

Debanjan Mukherjee, Ph.D.

✉ debanjan@Colorado.Edu

🌐 <https://www.flowphysicslab.com/>

☎ 510-280-4915/303-735-8368

📍 ECME 275, Engineering Center
University of Colorado Boulder

Education

- 2010 – 2013 📌 **Ph.D. Mechanical Engineering**, University of California, Berkeley
Dissertation: *Discrete Particle Simulation Techniques for the Analysis of Colliding and Flowing Particulate Media*. Advisor: Prof. Tarek I. Zohdi.
- 2008 – 2010 📌 **M.S. Mechanical Engineering**, University of California, Berkeley
Dissertation: *Computational Design and Modeling of the Dynamics of Floating Ocean Wave Energy Converters*. Advisor: Prof. Alaa E. Mansour.
- 2004 – 2008 📌 **B.Tech. Ocean Engineering**, Indian Institute of Technology, Madras
Thesis: *CFD Simulations of Wave Resistance on Twin-Hull Catamarans*. Advisor: Prof. P. Krishnankutty.

Awards and Honors

- 2025 📌 Featured in the *CU Boulder Showcase of Open, Digital, and Public Scholarship* organized by the Center for Research Data and Digital Scholarship (CRDDS), University of Colorado Boulder.
- 2025 📌 Selected for the *Research and Innovation Office (RIO) Public Scholarship Initiative: Elevating Colorado Voices*, University of Colorado, Boulder.
- 2025 📌 Vogel Leadership Development Fellow, Mechanical Engineering, University of Colorado Boulder.
- 2025 📌 Dean's Excellence Fellowship in Generative AI, University of Colorado Boulder.
- 2025 📌 Research and Innovation Office (RIO) Faculty Fellow, University of Colorado Boulder.
- 2021 📌 2021 Cohort of Pandemic Hyper-accelerator for Science and Technology (PHAST) for pandemic related research and innovation, Venture Partners, University of Colorado Boulder. (*declined*)
- 2020 📌 National Institutes of Health Trailblazer Award for new and early stage investigators.
- 2020 📌 Oak Ridge Associated Universities (ORAU) Ralph E. Powe Junior Faculty Enhancement Award.
- 2019 📌 University of Colorado Boulder Mechanical Engineering Outstanding Graduate Educator Award.
- 2018 📌 Journal Cover Feature: *Annals of Biomedical Engineering*; August 2018 issue: publication "The Role Of Circle of Willis Anatomy in Cardio-embolic Stroke-A Patient-specific Simulation Based Study".
- 2018 📌 Recipient: Insight Health Data Science Fellowship Award, January 2018 (*declined*)
- 2016 📌 Best Poster Award: 5th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease (3rd place in Young Investigator Competition).
- 2014 📌 Best Poster Award: Society of Petroleum Engineers (SPE) International Oilfield Corrosion Conference and Exhibition.
- 2013 📌 Selected as Institute Fellow for the 'Summer Institute for Preparing Future Faculty' by the Graduate Division, University of California, Berkeley.
- 2011 📌 Outstanding Graduate Student Instructor Award: Graduate Introduction to Finite Element Analysis.
- 2010 📌 Best Paper Award: 29th International Conference on Ocean & Offshore, and Arctic Engineering.
- 2010 📌 Outreach for Engineers Specialty Forum Scholarship by ASME-IPTI for the International Conference on Ocean & Offshore, and Arctic Engineering.
- 2010 📌 Allen D. Wilson Memorial Scholarship by the Department of Mechanical Engineering, University of California, Berkeley.
- 2010 📌 Renewable Energy Scholarship Award by the Berkeley Energy & Resources Collaborative (BERC).
- 2009 📌 Block Grant Award by the Department of Mechanical Engineering, University of California, Berkeley.
- 2002 📌 Student delegate at the "CSIR Programme for Youth Leadership in Science 2002" by the Council of Scientific and Industrial Research (CSIR), Government of India.

Professional Experience

- 2019 – present **Assistant Professor**, Mechanical Engineering, University of Colorado Boulder
Program Faculty, Biomedical Engineering Program, University of Colorado Boulder
Faculty Council Member, BioFrontiers Institute, University of Colorado Boulder
- 2018 – 2019 **Visiting Assistant Professor**, Mechanical Engineering, University of Colorado Boulder
- 2014 – 2018 **Postdoctoral fellow**, University of California Berkeley
Cardiovascular fluid mechanics; Supervisor: Prof. Shawn C. Shadden
American Heart Association Postdoctoral Fellowship (01/2016 – 12/2018)
- 2013 – 2013 **Assistant Specialist Researcher**, University of California, Berkeley
Research in magnetic particle flows; Supervisor: Prof. Tarek I. Zohdi
- 2007 – 2007 **Engineering Intern**, Larsen & Toubro Ltd., Mumbai, India
Undergraduate engineering intern; Heavy engineering division.
- 2006 – 2006 **Engineering Intern**, M/s Goa Shipyard Ltd., Vasco da Gama, Goa, India
Undergraduate engineering intern; Planning, production, and technical services division.

Research Interests

- **Biomedical:** Image-based modeling for biofluids and biomechanics; Hemodynamics and vascular transport processes; Cerebrovascular flow; Cardiovascular diseases – stroke, thrombosis, embolisms; Cardiovascular biomedical device design; Biomedical image processing; Drug delivery; Infection transmission & control.
- **Computational:** Computational fluid dynamics and transport processes; Fluid-particle and Fluid-structure interaction; Multiscale modeling; Infectious disease transmission modeling; Finite element method; Discrete element method; Molecular Dynamics; High-performance computing.
- **Flow Physics:** Multiphase and particle-laden flows; Granular flows/dynamics; Collective dynamics of particle systems; Statistical physics of particle dynamics and transport; Particulate flows in industrial and manufacturing systems.

Research Publications

Patents

- 2020 ■ “*Rapid Non-invasive Detection of Respiratory Diseases.*” Sinha, M., Sen, C., Gulati, I., and **Mukherjee, D.** U.S. Provisional Pat. Ser. No. 63/060875, Filed August 04, 2020.
Patent Cooperation Treaty (PCT) application filed August 2, 2021

Peer-Reviewed Journal Publications

DM in **bold**; *denotes DM trainees; #denotes DM as corresponding author; †denotes DM’s academic advisors.

