

FATEME ESMAILIE

Department of Biomedical Engineering

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I. PROFESSIONAL BACKGROUND

A. CURRENT POSITION

University of North Texas

Denton, Texas, USA 2022- Present

Assistant Professor

Department of Biomedical Engineering

B. EDUCATION

- Ph.D. University of Utah, Salt Lake City, Utah, USA 2020
Mechanical Engineering
Dissertation: *Heat transfer study within the cochlea during magnetically-guided cochlear implant surgery* (Funded by NIH: Award Number R01DC013168)
- M.Sc. Materials and Energy Research Center, Karaj, Alborz, Iran 2014
Renewable Energy Engineering
Thesis: *A solar spouted bed dryer with a draft tube: design, simulation, and manufacture*
- B.Sc. Isfahan University of Technology, Isfahan, Iran 2010
Chemical Engineering
Final project: *A feasibility study of using porous materials in a double purpose insulation*

C. ACADEMIC POSITIONS

- Postdoctoral Fellow **Georgia Institute of Technology / Emory University School of Medicine**, Atlanta, Georgia, USA 2020-2022
Wallace H. Coulter Department of Biomedical Engineering

D. HONORS & AWARDS

- 2024 ASME Edward Grood Interdisciplinary Team Science Medal – Dasi Lab 2023
- The Outstanding Graduate Student Researcher of the Year Award in the Area of Thermal Sciences, Fluid Mechanics, & Energy Systems (2019-2020): Department of Mechanical engineering, University of Utah 2019-2020
- Best Poster Award: ASME International Mechanical Engineering Congress and Exposition, Salt Lake City 2019
- Associated Students of the University of Utah Travel Award 2018 & 2019
- Best Poster Award: COMSOL Conference, Boston 2018
- Graduate Student Travel Assistance Award: University of Utah 2017

II. RESEARCH

A. RESEARCH GRANTS

Received total funding of \$220,000 in external grants and \$20,000 in seed grants. Submitted 20 proposals with the total budget of \$5,743,676.

A.1. Awarded: Total \$240,000

- | | |
|---|-----------|
| 1. 25AIREA1378320
American Heart Association (AHA) - A semi-empirical approach to develop a fast prediction model of post-transcatheter aortic valve thrombosis. Role: PI
Total Award: \$200,000 (Esmailie 100%) | 2025-2027 |
| 2. Field Medical (Industry grant)
Thermal analysis of a pulsed field ablation catheter. Role: PI
Total Award: \$20,000 (Esmailie 100%) | 2024-2025 |
| 3. 2024 CENG-COS Seed Grant
A multiscale multiphysics In-Silico model of photobiomodulation therapy for hearing preservation. Role: Lead PI
Total Award: \$10,000 (Esmailie 50%) | 2024-2025 |
| 4. UNT 2024 Research Seed Funding
A multiscale multiphase AI-assisted model of thrombus formation. Role: PI
Total Award: \$10,000 (Esmailie 100%) | 2024-2025 |
| 5. 2023 CENG-COS Seed Grant
Thermal and optical characterizations of cochlea and temporal bone for photobiomodulation therapy applications. Role: Lead PI
Total Award: \$10,000 (Esmailie 50%) | 2023-2024 |

A.2. Pending: Total \$2,051,875

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|--|-----------|
| 6. NSF_CAREER
CAREER: Bioevent-driven multiscale modeling framework for real-time prediction of blood clot formation onset and progression. Role: Sole PI
Total Budget: \$633,991 (Esmailie 100%) | 2026-2031 |
| 7. NIH-R01
Opto-electrical cochlear implants. Role: Co-I (PI at UNT)
Total Budget: \$882,126 (Esmailie 50%) | 2026-2031 |
| 8. NIH-R15 – 1R15DC023030-01A1
Development of a dynamic hypothermia protocol for hearing loss prevention. Role: Sole PI
Total Budget: \$535,758 (Esmailie 100%) | 2026-2029 |

A.3. Not Funded: Total \$3,451,801.1

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|---|-----------|
| 9. UNT 2023 Research Seed Funding
Combining computational methods with materials science to design optimal polymers for transcatheter heart valve leaflets. Role: PI
Total Budget: \$10,000 (Esmailie 50%) | 2023-2024 |
| 10. 2025 Pew Biomedical Scholars Program | 2024-2028 |

