DOE Collegiate Wind Competition 2024 (Phase II Prize of \$2, Student Lead: Aleks Vincent Team Members: Blake Acree, Daveren Coburn, Joseph Saucier	Sep 2023 – May 2024 000)
2.	Mechanical and Control Design of Offshore Wind Turbine External Support: US DOE Collegiate Wind Competition 2024 (Phase II Prize of \$2, Student Lead: Nihar Patel Team Members: Marlon Young, Adrian Lewis	Sep 2023 – May 2024 (000)
1.	Energy Harvester Design Utilizing Fluid Flow Phenomena Student Lead: Cecil Shipley Team Members: Devin Allen, Brooke Calvo, Josh Foster	Sep 2022 – May 2023

Grants

External Research Grants

 US DOE ARPA-E DE-AR-0001766 Sep 5, 2023 – Sep 4, 2026 Project: "Wind Energy with Integrated Servo-control (WEIS): A Toolset to Enable Controls Co-Design of Floating Offshore Wind Energy Systems (Phase 2)" Prime: National Renewable Energy Laboratory UofM PI: Yong Hoon Lee US DOE Advanced Research Programs Agency–Energy (ARPA-E), Washington, DC, USA

 1. US DOE ARPA-E DE-AR-0001179
 Jan 1, 2023 – Oct 15, 2023

 Project: "A Low-Cost Floating Offshore Vertical Axis Wind System"
 Prime: University of Texas at Dallas

 UofM PI: Yong Hoon Lee
 US DOE Advanced Research Programs Agency–Energy (ARPA-E), Washington, DC, USA

Internal Research Grants

 1. Community of Research Scholar
 Nov 30, 2022 – Jun 30, 2023

 Project: "Exploring Synergies in Astrophysical and Engineering Simulation"
 PI: Benjamin Keller, Co-PI: Yong Hoon Lee

 Division of Research and Innovation, The University of Memphis, Memphis, TN

External Educational Grants

 US DOE Collegiate Wind Competition (CWC) 2024 Phase II Award Sep 1, 2023 – May 31, 2024 Project: Student educational activities in learning wind turbine technologies and designing prototype toward Phase III competition. Senior/Key Personnel: Yong Hoon Lee US Department of Energy, Washington, DC, USA

Service to the University

Departmental Committee

1. Department of Mechanical Engineering Graduate Process Team	Aug 15, 2022 – present			
Thesis and Dissertation Committee				
 Sunil Tamang (Dissertation Committee Chair) Service Started: Aug 26, 2024 / Proposal Defense: TBD / Final Defense: TBD / Graduation: TBD 	Aug 26, 2024 – present			
 Hamid Hafezi (Dissertation Committee Member) Service Started: Aug 26, 2024 / Proposal Defense: TBD / Final Defense: TBD / Graduation: TBD 	Aug 26, 2024 – present			
 Apratim Dasgupta (Dissertation Committee Member) Service Started: Jun 2, 2023 / Proposal Defense: Aug 4, 2023 / Final Defense: TBD / Graduation: TBD 	Jun 2, 2023 – present			
5. Sravan Kumar Dumpeti (Thesis Committee Member)	Feb 6, 2025 – May 10, 2025			

	Service Started: Feb 6, 2025 / Final Defense: Mar 28, 2025 / Graduation: May 10, 2025	
4.	Sophie Abigail Wood (Thesis Committee Member) Service started: Nov 24, 2024 / Proposal defense: Dec 10, 2024 / Final defense: Mar 26, 2025 / Graduation: May 10, 2025	Nov 24, 2024 – May 10, 2025
3.	Venkata Srinuvas Sai Kiran Madugula (Thesis Committee Member) Service Started: Dec 12, 2022 / Proposal Defense: Jul 7, 2023 / Final Defense: Feb 21, 2024 / Graduation: May 4, 2024	Dec 12, 2022 – May 4, 2024
2.	Austin Griffin (Thesis Committee Chair) Service Started: Oct 14, 2022 / Proposal Defense: Dec 8, 2023 / Final Defense: Mar 15, 2024 / Graduation: May 4, 2024	Oct 14, 2022 – May 4, 2024
1.	Chandler S. Cain (Thesis Committee Chair) Service Started: Aug 15, 2022 / Proposal Defense: Sep 7, 2023 / Final Defense: Dec 5, 2023 / Graduation: May 4, 2024	Aug 15, 2022 – May 4, 2024
Exa	m Committee	
4.	Qualifying Exam Engineering Analysis I/II	Spring 2025, Spring 2024
3.	Qualifying Exam Fluid Mechanics	Fall 2024, Spring 2023
2.	M.S. Comprehensive Exam Gowthami Lakshmi Prasanna Dasari	Apr 25, 2024
1.	M.S. Comprehensive Exam Daniel Hrvoich	Feb 8, 2023
New	Graduate Program Proposal Development	
2.	Proposal: Graduate Certificate Program in Nuclear Engineering	Sep 19, 2024 – Nov 19, 2024
1.	Proposal: Graduate Degree/Certificate Program in Systems Engineering	Nov 2, 2023 – Nov 19, 2024
Ser	vice to the Profession	
Rev	iew Panelist	
2.	National Defense Science and Engineering Graduate Fellowship Program	Dec 2, 2024 - Jan 20, 2025
1.	Dutch Research Council NWO Talent Programme: Veni 2023	Feb 12, 2023 - Mar 2, 2023
Aca	demic and Professional Society	
[Co	nferences]	
3.	Review Coordinator, Session Organizer DFMLC-3 Modeling and Optimization for Sustainable Design and Manufactu Design for Manufacturing and the Life Cycle Conference, ASME International Design Engineering Technical Conferences, Anaheim, C	Mar 17, 2025 – Aug 20, 2025 tring A, USA
2.	Review Coordinator, Session Organizer & Chair DFMLC-3 Modeling and Optimization for Sustainable Design and Manufactu Design for Manufacturing and the Life Cycle Conference, ASME International Design Engineering Technical Conferences, Washington	Mar 15, 2024 – Aug 28, 2024 uring , DC, USA