- 2025 ■ Teeraratkul, C.*, Tomaiuolo, M., Stalker, T.J., and **Mukherjee, D.**# A Stabilized Finite Element Technique For Transport Phenomena Within And Around Immersed Porous Bodies In Flow. *Physics of Fluids*. 37(10):101916. 2025. [[journal](#)].
- Roopnarinesingh, R.*, Jani, N.D., Leppert, M., and **Mukherjee, D.**# Understanding Thromboembolus Transport Patterns In The Brain For Stroke In The Presence Of Carotid Artery Stenosis. *PLoS Computational Biology*. 21(9): e1013269. 2025. [[journal](#)] [[medRxiv](#)]
- Sahni, A.*, Majee, S.*, Pal, J.D., McIntyre, E.E., Cao, K., and **Mukherjee, D.**# Hemodynamics Indicates Differences Between Patients With And Without A Stroke Outcome After Left Ventricular Assist Device Implantation. *Computers in Biology and Medicine*. 189:109877. 2025. [[journal](#)] [[medRxiv](#)]
- Majee, S.*, Sahni, A.*, Pal, J.D., McIntyre, E., and **Mukherjee, D.**# Understanding Embolus Transport And Source To Destination Mapping Of Thromboemboli In Hemodynamics Driven By Left Ventricular Assist Device. *Scientific Reports*. 15:12150. 2025. [[journal](#)] [[medRxiv](#)]
- Venkatesh, S., Teeraratkul, C.*, Rovito, N.*, **Mukherjee, D.**, and Lynch, M.E. High-Fidelity Computational Fluid Dynamics Model To Simulate Perfusion Through A Bone-Mimicking Scaffold. *Computers in Biology and Medicine*. 186:109637. 2025. [[journal](#)]

Research Publications (continued)

- 2024
- Zablah, J.E., Shorofsky, M.J., Cao, K.*, and **Mukherjee, D.**[#] Computational Fluid Dynamic Assessment of Patients with Congenital Heart Disease from 3D Rotational Angiography. *Pediatric Cardiology*. 46:458-466. 2025. [[journal](#)]
 - **Mukherjee, D.**[#], Lai, V., Huang, Z., and Singh, A. The BIORES-21 Survey: Insights Into Remote And Online Education In Biomechanics And Mechanobiology. *Journal of Biomechanical Engineering*. 146(5):051006. 2024. [[journal](#)]
 - Gutierrez, N.G., **Mukherjee, D.**, and Bark, D. Decoding Thrombosis Through Code: A Review Of Computational Models. *Journal of Thrombosis and Haemostasis*. 22(1):35-47. 2024. [[journal](#)] [[pubmed](#)]
**Invited review: all authors contributed equally*
 - Teeraratkul, C.*, Tomaiuolo, M., Stalker, T.J., and **Mukherjee, D.**[#] Investigating Clot-flow Interactions By Integrating Intravital Imaging With In Silico Modeling For Analysis Of Flow, Transport, And Hemodynamic Forces. *Scientific Reports*. 14(1):696. 2024. [[journal](#)] [[bioRxiv](#)]
- 2023
- Roopnarinesingh, R.*, Leppert, M., and **Mukherjee, D.**[#] Evidence And Mechanisms For Embolic Stroke In Contralateral Hemispheres From Carotid Artery Sources. *Journal of the American Heart Association*. 12(23):e030792. 2023. [[journal](#)] [[medRxiv](#)]
 - Sahni, A.*, McIntyre, E.E., Cao, K.*, Pal, J.D., and **Mukherjee, D.**[#] The Relation Between Viscous Energy Dissipation And Pulsation For Aortic Hemodynamics Driven By A Left Ventricular Assist Device. *Cardiovascular Engineering and Technology*. 14:560-576. 2023. [[journal](#)] [[medRxiv](#)]
 - Sahni, A.*, McIntyre, E.E., Pal, J.D., and **Mukherjee, D.**[#] Quantitative Assessment Of Aortic Hemodynamics For Varying Left Ventricular Assist Device Outflow Graft Angles And Flow Pulsation. *Annals of Biomedical Engineering*. 51(6):1226-1243. 2023. [[journal](#)] [[medRxiv](#)]
- 2022
- Jung, H., Kang, T., Lee, C.H., Woo, S.Y., Yang, S.S., **Mukherjee, D.**, Kim, D.I., and Ryu, J. Comparison Of Haemodynamics In Carotid Endarterectomy: Primary Closure Versus Patch Angioplasty. *Engineering Applications of Computational Fluid Mechanics*. 16(1):1601-1618. 2022. (open access). [[journal](#)]
 - **Mukherjee, D.**[#] and Wadhwa, G.* A Mesoscale Agent Based Modeling Framework For Flow-mediated Infection Transmission In Indoor Occupied Spaces. *Computer Methods In Applied Mechanics & Engineering*. 401 (A): 115485. 2022. [[journal](#)] [[medRxiv](#)]
 - Kang, T., **Mukherjee, D.**, and Ryu, J. Hemodynamic Flow Characteristics At Stenosed Artery: Computational Analysis Of Progressive Unilateral Carotid Stenosis In Three-dimensional Patient-specific Aortic-cerebral Vasculature. *Physics of Fluids*. 34(6):061902-19. 2022. [[journal](#)]
- 2021
- **Mukherjee, D.**[#], and Barker, A. Using Simulation Based Active Learning Strategies For Teaching Biofluids Concepts. *Journal of Biomechanical Engineering*. 143(12):121011-6. 2021. [[journal](#)]
 - Wilson, J.*, Miller, S., and **Mukherjee, D.**[#] A Lagrangian Approach Towards Quantitative Analysis Of Flow-mediated Infection Transmission In Indoor Spaces With Application To SARS-COV-2. *International Journal of Computational Fluid Dynamics*. 35(9):727-742. 2021. [[journal](#)] [[medRxiv](#)]
 - Kang, T., **Mukherjee, D.**, and Ryu, J. Numerical Investigation Of Carotid Stenosis In Three-dimensional Aortic-cerebral Vasculature: Pulsatility Index, Resistive Index, Time-to-peak Velocity, And Flow Characteristics. *Engineering Applications of Computational Fluid Mechanics*. 15(1):1645-1665 (open access). 2021. [[journal](#)]
 - Teeraratkul, C.*, and **Mukherjee, D.**[#] Microstructure Aware Modeling Of Biochemical Transport In Arterial Blood Clots. *Journal of Biomechanics*. 127:110692. 2021. [[journal](#)] [[bioRxiv](#)]
 - Kang, T., **Mukherjee, D.**, Kim, J.M., Park, K.Y., and Ryu, J. Effects Of Progressive Carotid Stenosis On Cerebral Haemodynamics: Aortic-cerebral 3D Patient-specific Simulation. *Engineering Applications of Computational Fluid Mechanics*. 15(1):830-847. (open-access). 2021. [[journal](#)]
 - Teeraratkul, C.*, Irwin, Z.*, Shadden, S.C., and **Mukherjee, D.**[#] Computational Investigation Of Blood Flow And Flow-mediated Transport In Arterial Thrombus Neighborhood. *Biomechanics and Modeling in Mechanobiology*. 20:701-715. 2021. [[journal](#)] [[bioRxiv](#)]
 - **Mukherjee, D.**[#] Developing Effective Screencast Modules For Teaching Computational Techniques In Remote Modalities. *Biomedical Engineering Education* 1(2):307-311. 2021. [[journal](#)]
- 2020
- Miller, S., **Mukherjee, D.**, Wilson, J.*, Clements, N., and Steiner, C. Implementing A Negative-Pressure Isolation Space Within A Skilled Nursing Facility To Control SARS-CoV-2 Transmission. *American Journal of Infection Control*. 49(4):438-446. 2020. [[journal](#)] [[medRxiv](#)]