- A multiscale multiphysics in-silico model of photobiomodulation therapy for hearing preservation. Role: PI
Total Budget: \$300,000 (Esmailie 100%)
- 11.** 2024 Pew Biomedical Scholars Program 2023-2027
Design and fabrication of a non-invasive patient-specific antithrombotic device.
Role: PI
Total Budget: \$300,000 (Esmailie 100%)
- 12.** NIH_R21 2024-2026
A multiphysics in-silico model and non-invasive in-depth thermography for photothermal hearing preservation. Role: PI
Total Budget: \$381,367 (Esmailie 50%)
- 13.** Oak Ridge Associated Universities 2024-2025
A reduced-order AI-assisted multiphysics multiscale model of thrombus formation on transcatheter aortic valves. Role: PI
Total Award: \$10,000 (Esmailie 100%)
- 14.** NIH_R16 SuRE-First 2024-2028
An AI-assisted approach to correct local hemodynamics of bioprosthetic valves for valve thrombosis management. Role: PI
Total Award: \$714,316 (Esmailie 100%)
- 15.** Oak Ridge Associated Universities 2022-2023
Design and fabrication of a non-invasive electromagnetic-acoustic antithrombotic device. Role: PI
Total Award: \$10,000 (Esmailie 100%)
- 16.** NIH_R21 Trailblazer 2023-2026
Design, fabricate, and test a non-invasive individualized localized acoustic antithrombotic device. Role: PI
Total Award: \$569,736 (Esmailie 100%)
- 17.** NIH-SBIR 2022-2027
Investigation of the photobiomodulation therapy (PBMT) thermal impact on the therapeutic efficacy using an in-silico experiment. Role: PI
Total Award: \$107,509 (Esmailie 100%)
- 18.** NIH_R15 2025-2028
Development of a dynamic hypothermia protocol for hearing loss prevention. Role: PI
Total Award: \$529,827 (Esmailie 80%)
- 19.** NIH_R16 Sure First 2025-2029
Utilizing acoustic waves to induce blood flow and boost endothelial-mediated thrombolysis. Role: PI
Total Award: \$720,695 (Esmailie 100%)
- 20.** Hearing Health Foundation 2025-2026
Precision hearing care: advancing hearing loss prevention with an intelligent multiscale computational approach. Role: PI
Total Award: \$100,000 (Esmailie 100%)

B. PRODUCTS

B.1. Total Journal Publication: 23 (At UNT: 4 refereed publications, 2 under review, 3 in preparation; Prior to UNT: 14 refereed publications) H-Index: 7; i10-index: 4

Google Scholar: <https://scholar.google.com/citations?user=0wPISvEAAAAJ&hl=en>

B.2. Conference Presentations & Proceedings: 22 (At UNT: 11, Prior to UNT: 11)

B.2.1. Proceedings: 7 (At UNT: 7)

B.3. Invited Seminars: 6 (At UNT: 5, Prior to UNT: 1)

B.4. US Patents: 3 (At UNT: 2 awarded, Prior to UNT: 1 pending)

B.1. Journal Publications

B. 1. 1. Under Review

1. I. Vandenbussche, R. Rodriguez, R. Fink Carter, M. Moore, B. McCorkendale, **F. Esmailie** (* corresponding author); Impact of sub-microsecond pulses on the pulsed field ablation lesion size; *Heart Rhythm Journal*. (With UNT Students)
2. R. Rodriguez, R. Fink Carter, M. Moore, B. McCorkendale, **F. Esmailie** (* corresponding author); A comprehensive computational model to evaluate cochlear temperature during mild therapeutic hypothermia; *International Journal of Heat and Mass Transfer*. (With UNT Students)

B. 1. 2. In Preparation

3. J. Ryan, R. Rodriguez, R. Fink Carter, M. Moore, B. McCorkendale, **F. Esmailie** (* corresponding author); Thermal impact of photobiomodulation therapy on hearing preservation; *Annals of Biomedical Engineering*. (With UNT Students)
4. R. Rodriguez, R. Fink Carter, B. McCorkendale, M. Moore, **F. Esmailie** (* corresponding author); The impact of coronary artery height on the blood residence time; *Cardiovascular Engineering and Technology*. (With UNT Students)
5. R. Fink Carter, R. Rodriguez, B. McCorkendale, M. Moore, **F. Esmailie** (* corresponding author); A cost-effective method to make transcatheter prosthetic valves for in-vitro studies; *Interdisciplinary CardioVascular and Thoracic Surgery*. (With UNT Students)