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1	. Review Coordinator, Session Organizer & Co-Chair DFMLC-2 Modeling and Optimization for Sustainable Design and Manufacturing Design for Manufacturing and the Life Cycle Conference, ASME International Design Engineering Technical Conferences, Boston, MA, U	Nov 5, 2022 – Aug 23, 2023 g SA
[Te	echnical Committee]	
4	. Renewable Energy and Energy Conversion Technical Committee (REEC TC) ASME Advanced Energy System Division, New York, NY, USA	Nov 1, 2023 – present
3	. Design Automation Conference Technical Committee (DAC TC) ASME Design Engineering Division (DED), New York, NY, USA	Aug 22, 2023 – present
2	2. Design for Manufacturing and the Life Cycle Technical Committee (DFMLC TC ASME Design Engineering Division (DED), New York, NY, USA) Aug 21, 2023 – present
1	. Fluid Applications & Systems Technical Committee (FASTC) ASME Fluid Engineering Division (FED), New York, NY, USA	Nov 6, 2022 – present
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Manuscript Peer Review

[Journal Manuscripts]

9.	Journal of Dynamic Systems, Measurement, and Control	2025(1)
8.	Optimization and Engineering	2024(2), 2025(1)
7.	Journal of Mechanical Design	2020(2), 2022(1), 2023(4), 2025(2)
6.	Structural and Multidisciplinary Optimization	2019(1), 2020(5), 2021(2), 2022(5), 2023(2) 2024(1), 2025(1)
5.	Wind Energy Science	2023(2)
4.	Wind Energy	2021(1), 2022(4)
3.	Advances in Tribology	2020(1)
2.	Engineering Optimization	2020(1)
1.	Engineering Computations	2015(1)
[Coi	nference Proceedings Manuscripts]	
5.	ASME International Design Engineering Technical Conferences	2017(4), 2018(3), 2023(5), 2024(7), 2025(9)
4.	AIAA SciTech Forum and Exposition	2023(1), 2024(1)
3.	ASME International Mechanical Engineering Congress and Exposition	on 2023(3)
2.	AIAA AVIATION Forum and Exposition	2022(11), 2023(8)
1.	ASME Conference on Smart Materials, Adaptive Structures and Inte	Iligent Systems2019(1)

Service to the Community

Educational Outreach

4.	TVA Allen Combined-Cycle Power Plant Tour Organizing	Apr 24, 2025
	Organized a tour to TVA Southaven Combined-Cycle Power Plant to provide student l	earning expe-

rience on the power plant facilities during scheduled maintenance. Tennessee Valley Authority Allen Combined Cycle Plant, Memphis, TN, USA

3. Mini-Conference Hosting/Organizing

Topic: Fluid Dynamics in Astrophysics and Engineering Domains Hosted a mini-conference as a part of Community of Research Scholars (CoRS) grant research activity.

Approximately 10 students from both Mechanical Engineering and Physics departments attended. The University of Memphis, Memphis, TN, USA

2. TVA Southaven Combined-Cycle Power Plant Tour Organizing May 2023 Organized a tour to TVA Southaven Combined-Cycle Power Plant to provide student learning experience on the power plant facilities during scheduled maintenance. Potential collaborative research and educational opportunities discussed.