Research Publications (continued)

- 2018 ■ **Mukherjee, D.[#]**, Jani, N.D., Narvid, J., and Shadden, S.C.[†] The Role Of Circle of Willis Anatomy In Cardio-embolic Stroke – A Patient-specific Simulation Based Study. *Annals of Biomedical Engineering*. 46(8):1128–1145. 2018. [[journal](#)] [[bioRxiv](#)]
**selected as journal cover feature for August 2018 issue of Annals of Biomedical Engineering*
- **Mukherjee, D.[#]**, and Shadden, S.C.[†] Modeling Blood Flow Around A Thrombus Using A Hybrid Particle-Continuum Approach. *Biomechanics and Modeling in Mechanobiology*. 17(3):645–663. 2018. [[journal](#)] [[pubmed](#)]
- 2017 ■ **Mukherjee, D.[#]**, and Shadden, S.C.[†] Inertial Particle Dynamics In Large Artery Flows – Implications For Modeling Arterial Embolisms. *Journal of Biomechanics*. 52(8):155–164. 2017. [[journal](#)] [[pubmed](#)]
- Casas, G., **Mukherjee, D.**, Celigueta, M.A., Zohdi, T.I.[†], and Onate, E. A Modular, Partitioned, Discrete Element Framework For Industrial Grain Distribution Systems With Rotating Machinery. *Computational Particle Mechanics*. 4(2):181–198. 2017. [[journal](#)]
**DM was co-first author*
- 2016 ■ **Mukherjee, D.[#]**, Jani, N., Selvaganesan, K., Weng, C.L., and Shadden, S.C.[†] Computational Assessment Of The Relation Between Embolism Source And Embolus Distribution To The Circle Of Willis For Improved Understanding Of Stroke Etiology. *Journal of Biomechanical Engineering*. 138(8):081008–081008–13. 2016. [[journal](#)] [[pubmed](#)]
- 2015 ■ **Mukherjee, D.[#]**, Padilla, J., and Shadden, S.C.[†] Numerical Investigation Of Fluid-particle Interactions For Embolic Stroke. *Theoretical and Computational Fluid Dynamics*. 30(1):23–39. 2015. [[journal](#)]
- **Mukherjee, D.[#]**, and Zohdi, T.I.[†] A Discrete Element Based Simulation Framework To Investigate Particulate Spray Deposition Processes. *Journal of Computational Physics*. 290:298–317. 2015. [[journal](#)]
- **Mukherjee, D.[#]**, and Zohdi, T. I.[†] Computational Modeling Of The Dynamics And Interference Effects Of An Erosive Granular Jet Impacting A Porous, Compliant Surface. *Granular Matter*. 17(2):231–252. 2015. [[journal](#)]
- **Mukherjee, D.[#]**, Zaky, Z., Zohdi, T.I.[†], Salama, A., and Sun, S. Investigation Of Guided Particle Transport For Noninvasive Healing Of Damaged Piping System Using Electro-Magneto-Mechanical Methods. *Society of Petroleum Engineers (SPE) Journal*. 20(4):872–883. 2015. [[journal](#)]
- 2014 ■ **Mukherjee, D.[#]**, and Zohdi, T. I.[†] Electromagnetic Control Of Charged Particulate Spray Systems – Models For Planning The Spray-gun Operations. *Computer-Aided Design*. 46:211–215. 2014. [[journal](#)]

Peer-Reviewed Journal Publications (Submitted)

- Rovito, N.*, Holmes, J.*, Teeraratkul, C.*, and **Mukherjee, D.[#]** The FLATiron Toolkit: A Versatile Multiphysics Platform For Flow And Transport Phenomena Using The Finite Element Method. (*submitted, under review, Journal of Open Source Software*).
- Laroche, A., Rovito, N.*, Liu, A., Allaeys, I., Adeoye, O., Heitsch, L., Pizella, S., Bark, D., Di Paola, J., Lee, J.M., Campbell, R., **Mukherjee, D.**, Boilard, E., Denorme, F. Mechanisms Of Von Willebrand Factor Activation Driving No-Reflow In Ischemic Stroke. (*submitted, under review, Proceedings of the National Academy of Sciences*).
- Teeraratkul, C.*, Krishnamurthy, A., and **Mukherjee, D.[#]** Computational Modeling Of Immersed Non-spherical Bodies In Viscous Flows To Study Embolus-Hemodynamics Interactions In Large-Vessel Occlusion Stroke. (*submitted, under review, Engineering With Computers*). [[bioRxiv](#)]

Peer-Reviewed Proceedings

DM in **bold**; *denotes DM trainees; [#]denotes DM as corresponding author.