B. 1. 3. Published At UNT

6. L. Seidabadi, I. Vandenbussche, R. Fink Carter, M. Moore, B. McCorkendale, **F. Esmailie** (* corresponding author) (2025) The role of computational modeling in enhancing thermal safety during cardiac ablation, *Interdisciplinary CardioVascular and Thoracic Surgery (ICVTS)*. DOI: [10.1093/icvts/ivaf184](https://doi.org/10.1093/icvts/ivaf184)
7. A. Venkatesh, **F. Esmailie** (* Co-First author), No. Tregobov, H. Hatoum, B. Yeats, H. Chen, B. J. Lee, Ph. Ruile, F-J Neumann, Ph. Blanke, J. Leipsic, G. Gulsin, V. Thourani, D. Meier, L.P Dasi, S. L. Sellers. (2024) A novel computational method to predict hypoattenuated leaflet thickening post-transcatheter aortic valve replacement using pre-procedural CT scans, *JTCVS Structural and Endovascular*, 100041, ISSN 2950-6050, <https://doi.org/10.1016/j.xjse.2024.100041>.
8. I. Shah, M Samaee, A. Razavi, **F. Esmailie**, F. Ballarin, LP. Dasi, A. Veneziani. (2023) Reduced order modeling for real-time stent deformation simulations of transcatheter aortic valve prostheses, *Annals of Biomedical Engineering*. <https://doi.org/10.1007/s10439-023-03360-5>
9. **F. Esmailie**, H. Hatoum, V. Thourani, L. P. Dasi. (2023) The impact of local blood residence time in Neo-Sinus on post transcatheter aortic valve replacement subclinical leaflet thrombosis—A commentary, *Interdisciplinary CardioVascular and Thoracic Surgery*, 6 (2), 100032. <https://doi.org/10.1093/icvts/ivad012>