Tennessee Valley Authority Southaven Combined Cycle Plant, Southaven, MS, USA

1. Junior Scientist Day K-12 STEM Outreach Apr 2017 Topic: Dynamics of reconfigurable trebuchet demonstration Presented a hands-on demonstration of trebuchets with simulation and experimentation as a part of the Urbana School District Junior Scientist Day. Yankee Ridge Elementary School, Urbana, IL, USA

Other Outreach

- 2. CCL Label Specialty Plant Sep 25, 2023 Visited for establishing partnership with the ME department and the CCL Label to promote student internship, job placement, student senior design project, and potential research collaboration. CCL Label Memphis, Specialty Plant, Collierville, TN, USA
- 1. TVA HQ and TVA Raccoon Mountain Pumped-Storage Plant May – Jun 2023 Visited TVA Raccoon Mountain Pumped-Storage Plant and TVA Chattanooga Headquarter (System Operations Center, Asset Performance Center, Monitoring & Diagnostics Center, etc.) to learn their facilities while scheduled maintenance, and discuss about potential collaborative research and educational opportunities.

Tennessee Valley Authority Headquarter, Chattanooga, TN, USA

Professional Memberships, Activities, and Collaboration

Professional Development Activities

[Grant Writing Training]

 UofM NSF CAREER Grant Writing Cohort Division of Research & Innovation, The University of Memphis, Memphis, TN 	Apr 2 – Jul 23, 2025
3. NSF Virtual Grants Conference National Science Foundation, Alexandria, VA, USA	Jun 5-8, 2023
2. NSF CAREER Program Webinar National Science Foundation, Alexandria, VA, USA	May 15, 2023
1. NSF Virtual Grants Conference National Science Foundation, Alexandria, VA, USA	Nov 14-17, 2022

Jun 27, 2023

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[Teaching Effectiveness Training]

2.	Teaching and Leadership Seminar Series Center for Innovation in Teaching & Learning, University of Illinois at Urbana-Champaign, Urbana, IL, USA	Spring 2019
1.	Graduate Academy for College Teaching Graduate College, University of Illinois at Urbana-Champaign, Urbana, IL, USA	Jan 9-11, 2019
[Oth	ner Scholarly Training]	
1.	Mavis Future Faculty Fellows (MF3) AcademyAugA series of workshops, seminars, and activities that cover three main components of theFaculty Fellows (MF3) program: research, teaching, and mentoring.Grainger College of Engineering,University of Illinois at Urbana-Champaign, Urbana, IL, USA	2019 – May 2020 Mavis Future
Prof	essional Society Memberships	
5.	Member International Society for Structural and Multidisciplinary Optimization (ISSMO)	2019 – present
4.	Member American Institute of Aeronautics and Astronautics (AIAA)	2017 – present
3.	Member American Society of Mechanical Engineers (ASME)	2015 – present
2.	Member Korean-American Scientists and Engineers Association (KSEA)	2022 – present
1.	Student Member Korean Society for Computational Fluids Engineering (KSCFE)	2010 – 2013
Colla	aborations	
[Act	tive External Collaborations]	
12.	Florida Institute of Technology (Dr. Anand Nellippallil)	2024 – present
11.	Vanguard Soap LLC (Chris Buzard, CEO)	2024 – present
10.	University of Arkansas (Dr. Jenn Campbell)	2024 – present
9.	University of North Carolina at Charlotte (Dr. John Hall)	2024 – present
8.	American Bureau of Shipping (ABS, Dr. Xi-Ying Zhang)	2024 – present
7.	Artimus Robotics (Dr. Shane Mitchell, CTO)	2024 – present
6.	Tennessee Valley Authority (TVA)	2023 – present
5.	Ecobee	2023 – present
4.	Aquantis, Inc. (Henry Swales, Chief Engineer)	2023 – present
3.	Christian Brothers University (Dr. Deepa Kodali)	2023 – present
2.	University of Illinois at Urbana-Champaign (Dr. James T. Allison)	2022 – present
1.	National Renewable Energy Laboratory (Dr. Daniel Zalkind, Dr. Alan D. Wright)	2020 – present
[Active Internal Collaborations]		
4.	Dynamics and Controls Lab (Dr. Vipin Agarwal)	2023 – present

3. Autonomous & Complex Systems Lab (Dr. Mohammadreza Davoodi) 2023 – present

2. Fluid Dynamics + Computational Science Lab (Dr. Daniel Foti)	2022 – present	
1. Energy System Control and Optimization Lab (Dr. Alexander Headley)	2022 – present	
[Past Collaborations]		
6. University of Texas at Dallas (Dr. Todd Griffith)	2020 – 2024	
5. CCL Label Memphis, Specialty Plant, Collierville, TN	2023	
4. Sandia National Laboratories (Dr. Reed Wittman)	2023	
3. UofM Physics and Materials Science (Dr. Benjamin Keller)	2022 – 2023	
2. Colorado State University (Dr. Daniel R. Herber)	2020 – 2022	
1. VL Offshore, LLC (Dr. Sung Youn Boo)	2020 – 2022	