- 2026 ■ Rovito, N.*, Malloy, S.*, and **Mukherjee, D.[#]** Quantitative Analysis Of Elongational Flow Exposure for Assessment Of von Willebrand Factor Unfolding In Mechanical Circulatory Support. *In: Proceedings of the 9th International Conference on Computational and Mathematical Biomedical Engineering, Kobe, Japan, June 2026. (submitted)*.
- 2025 ■ Tucker, A.*, Ashrafee, A.*, and **Mukherjee, D.[#]** An In Vitro Benchtop Model For Cerebral Circulation And Drug Transport. *In: Proceedings of the ASME SB3C Summer Bioengineering Conference, Santa Ana Pueblo, New Mexico, June 2025.*

**ASME SBC 2025 BS Student Paper Competition Finalist*

Research Publications (continued)

- Roopnarinesingh, R.* , Majee, S.* , Rinkel, L., Coutinho, J., Cao, K.* , and **Mukherjee, D.#** An In Silico Methodology For Discerning Etiology For Embolic Stroke Of Undetermined Source. In: *Proceedings of the ASME SB3C Summer Bioengineering Conference*. Santa Ana Pueblo, New Mexico. June 2025.
- Roopnarinesingh, R.* , **Mukherjee, D.#**, Majee, S.* , Cao, K.* , Rinkel, L., and Coutinho, J. Integrating Standard-of-care Clinical Stroke Workup Within In Silico Embolic Stroke Models For Etiology Disambiguation. *Stroke*. 56: Suppl_1: TP228. Abstract published for the 2025 American Heart Association International Stroke Conference. 2025.
- Rovito, N.* , and **Mukherjee, D.#** In Silico Analysis Of Flow-mediated Drug Transport For Thrombolytic Therapy In Acute Ischemic Stroke. In: *ASME International Mechanical Engineering Congress and Exposition*, Vol. 88667, pp. V008T10A026. 2025.
*2024 ASME IMECE Young Engineers Paper Competition First Prize Winner
- 2024 Chauhan, A.* , Tucker, A.* , and **Mukherjee D.#** Development Of A Benchtop Model For Cerebral Collateral Circulation. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Lake Geneva, Wisconsin, June 2024.
*SB3C 2024 BS Student Paper Competition Finalist
- Teeraratkul, C.* , and **Mukherjee, D.#** A Micromechanics Based Multiscale Model For Platelet-driven Clot Contraction. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Lake Geneva, Wisconsin, June 2024.
*SB3C 2024 PhD Student Paper Competition First Prize Winner
- 2023 Majee, S.* , Sahni, A.* , McIntyre, E.E., Pal, J.D., and **Mukherjee, D.#** In Silico Investigation On Stroke Risks From Left Ventricular Assist Device. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Vail, Colorado. June 2023.
- Roopnarinesingh, R.* , Jani, N.D., Leppert, M., and **Mukherjee, D.#** Quantification Of Embolus Transport To The Brain From Carotid Stenosis Sites. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Vail, Colorado. June 2023.
- Teeraratkul, C.* , Stalker, T.J., Tomaiuolo, M., and **Mukherjee, D.#** Image Driven Simulation Of Hemodynamics Around A Dynamic Clot In Vivo. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Vail, Colorado. June 2023.
- Jenkins, T.D., Santo, B.A., Ciecierska, S.K., Patel, T.R., **Mukherjee, D.**, Siddiqui, A.H., and Tutino, V.M. The Association Between Clot Presentation On CT, Biological Composition, And Material Properties: Implications For Pre-treatment Imaging Biomarkers. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Vail, Colorado. June 2023.
- Sahni, A.* , McIntyre, E., Pal, J.D., and **Mukherjee, D.#** Stroke Risk Quantification For Patients With A Left Ventricular Assist Device. *Stroke*. 54: Suppl_1: AWP228. Abstract published for the 2023 American Heart Association International Stroke Conference. 2023.
- 2022 Shorofsky, M.J., **Mukherjee, D.**, Cao, K.* , Morgan, G.J., and Zablah, J.E. Feasibility Of Performing Computational Fluid Dynamic Assessment Of A Patient With Congenital Heart Disease From 3D Rotational Angiography. In: *Proceedings of CSI Frankfurt Congress 2022*. *Journal of Echocardiography*. 39:859-876. 2022.
- Roopnarinesingh, R.* , and **Mukherjee, D.#** In Silico Investigation Of Contralateral Embolic Stroke Risks From Carotid Artery Disease. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Eastern Shore, Maryland. June 2022.
- Andrews, S.* , Trivedi, P., and **Mukherjee, D.#** An Iterative Approach To Assign Tumor-Specific Flow Boundary Conditions For Liver Cancer Using Multi-Modal Image Analysis. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Eastern Shore, Maryland. June 2022.
*SB3C 2022 MS Student Paper Competition Finalist
- 2021 Sahni, A.* , Pal, J., and **Mukherjee, D.#** Assessing The Hemodynamic Influence Of Pulse Flow Modulation For Left Ventricular Assist Devices. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Vail, Colorado. June 2021. (held online).
*SB3C 2021 MS Student Paper Competition First Prize Winner
- Zemlicka, A.* , Beiter, A.* , Trivedi, P., and **Mukherjee, D.#** In Silico Modeling Of Embolic Particle Drug Delivery For Liver Cancer. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference*, Vail, Colorado. June 2021. (held online).
*SB3C 2021 BS Student Paper Competition Second Prize Winner

Research Publications (continued)