B. 1. 4. Prior to UNT

10. **F. Esmailie**, A. Razavi, B. Yeats, S. K. Sivakumar, H. Chen, M. Samaee, I. Shah, A. Veneziani, P. Yadav, V. Thourani, L. Dasi. (2022) Biomechanics of transcatheter aortic valve replacement complications and computational predictive modelling, *Structural Heart: The Journal of the Heart Team*, 6 (2), 100032. <https://doi.org/10.1016/j.shj.2022.100032>
11. H. Chen, B. Yeats, K. Swamy, M. Samaee, S.K. Sivakumar, **F. Esmailie**, A. Razavi, P. Yadav, V. H. Thourani, V. Polsani, L. P. Dasi. (2022) Image registration-based method for reconstructing transcatheter heart valve geometry from patient-specific CT scans, *Annals of Biomedical Engineering*, 50, 805-815. <https://doi.org/10.1007/s10439-022-02962-9>
12. **F. Esmailie**, M. Cavilla, J. Abbott, T. A. Ameel. (2022) Impact of size, structure, and active cooling on the design and control of an omni-directional magnetic field generator: experiments and modeling, *Journal of Thermal Analysis and Calorimetry*. <https://doi.org/10.1007/s10973-022-11492-4>
13. H. Hatoum, S. Singh-Gryzbon, **F. Esmailie**, Ph. Ruile, F. J. Neumann, Ph. Blanke, V. H. Thourani, A. P. Yoganathan, L. P. Dasi. (2021) Predictive model for thrombus formation after transcatheter valve replacement, *Cardiovascular Engineering and Technology*, 12, 576-588. <https://doi.org/10.1007/s13239-021-00596-x>
14. **F. Esmailie**, M. Francoeur, T. A. Ameel. (2021) A three-dimensional thermal model of the human cochlea for magnetic cochlear implant surgery, *International Journal of Heat and Mass Transfer*, 178, 1215533, <https://doi.org/10.1016/j.ijheatmasstransfer.2021.121553>
15. **F. Esmailie**, M. Francoeur, T. A. Ameel. (2021) Experimental validation of a three-dimensional heat transfer model within the Scala-tympani with application to magnetic cochlear implant surgery. *IEEE Transactions on Biomedical Engineering*, 68(9): 2821-2832. DOI: [10.1109/TBME.2021.3055976](https://doi.org/10.1109/TBME.2021.3055976)
16. **F. Esmailie**, M. Cavilla, J. Abbott, T. A. Ameel. (2021) Thermal model of an Omnimagnet for performance assessment and temperature control, *AMSE Journal of Thermal Science and Engineering Applications*, 13 (5):051013. DOI: <https://doi.org/10.1115/1.4049869>
17. **F. Esmailie**, M. Francoeur, T. A. Ameel. (2020) Heat transfer analysis in an uncoiled model of the cochlea during the magnetic guidance of cochlear implants. *International Journal of Heat and Mass Transfer*, 154, 119683. <https://doi.org/10.1016/j.ijheatmasstransfer.2020.119683>
18. H. Radmard, H. Ghadamian, **F. Esmailie**, B. Ahmadi, M. Adl. (2020) Examining a numerical model validity for performance evaluation of a prototype solar oriented double skin façade: estimating the technical potential for energy saving. *Solar Energy*, 211, 799-809. <https://doi.org/10.1016/j.solener.2020.10.017>
19. **F. Esmailie**, H. Ghadamian, M. Aminy. (2017) Transport phenomena study in a solar spouted bed dryer within a draft tube. *Environmental Progress & Sustainable Energy*, 37(1), 488-497. DOI: [10.1002/ep.12670](https://doi.org/10.1002/ep.12670)
20. H. Ghadamian, **F. Esmailie**, H. Ozgoli. (2016) Energy consumption minimization of an industrial furnace by optimization of a recuperative heat exchanger. *Journal of Mechanics*, 32(6), 767-775. DOI: [10.1017/jmech.2016.85](https://doi.org/10.1017/jmech.2016.85)
21. **F. Esmailie**, H. Ghadamian, M. Aminy. (2015) Energy intensity diagnostics contributed to solar dryers' energy challenges. *Journal of Clean Energy Technologies*, 3(5), 388-392. (Published as one of the selected papers of 4th International Conference on Energy and Environmental Science-ICEES 2014-Kuala Lumpur, Malaysia). DOI: [10.7763/JOCET.2015.V3.229](https://doi.org/10.7763/JOCET.2015.V3.229)
22. H. Ghadamian, H. Ozgoli, **F. Esmailie**. (2015) Optimal design for compact heat exchanger (CHE) by heat transfer viewpoint as an air pre-heater. *Journal of Mechanics*, 31(5), 583-590. DOI: [10.1017/jmech.2015.11](https://doi.org/10.1017/jmech.2015.11)

23. **F. Esmailie**, H. Ghadamian, M. Aminy. (2014) Modeling and simulation of a solar flat plate collector as an air heater considering energy efficiency. *Mechanics & Industry*, 15(5), 455-464.
[DOI:10.1051/meca/2014047](https://doi.org/10.1051/meca/2014047)