- 2020 ■ Teeraratkul, C.* and **Mukherjee, D.**# Parallel Implementation Of A Hybrid Particle–continuum Finite Element Framework For Blood Clot Biomechanics. In: *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis. ACM-SC20. November 2020.*
- Khadangale, S.B.*, Hajebrahimi, S., Ferguson, V.L., Lynch, M.E., and **Mukherjee, D.**# Fluid-Structure Interaction Framework For Fluid Flow Through The Bone Lacunar–Canalicular System With Morphological Variations. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference, Vail, Colorado. June 2020.*
- 2017 ■ **Mukherjee, D.**#, and Shadden, S.C. Fictitious Domain Particle–Based Modeling For Thrombosis. In: *Proceedings of the Summer Biomechanics, Bioengineering, and Biotransport Conference, Tucson, Arizona. June 2017.*
- **Mukherjee, D.**#, Jani, N.D., and Shadden, S.C. Discrete Particle Modeling For Thrombotic And Embolic Phenomena In Arteries. In: *Proceedings of the 5th International Conference on Computational and Mathematical Biomedical Engineering, Pittsburgh, Pennsylvania. April 2017.*
- 2016 ■ **Mukherjee, D.**#, and Shadden, S.C. Towards Non-invasive, Computational Modeling Of The Transport Of Thrombo–Emboli And Athero–Emboli Along Arteries. In: *Proceedings of the Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, Maryland. June 2016.*
- 2015 ■ **Mukherjee, D.**#, and Shadden, S.C. Insights Into The Hemodynamic Factors Affecting Embolus Transport For Stroke. In: *Proceedings of the Summer Biomechanics, Bioengineering and Biotransport Conference, Snowbird, Utah. June 2015.*
- 2013 ■ **Mukherjee, D.**#, and Zohdi, T.I. Computer Modeling and Simulation Framework for Particulate Spray Based Manufacturing Processes. In: *Proceedings of the ASME International Mechanical Engineering Congress & Exposition, San Diego, California. November 2013.*
- 2010 ■ **Mukherjee, D.**#, and Mansour, A.E. Preliminary Concept and Feasibility Studies on Ocean Energy Device Design from Used Ships. In: *Proceedings of the 29th International Conference on Ocean & Offshore, and Arctic Engineering, Shanghai, China. June 2010.*
- *Recipient of the OMAE 2010 Conference Best Paper Award.*

Articles In Preparation

- Roopnarinesingh, R.*, Jani, N.D., Leppert, M., and **Mukherjee, D.**# Quantification Of Flow And Mixing At Carotid Artery Disease Sites Within The Heart–To–Brain Arterial Network. (*manuscript in preparation, Journal: Physical Review Fluids*).
- Malloy, J.S.*, Majee, S.*, Sahni, A.*, Roopnarinesingh, R.*, Balu, A., Krishnamurthy, A., and **Mukherjee, D.**# Lagrangian Flow Analysis Using Implicit Geometry Representation For Biomedical Applications. (*manuscript in preparation, Journal: International Journal for Numerical Methods in Biomedical Engineering*).

Other Published Contributions

- **Mukherjee, D.**, Lynch, M.E., and Ghosh, S. “Proceedings: MechBio Symposium 2024: Enabling Convergence Across Techniques And Scales.” Open Science Framework, 22 Dec. 2024. doi:10.17605/OSF.I0/84GEK.
- **Mukherjee, D.**, and Lai, V. Education in Biomechanics and Bioengineering Ever Evolving, Ever Learning. *Journal of Biomechanical Engineering*. 146(5). 2024. *Guest editorial for special edition on education in biomechanics.*

Presentations

Conference Presentations

DM in **bold**; *denotes DM trainees.

- 2026 ■ Holmes, J.*, and **Mukherjee, D.** A Mesoscopic Particle–Continuum Method For Studying Physiologic Clot–Flow Interactions. *The 2026 United States Association for Computational Mechanics (USACM) Student Chapter Poster Competition. Virtual. April 2026. (submitted).*

Presentations (continued)

- Rovito, N.*, and **Mukherjee, D.** Cerebrovascular Network And Flow Effects In Thrombolytic Therapy For Stroke. *The 2026 United States Association for Computational Mechanics (USACM) Student Chapter Poster Competition. Virtual.* April 2026. (submitted).
- Rovito, N.*, Holmes, J.*, and **Mukherjee, D.** The FLATiron Toolkit: A Versatile Open-source Modeling Framework For Flow And Transport Phenomena. *17th World Congress on Computational Mechanics, Munich, Germany.* July 2026. (submitted).
- Roopnarinesingh, R.*, and **Mukherjee, D.** Multi-modal Data Integration With In Silico Models For Digital Twin Frameworks With Applications In Stroke. *17th World Congress on Computational Mechanics, Munich, Germany.* July 2026. (submitted).
- **Mukherjee, D.**, Teeraratkul, C.*, Tomaiuolo, M., Stalker, T. Computational Modeling Of Blood Clots As Soft Heterogeneous Structures Immersed In Flow. *Engineering Mechanics Institute Conference 2026, Boulder, Colorado.* June 2026. (submitted).
- 2025 ■ **Mukherjee, D.** Strategies For Leveraging Generative AI To Deliver Interactive Learning Experience In The STEM Classroom. *78th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Houston, Texas.* November 2025.
- Malloy, J.S.*, and **Mukherjee, D.** Non-linear Dynamics Of Emboli Transport In Arterial Flows With Applications To Left Ventricular Assist Devices. *10th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2025.
- Ashrafee, A.*, Tucker, A.*, Pulijala, M.*, and **Mukherjee, D.** Benchtop Modeling Of Cerebrovascular Flow Networks And Cerebral Collateral Circulation Pathways. *10th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2025.
- Rovito, N.*, Holmes, J.*, and **Mukherjee, D.** FLATiron: A Hierarchical, Modular, Finite Element Library For Flow Physics And Transport Phenomena. *10th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2025.
- Rovito, N.*, and **Mukherjee, D.** A Computational Multiphysics Framework For Patient-Specific Thrombolysis Modeling. *18th United States National Congress on Computational Mechanics, Chicago, Illinois.* July 2025.
- Teeraratkul, C.*, and **Mukherjee, D.** An Immersed Domain Coupling Method For Fluid Particle Interactions With Applications In Stroke And Thrombosis. *18th United States National Congress on Computational Mechanics, Chicago, Illinois.* July 2025.
- Laroche, A., Rovito, N.*, Liu, A., Allaey, I., Campbell, R., Adeoye, O., **Mukherjee, D.**, Boilard, E., and Denorme, F. Mechanistic Insights Into Detrimental VWF Activation During Stroke. *The 2026 Annual Congress of The International Society on Thrombosis and Haemostasis, Washington D.C.* June 2025.
- Tucker, A.*, and **Mukherjee, D.** In Vitro Model Of The Human Circle Of Willis To Investigate Drug Delivery In The Brain. *National Conference On Undergraduate Research (NCUR), Pittsburgh, Pennsylvania.* April 2025.
- 2024 ■ Roopnarinesingh, R.*, Majee, S.*, Rinkel, L., Coutinho, J., Cao, K.*, and **Mukherjee, D.** A Pipeline For Deriving Computational Fluid Models Of The Heart-to-brain Pathway From Standard-of-care Clinical Workup For Stroke. *77th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, Utah.* November 2024.
- Teeraratkul, C.*, and **Mukherjee, D.** A Two-Way Coupled Fluid Structure Interaction Framework For Immersed Soft Porous Media. *77th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, Utah.* November 2024.
- Gregory, J.*, Teeraratkul, C.*, Stalker, T.J., Tomaiuolo, M., and **Mukherjee, D.** Quantifying Blood Clot Biomechanics With Integrated CFD And Intravital Imaging. *77th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, Utah.* November 2024.
- Teeraratkul, C.*, and **Mukherjee, D.** Mesoscale Models Of Platelet-driven Clot Contraction Biomechanics. *MechBio Symposium 2024: Enabling Convergence Across Techniques And Scales, Boulder, Colorado.* August 2024.
- *Winner of Conference Poster Award and selected as a Scientific Brief presentation.*
- Gregory, J.*, Teeraratkul, C.*, Tomaiuolo, M., Stalker, T.J., and **Mukherjee, D.** In Silico Modeling Of Clot Mechanical Response To Hemodynamics Forces. *MechBio Symposium 2024: Enabling Convergence Across Techniques And Scales, Boulder, Colorado.* August 2024.

Presentations (continued)

- Gregory, J.*, Teeraratkul, C.*, Stalker, T.J., Tomaiuolo, M., and **Mukherjee, D.** Recreating In Vivo Unsteady Blood Clot Flow Dynamics Via An Imaging-informed In Silico Model. *9th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2024.
- Rovito, N.*, and **Mukherjee, D.** An In Silico Model Of Flow-mediated Fibrinolysis In Acute Ischemic Stroke. *9th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2024.
- Teeraratkul, C.*, and **Mukherjee, D.** A Two-Way Coupling Framework For Immersed Heterogeneous Structures in Flow with Applications in Vascular Systems. *16th World Congress on Computational Mechanics, Vancouver, Canada.* July 2024.
- Roopnarinesingh, R.*, Jani, N., Leppert, M., and **Mukherjee, D.** A Lagrangian Computational Methodology For Assessing Mixing In Hemodynamic Flows With Application In Carotid Atherosclerosis. *16th World Congress on Computational Mechanics, Vancouver, Canada.* July 2024.
- 2023 ■ Teeraratkul, C.*, Tomaiuolo, M., Stalker, T.J., and **Mukherjee, D.** Edge Stabilized Finite Element Method For Mass Transport Within And Around An Immersed Porous Media. *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC.* November 2023.
- Chetia, T.*, Chauhan, A.*, Puhr, T.*, and **Mukherjee, D.** Feasibility Study Of Investigating Soft Embolic Particle Transport Using An In Vitro Benchtop Flow Loop Model. *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC.* November 2023.
- Majee, S.*, Sahni, A.*, Pal, J., McIntyre, E., and **Mukherjee, D.** In-silico Hemodynamics Simulations To Investigate Stroke Outcomes In Patients After Left Ventricular Assist Device Implantation. *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC.* November 2023.
- Chauhan, A.*, Samal, S.*, Hertzberg, J.R., and **Mukherjee, D.** Development And Feasibility Analysis Of An Idealized Benchtop Model To Characterize Cerebral Flow Pathways. *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC.* November 2023.
- Roopnarinesingh, R.*, Leppert, M., Jani, N., and **Mukherjee, D.** Embolus Transport And Distribution In The Brain In The Presence Of Contralateral Carotid Occlusion. *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington, DC.* November 2023.
- Teeraratkul, C.*, and **Mukherjee, D.** Discrete Particle Modeling Of Blood Clot Mechanics Under Contraction. *VIII International Conference on Particle-Based Methods. Milan, Italy.* October 2023.
- Majee, S.*, Sahni, A.*, Roopnarinesingh, R.*, Balu, A., Krishnamurthy, A., and **Mukherjee, D.** Distance Field-Based Algorithms for Particle Contact Modeling in Physiological Flows. *17th United States National Congress On Computational Mechanics, Albuquerque, New Mexico.* July 2023.
- Teeraratkul, C.*, Tomaiuolo, M., Stalker, T.J., and **Mukherjee, D.** Image Driven Simulation Methodology For In-Vivo Blood Clot-Hemodynamic Interaction. *17th United States National Congress On Computational Mechanics, Albuquerque, New Mexico.* July 2023.
- 2022 ■ Teeraratkul, C.*, Stalker, T.J., Tomaiuolo, M., and **Mukherjee, D.** Intravital Microscopy To Continuum In Silico Simulation Of Flow-mediated Transport In Blood Clot Neighborhoods. *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana.* November 2022.
- Puhr, T.*, Chauhan, A.*, McDonnell, P., Jayaram, K., Bottenus, N., and **Mukherjee, D.** Understanding Particle Transport In Human Vascular Network Using In Vitro Benchtop Flow Modeling. *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana.* November 2022.
- Andrews, S.*, Trivedi, P., and **Mukherjee, D.** Preferential Flow Into Liver Tumors Based On Multimodal Image Analysis For Pre-treatment Planning Of Radioembolization Therapy. *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana.* November 2022.
- Andrews, S.*, Trivedi, P., and **Mukherjee, D.** An In Silico Case Study On Patient-Specific Hemodynamics During Transarterial Radioembolization Of Liver Cancer. *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana.* November 2022.
- Roopnarinesingh, R.*, Leppert, M.H., and **Mukherjee, D.** Parametric Investigations On Stroke Risks From Carotid Artery Disease. *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana.* November 2022.