B.2. Conference Presentations & Proceedings

B. 2. 1. At UNT - Proceedings

1. A. Venkatesh, **F. Esmailie** (* Co-First author), T. Natarajan, H. Chen, H. Hatoum, B. Yeats, B. J. Lee, G. Gulsin, N. Tregobov, C. Jamieson, S. Sellers, Ph. Blanke, J. Leipsic, J. Sathananthan, Ph. Ruile, F-J. Neumann, V. H. Thourani, L. P. Dasi, Assessing the efficacy of post-TAVR anatomical and hemodynamic measurements in predicting leaflet thrombosis using Pre-TAVR computed tomography, *Journal of the American College of Cardiology (JACC)*. 2024 Apr, 83 (13_Supplement) 888.
[https://doi.org/10.1016/S0735-1097\(24\)02878-X](https://doi.org/10.1016/S0735-1097(24)02878-X)
2. A. Venkatesh, **F. Esmailie**, H. Hatoum, H. Chen, et. Al., A novel computational method to predict Post-TAVR leaflet thrombosis from pre-TAVR CT. *Journal of the American College of Cardiology (JACC)*. 2023 Oct, 82 (17_Supplement) B243. <https://doi.org/10.1016/j.jacc.2023.09.615>
3. I. Vandebussche, B. McCorkendale, R. Fink, R. Kamali, **F. Esmailie**, Computational modeling of pulsed field ablation with sub-microsecond pulses, *Summer Biomechanics, Bioengineering and Biotransport Conference*, Santa Ana Pueblo, New Mexico, USA, June 2025. (With UNT Students).
[Link](#)
4. J. Ryan, **F. Esmailie**, Photobiomodulation as a non-invasive thermal therapy for hearing preservation. *48th Annual MidWinter Meeting*, Orlando, FL, USA, Feb 2025. (With UNT Students). [Link](#)
5. B. McCorkendale, **F. Esmailie**, Modeling temperature effects on nitric oxide dynamics and vascular diameter, *Southern Biomedical Engineering Conference*, UT Tyler, USA, Sep 2025. (With UNT Students). [Link](#)
6. R. Rodriguez, **F. Esmailie**, Pressure analysis of patient specific aortic phantoms in a custom mock circulatory loop, *Southern Biomedical Engineering Conference*, UT Tyler, USA, Sep 2025. (With UNT Students). [Link](#)
7. **F. Esmailie**, A. Venkatesh, H. Hatoum, H. Chen, et. Al., Coronary height and peak systolic velocity as main predictors of post-TAVR Thrombosis. *Summer Biomechanics, Bioengineering and Biotransport Conference*, Lake Geneva, WI, USA, June 2024 . [Link](#)

B.2.2. At UNT Conference Presentations

8. R. Rodriguez, A. Venkatesh, M. Moore, P. Ruile, F. J. Neumann, L. P. Dasi, **F. Esmailie**, A rapid machine learning prediction model for post-transcatheter aortic valve thrombosis. *8th Annual ERAS Symposium 2025*. Plano, TX, USA, Feb 2025. (With UNT Students)
9. R. Rodriguez, **F. Esmailie**, Assessing safe and effective laser power for hearing preservation using an in-silico model, *8th International Conference on Computational and Mathematical Biomedical Engineering – CMBE2024*, Arlington, Virginia, USA, June 2024. (With UNT Students)
10. M. Forshage, R. Rodriguez, **F. Esmailie**, A multiphysics multiscale model of photobiomodulation for hearing preservation. *Society of Thermal Medicine 2024 Annual Meeting*. Houston, TX, USA, May 2024. (With UNT Students)
11. L. Challa, **F. Esmailie**, Thermal impact of photobiomodulation therapy on the therapeutic efficacy, *2023 Society of Thermal Medicine Annual Meeting*, San Diego, CA, USA, April 2023. (With UNT Students)