Presentations (continued)

- Cao, K.* , Zablah, J., Shorofsky, M., and **Mukherjee, D.** Integration Of Catheter Based Hemodynamic Data With 3D Rotational Angiography For Computational Hemodynamics Modeling Of Congenital Heart Disease. *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana.* November 2022.
- Teeraratkul, C.* , and **Mukherjee, D.** Parallel Implementation Of Efficient Cell Location Algorithm On Unstructured Mesh With Applications To Immersed Finite Element Methods. *2022 Rocky Mountain Advanced Computing Consortium High Performance Computing Symposium, Boulder, Colorado.* August 2022.
- Puhr, T.* , Chauhan, A.* , McDonnell, P., Jayaram, K., Bottenus, N., and **Mukherjee, D.** Designing A Benchtop Flow Loop For Investigating Particle Transport In Human Arterial Flows. *8th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2022.
- Majee, S.* , Sahni, A.* , Roopnarinesingh, R.* , Balu, A., Krishnamurthy, A., and **Mukherjee, D.** Distance Field Based Approach For Resolving Particle-Wall Interactions For Biomedical Flows. *8th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2022.
- Teeraratkul, C.* , Stalker, T.J., Tomaiuolo, M., and **Mukherjee, D.** Flow And Flow Mediated Transport In Dynamic Blood Clot Neighborhoods. *8th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2022.
- Andrews, S.* , Trivedi, P., and **Mukherjee, D.** Image Based In Silico Modeling Of Transarterial Radioembolization For Liver Cancer. *8th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2022.
- Cao, K.* , Zablah, J., Shorofsky, M., and **Mukherjee, D.** Computational Hemodynamics Using 3D Rotational Angiography Imaging. *8th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado.* August 2022.
- **Mukherjee, D.** In Silico Approaches Towards Understanding Thrombus Structure And Thrombus-hemodynamics Interactions. *Gordon Research Conference on Hemostasis, Waterville Valley, New Hampshire.* July 2022.
- Teeraratkul, C.* , and **Mukherjee, D.** Immersed Discrete Element Method With Applications In Embolus Transport. *15th World Congress On Computational Mechanics. Virtual.* July, 2022.
- Sahni, A.* , and **Mukherjee, D.** Cerebrovascular Accidents In Patients With A Left Ventricle Assist Device - The Role Of Quantitative In Silico Models. *Additional Ventures Speaker Series.* February 2022.
**Student Akshita Sahni selected and featured as an Early Career Lightning Round speaker.*
- 2021 ■ **Mukherjee, D.** Developing Hands-on Simulation Based Active Learning Modules For Teaching Fluid Flow Concepts. *74th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Phoenix, Arizona.* November 2021.
- Sahni, A.* , Pal, J., and **Mukherjee, D.** Hemodynamic Indicators Of Cerebrovascular Accidents In Patients Implanted With A Left Ventricular Assist Device. *74th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Phoenix, Arizona.* November 2021.
- Teeraratkul, C.* , and **Mukherjee, D.** Fluid-particle Interaction Using Immersed Finite Element Method With Applications In Arterial Flows. *74th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Phoenix, Arizona.* November 2021.
- Nast, L.* , and **Mukherjee, D.** Computational Modeling Of Flow-mediated Fibrin Degradation In Arterial Blood Clots During Thrombolysis. *74th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Phoenix, Arizona.* November 2021.
- Teeraratkul, C.* , Tomaiuolo, M., and **Mukherjee, D.** In Silico Exploration Of Driving Forces For Transport In Arterial Thrombus Neighborhood. *2021 Biomedical Engineering Society Annual Meeting.* October 2021.
- Teeraratkul, C.* , and **Mukherjee, D.** Two-way Coupled Fluid-particle Interaction Using Immersed Finite Element Method. *7th Annual Rocky Mountain Fluid Mechanics Research Symposium .* August 2021. *(held online).*
- Wadhwa, G.* , and **Mukherjee, D.** Flow-mediated Infection Transmission In A Dynamic Social Environment In Indoor Occupied Spaces. *7th Annual Rocky Mountain Fluid Mechanics Research Symposium.* August 2021. *(held online).*
- Wilson, J.* , Miller, S., and **Mukherjee, D.** An Euler-Lagrange Model Of The Transmission Of Respiratory Ejecta Carrying SARS-CoV-2 In Enclosed Spaces. *16th United States National Congress On Computational Mechanics.* July 2021. *(held online).*

Presentations (continued)