B. 2. 3. Prior to UNT

12. **F. Esmailie**, H. Hoda, S. Singh-Gryzbon, S. Bhat, P. Ruile, F. J. Neumann Franz, P. Blanke, V. H. Thourani, A. Yoganathan, L. P. Dasi. A combined machine-learning and scale analysis method of thrombus formation prediction. *9th World Congress of Biomechanics (WCB 2022)*, Taipei, July 2022, Online.
13. **F. Esmailie**, B. Yeats, H. Chen, M. Samaee, A. Razavi, S. V. Sivakumar, P. Yadav, V. Polsani, V. H. Thourani, A. Yoganathan, L. P. Dasi. A predictive simulation of core valve implantation in a patient with three bioprosthetic aortic valve in place – A case study. *SB3C 2022: Summer Biomechanics, Bioengineering, and Biotransport Conference*, Virtual, Cambridge, MD, USA, June 2022.
14. **F. Esmailie**, H. Hatoum, Sh. Singh-Gryzbon, S. K. Sivakumar, S. S. Bhat, Ph. Ruile, F. J. Neumann, Ph. Blanke, V. H. Thourani, A. P. Yoganathan, L. P. Dasi. The impact of stent rotational angle on leaflet thrombosis after transcatheter valve replacement. *TCT 2021: Transcatheter Cardiovascular Therapeutics (TCT)*, Orlando, Florida, November 2021.
15. **F. Esmailie**, M. Francoeur, T. A. Ameel. 3D thermal model of magnetic insertion of a cochlear implant. *SB3C 2020: Summer Biomechanics, Bioengineering, and Biotransport Conference*, Virtual, June 2020. (Oral Presentation, pre-recorded lightning talk)
16. **F. Esmailie**, M. Francoeur, T. A. Ameel. Simulation of natural convection heat transfer within an uncoiled model of the cochlea during robotic cochlear implant surgery. *2ND Pacific Rim Thermal Engineering Conference*, Maui, December 2019. (Oral Presentation)
17. **F. Esmailie**, M. Francoeur, T. A. Ameel. Design of an experiment for validating 3D heat transfer simulations during magnetic-assisted cochlear implant surgery. *ASME International Mechanical Engineering Congress and Exposition*, Salt Lake City, November 2019. (Oral and Poster Presentation, Best Poster Award)
18. **F. Esmailie**, M. Francoeur, T. A. Ameel. Thermal analysis of magnetically guided cochlear implant surgery in an uncoiled and a coiled model of cochlea. *COMSOL Conference 2019*, Boston, October 2019. (Oral Presentation)
19. **F. Esmailie**, M. Francoeur, T. A. Ameel. Thermal analysis of a cochlea during magnetically guided cochlear implant surgery. *4th Thermal and Fluids Engineering Conference (TFEC)*, Las Vegas, April 2019. (Oral Presentation)
20. **F. Esmailie**, M. Francoeur, T. A. Ameel. A heat transfer analysis of the cochlea during magnetically guided cochlear implant surgery. *COMSOL Conference 2018*, Boston, October 2018. (Oral and Poster Presentation, Best Poster Award)
21. **F. Esmailie**, MS. Cavilla, T. A. Ameel. A Transient thermal model of heat transfer within an Omnimagnet. *ASME International Mechanical Engineering Congress and Exposition*, Volume 8: Heat Transfer and Thermal Engineering, V008T10A046. DOI: [10.1115/IMECE2017-72120](https://doi.org/10.1115/IMECE2017-72120), Tampa, November 2017. (Oral Presentation)
22. **F. Esmailie**, H. Ghadamian, M. Aminy. Energy intensity diagnostics contributed to solar dryers' energy challenges. *4th International Conference on Energy and Environmental Science-ICEES 2014*-Kuala Lumpur, Malaysia, September 2014 (Oral Presentation)

B.3. Invited Talks

B. 3. 1. At UNT

1. F. Esmailie “Cool heads, warm hearts: engineering hypothermia and ablation therapies” Department of Mechanical Engineering, University of Utah, (2025), Online.
2. F. Esmailie “Translational strategies in biofluidic and thermal medicine: from hearing preservation to thrombosis prediction”, Department of Physiology and Anatomy, University of North Texas Health Science Center, (2025) Fort Worth, TX

3. F. Esmailie “Enhancing medical decision-making through computational modeling and simulation”, Department of Physics, University of North Texas, (2025) Denton, TX
4. F. Esmailie “A journey from cochlear implants to transcatheter heart valves” Department of biomedical, chemical and mechanical engineering, Michigan Technological University, (2023) Online.
5. F. Esmailie “Intelligent computational thermal Fluids Medicine”, Department of Biomedical Engineering, UT Southwestern Medical Center (2022), Dallas, TX

B. 3. 2. Prior to UNT

6. F. Esmailie “Intelligent computational models for predicting medical procedures adverse events”, Department of Biomedical Engineering, University of Minnesota Twin Cities (2022), Minneapolis, MN

B.4. Patents

B. 4. 1. At UNT

1. Systems and methods for modeling risk of transcatheter valve deployment 2024
US Patent App. 18/560,210
Lakshmi Prasad Dasi, Breandan Yeats, Huang Chen, Fateme Esmailie, Atefeh Razavi, Imran Shah, Alessandro Veneziani
2. Systems and methods for reconstructing implantable device geometry from patient-specific imaging scans. US Patent App. 18/560,144 2024
Lakshmi Prasad Dasi, Huang Chen, Fateme Esmailie, Milad Samaee, Sri Krishna Sivakumar, Breandan Andre Butler Yeats

B.4. 2. Prior to UNT

3. Method to simulate stent deployment inside stented tissue valve or native heart valve with geometry modifications – USA – Invention disclosure 2021
Sri Krishna Sivakumar, Huang Chen, Lakshmi Prasad Dasi, Fateme Esmailie, Atefeh Razavi, Imran Shah, Alessandro Veneziani, Breandan Andre Butler Yeats

III. TEACHING

A. COURSE TAUGHT

A.1. At UNT

Semester	Class	Evaluation score
Spring 2025	BMEN 5319/4319	4.9/5.0
Fall 2024	BMEN 4310/5315	3.5/5.0
Spring 2024	BMEN 5319/4319	4.8/5.0
Fall 2023	BMEN 4310/5315	4.7/5.0
Spring 2023	BMEN 5319/4319	4.6/5.0
Fall 2022	BMEN 4310/5315	2.9/5.0
Overall	BMEN 4310/5315, BMEN 5319/4319	4.2/5.0

B. STUDENTS SUPERVISED

B.1. Graduate Students

Served as the advisor

Student	Dissertation/Thesis Title	Degree
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Ricardo Rodriguez	A semi-empirical approach to predict post-TAVR thrombosis	Ph.D., 8/2024-5/2028 (exp)
Leila Seidabadi	A computational model to predict the vasoconstriction and vasodilation due to thermal stress	Ph.D., 8/2024-7/2025
Mason Forshage	A reduced order model of post-TAVR thrombosis	Ph.D., Spring 2024
Laxmi Gayathri Challa	A reduced order model of post-TAVR thrombosis	Ph.D., Fall 2023
Omar Cavazos	A model of ultrasound driven blood flow	Ph.D., Fall 2022
Jeremy Ryan	Development of a Computational Model to Assess the Thermal Impact of Photothermal Hearing Preservation Methods	M.Sc., 8/2023-6/2025 Graduated
Indra Vandebussche	Computational Modeling of Pulsed Field Ablation in the Sub-Microseconds Range	M.Sc., 8/2024-5/2025 Graduated
Rowan Fink	Design and fabricate cost effective prosthetic valves for in-vitro tests	M.Sc., 8/2024-5/2026 (exp)
Bailey McCorkendale	Design and development of a new mild therapeutic hypothermia device for hearing preservation	M.Sc., 8/2024-5/2026 (exp)

Non-thesis master students advisor

Student	Project Title	Degree
Devender Devender	Ultrasound flow control for deep vein thrombosis	M.Sc., 01/2024-5/2024

Served as a graduate committee member

Student	Degree	Year	Advisor	Department
Omar Cavazos	PhD	2023-Present	V. Vaidyanathan	BME
Vincenzo Kennedy	PhD	2023-Present	Chan	BME
Apoorva Satish Janorkar	PhD	2024-Present	Youngwook Won	BME
Trevor Exely	PhD	2022-2023	Amir Jafari	BME
Vishalakshi Irukuvarjula	MSc	2024	Neda Habibi	BME
Sahaj Kinshuk	MSc	2024	Clement Chan	BME
Natanael Monroy	MSc	2023	Brian Meckes	BME
Daniel Johnson	MSc	2023	Amir Jafari	BME

B.2. Undergraduate Students

Mackenzie Moore	2022-Present
Hansini Cherukuri	2024- Present
Emily Hesselgesser	2024- Present
Jaden Coston	2024- Present
Kaylee Miller	2025-Present
Danilo Servando	2024-2025
Jennifer Ha	2022-2024
Devshree Bhatt	2023
Abhijeet Chahande	2023-2024

B.3. Texas Academy of Mathematics and Science (senior high school) students

Archita Bhat	2025
Hansini Cherukuri	2025
Tanvi Janjirala	2024
Jai Anish Penumarthi	2023-2024
Negavenkat Modugula	2023-2024

B.4. Senior Design Teams

Medforce Engineers - Hemorrhage control Ian Kirk, Olanrewaju Akande, Rawda Ahmed, Alex Torrado	2022-2023
B-AMBU – Blower-automated mandatory breathing unit Ricardo Rodriguez, Bradley Wilson, Jared Jones, Lezarius McLin, Haseeb Yawubi	2023-2024
MARKS - Patient-specific mock circulatory flow loop Mark Solano, Arian Moridani, Kerlos Iskandar, Robert Alcasabas, Silvia Antoun	2023-2024
Axon Solutions - ENID: Electrical neuropathy-inhibiting device Brienne Russell, Sarah Mehr, Stephania Nava, Daphne Nguyen	2024-2025

B.5. Students Awards and Honors

1. Outstanding Master Student Award - Indra Vandenbussche	2025
2. A finalist for the 2025 ASME-SB3C MS Student Paper Competition- Indra Vandenbussche	2025
3. Outstanding Junior Student Award - Mackenzie Moore	2025
4. Outstanding Teaching Assistant Award - Bailey McCorkendale	2025
5. Outstanding Sophomore Student Award - Mackenzie Moore	2024
6. 2 nd Place in Senior Design Group Award - Axon Solutions - ENID: Electrical Neuropathy-Inhibiting Device Brienne Russell, Sarah Mehr, Stephania Nava, Daphne Nguyen	2025
7. 1 st Place Undergraduate Outstanding Poster Award - UNT Engineering Showcase Poster Presentation Ricardo Rodriguez, Victoria Gnenema (BME) - In-silico Model of Ultrasonic acoustophoresis	2024
8. 3 rd Place Undergraduate Outstanding Poster Award - UNT Engineering Showcase Poster Presentation Arian Moridani, Robert Alcasabas (BME) - Silicone Modeled Aorta Valves for Mock Circulation Loops	2024
9. 1 st Place Outstanding Poster Award – North Texas Biomedical Engineering Science & Technology Symposium Mackenzie Moore, Rowan Fink, Jennifer Ha, Abhijeet Chahande, Devshree Bhatt – Predicting Post-TAVR Aortic Valve Replacement Thrombosis	2024
10. Graduate Student Research Award – Rowan Fink	2025
Graduate Student Research Award – Indra Vandenbussche	2024
11. Graduate Student Research Award – Leila Seidabadi	2024
13. UNT Undergraduate Research Fellowship (URF) - Mackenzie Moore	2024,2025
14. UNT Undergraduate Research Fellowship (URF) - Emily Hesselgesser	2025

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| 15. UNT Undergraduate Research Fellowship (URF) - Jaden Coston | 2025 |
| 16. UNT Undergraduate Research Fellowship (URF) - Hansini Cherukuri | 2025 |
| 17. UNT Undergraduate Research Fellowship (URF) - Jai Anish Penumarthy | 2024 |
| 18. UNT Undergraduate Research Fellowship (URF) - Negavenkat Modugula | 2024 |
| 19. UNT Undergraduate Research Fellowship (URF) - Jennifer Ha | 2023 |

IV. SERVICE

A. SERVICE At UNT

A.1. University

Member, Center for Computational Life Sciences, 2024-Present

A.2. College of Engineering

Committee member, IT committee, 2022- Present

A.3. Department of Biomedical Engineering

Member, Scholarship Committee, 2023 - Present

B. PROFESSIONAL SERVICES

B.1. Journal Editor

Interactive CardioVascular and Thoracic Surgery (ICVTS) 2022-Present

B.2. Journal reviewer

Scientific Reports, Annals of Biomedical Engineering, Computers in Biology and Medicine, Medical Physics, Powder Technology, ASME Journal of Biomedical Engineering, Heliyon, Journal of Renewable Energy and Environment, Advances in Mechanical Engineering, Environmental Progress & Sustainable Energy

B.3. Conference Session Chair

Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C) – Session chair 2025

Society of Thermal Medicine Annual Meeting – Session chair 2024

Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C) – Session co-Chair 2021

B.4. Conference Reviewer

Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), IEEE ITherm Conference, Thermal and Fluids Engineering Conference

B.5. Proposal Reviewer

National Institute of Health Reviewer 2025
HTBT study Section – April 2025

American Heart Association Proposal Reviewer 2025
2025 TPA Bioengineering Sciences

American Heart Association Proposal Reviewer 2023 - Present
Pre and Post Doctoral Fellowship Engineering and Technology 2

NSF Reviewer 2022
Mega Engineering Research Center pre-proposals (Biomedical Engineering and Aging),
The National Science Foundation (NSF)

B.6. Professional Societies Membership

Association for Research in Otolaryngology (ARO) 2025 - Present

American College of Cardiology (ACC) 2024 - Present

American Heart Association (AHA) 2021 - present

Society for Thermal Medicine (STM) 2019 - present

The American Society of Mechanical Engineers (ASME) 2017 - present