- Teeraratkul, C.*, and **Mukherjee, D.** Computational Model For Biochemical Transport In Large Arterial Thrombus Neighborhood. *16th United States National Congress On Computational Mechanics*. July 2021. (held online).
- Teeraratkul, C.*, and **Mukherjee, D.** Implementation of fluid-structure interactions for rigid body motion in FEniCS using immersed finite element method. *The FEniCS 2021 Conference*. March 2021. (held online).
- 2020 ■ **Mukherjee, D.** Devising Strategies For Online And Remote Teaching Of Computational Fluid Dynamics Concepts. *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*. November 2020. (held online)
- Sahni, A.*, Beiter, A.*, Pal, J., and **Mukherjee, D.** Assessing Hemodynamics In The Ascending Aorta Due To Surgical Anastomosis And Flow Modulation Of Left Ventricular Assist Device. *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*. November 2020. (held online)
- Pullutasig, B.*, and **Mukherjee, D.** Quantification Of Arterial Flow Using Planar Digital Subtraction Angiography Image Data With Applications To Hepatic Circulation. *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*. November 2020. (held online)
- Wilson, J.*, Miller, S., Clements, N., Steiner, C., and **Mukherjee, D.** A Coupled Lagrangian Model For Flow-mediated Transmission Of SARS-CoV-2 Through Respiratory Ejecta In A Skilled Nursing Facility. *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*. November 2020. (held online)
- Teeraratkul, C.*, and **Mukherjee, D.** Quantification Of The Hemodynamic Environment Around Large Arterial Blood Clots. *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*. November 2020. (held online)
- Wilson, J.*, Miller, S., Clements, N., Steiner, C., and **Mukherjee, D.** Flow Physics Informed Design Of A Negative Pressure Isolation Space For SARS-CoV-2 In A Skilled Nursing Facility. *CCTSI CU-CSU Summit VIII: Covid-19 and the Colorado Research Environment*. August 2020 (held online).
**Contribution featured as a summit lightning talk*
- Sahni, A.*, Beiter, A.*, and **Mukherjee, D.** Variations In Aortic Hemodynamics Due To Surgical Anastomosis And Flow Modulation In Left Ventricle Assist Devices. *6th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado*. August 2020. (held online).
- Teeraratkul, C.*, and **Mukherjee, D.** Understanding Flow-mediated Transport In The Arterial Thrombus Neighborhood. *6th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado*. August 2020. (held online).
- Wilson, J.*, Miller, S., Clements, N., Steiner, C., and **Mukherjee, D.** Flow Physics Modeling For SARS-CoV-2 Negative Pressure Isolation Space In A Skilled Nursing Facility. *6th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado*. August 2020. (held online).
- Teeraratkul, C.*, Irwin, Z., and **Mukherjee, D.** Hemodynamic Phenomena At The Blood-Thrombus Interface - Implications For Thrombosis. *14th World Congress on Computational Mechanics, Paris, France*. July 2020. (modified virtual format presentation held January 2021 due to Covid-19).
- Teeraratkul, C.*, and **Mukherjee, D.** Parallel Implementation Of A Hybrid Particle-Continuum Finite Element Framework For Blood Clot Biomechanics. *10th Annual High Performance Computing Symposium, Rocky Mountain Advanced Computing Consortium, Boulder, Colorado*. May 2020.
**RMACC HPC Symposium 2020 Best Poster Award Winner*
- 2019 ■ **Mukherjee, D.** Computational Investigations On Flow-mediated Transport Processes At The Blood-thrombus Interface. *72nd Annual Meeting of the American Physical Society Division of fluid Dynamics, Seattle, Washington*. November 2019.
- **Mukherjee, D.** Developing A New CFD Course Based On Open Source Tools: Design Experience And Student Outcomes. *72nd Annual Meeting of the American Physical Society Division of fluid Dynamics, Seattle, Washington*. November 2019.
- Khadangale, S.*, Hajebrahimi, S., Lynch, M.E., and **Mukherjee, D.** Computational Analysis Of Interstitial Fluid Flow Through The Lacunar-canalicular System With Mophological Variations. *72nd Annual Meeting of the American Physical Society Division of fluid Dynamics, Seattle, Washington*. November 2019.

Presentations (continued)

- Kang, T., **Mukherjee, D.**, Kim, J.M., Park, K.Y., and Ryu, J. Computational Study Of Hemodynamic Nature In Patient-specific Cerebrovasculature With Lenticulostriate Artery Under ICA Stenosis Conditions. *72nd Annual Meeting of the American Physical Society Division of fluid Dynamics, Seattle, Washington*. November 2019.
- **Mukherjee, D.** Image-driven Particle-based Methods For Stroke And Thrombosis. *VI International Conference On Particle-based Methods. Fundamentals And Applications, Barcelona, Spain*. October, 2019.
- **Mukherjee, D.**, Jani, N.D., Narvid, J., and Shadden, S.C. Computational Investigations On Cerebral Vasculature Anatomy And Its Role In Embolic Stroke. *15th United States National Congress on Computational Mechanics, Austin, Texas*. July 2019.
- 2018 ■ **Mukherjee, D.**, Diamond, S.L., and Shadden, S.C. Towards Developing Hybrid Particle-continuum Frameworks For Thrombosis And Embolization Biomechanics In Large Arteries. *8th World Congress Of Biomechanics, Dublin, Ireland*. July 2018.
- **Mukherjee, D.**, and Shadden S.C. Hybrid Particle-continuum Computational Models For Thrombus Biomechanics. *13th World Congress On Computational Mechanics, New York City, New York*. July 2018.
- Pyne, J., **Mukherjee, D.**, Ryu, J., Narvid, J., and Shadden S.C. Computational Quantification Of Cerebrovascular Flow During A Trans-catheter Aortic Valve Implantation (TAVI) Procedure. *The Heart and Brain Symposium, Chicago, Illinois*. June 2018.
- **Mukherjee, D.**, and Shadden. S.C. The Role Of Hemodynamics In Organizing Transport In Thrombus Neighborhood. *2018 Cellular and Molecular Bioengineering Conference, Biomedical Engineering Society, Key Largo, Florida*. January 2018.
- 2017 ■ **Mukherjee, D.**, Garduno, J., and Shadden, S.C. Flow-mediated Transport Around A Macroscopic Arterial Thrombus. *70th Annual Meeting Of The American Physical Society Division Of Fluid Dynamics, Denver, Colorado*. November 2017.
- Pyne, J., **Mukherjee, D.**, Narvid, J., Bowen, M., Dehkhargani, S., and Shadden, S.C. Approximating Ischemic Stroke Location And Abnormal Tissue Regions Through Subtracting NCCT And CTA Scans. *14th Annual UCSF Imaging Research Symposium, San Francisco, California*. October 2017.
- **Mukherjee, D.**, and Shadden, S.C. Discrete Particle Techniques For Modeling Fragmentation Of Blood Clots. *14th United States National Congress On Computational Mechanics, Montreal, Canada*. July 2017.
- **Mukherjee, D.**, and Shadden, S.C. Particle-based Computational Techniques For Stroke And Thrombosis. *Berkeley/Stanford Computational Mechanics Festival (CompFest), Berkeley, California*. April 2017.
- 2016 ■ **Mukherjee, D.**, and Shadden, S.C. Fictitious Domain Based Models For Resolving Interaction Of A Clot With Blood Flow. *69th Annual Meeting Of The American Physical Society Division Of Fluid Dynamics, Portland, Oregon*. November 2016.
- Jani, N.D., **Mukherjee, D.**, and Shadden, S.C. Evaluating Blood Flow And Embolus Distribution In The Brain As A Function Of The Anatomy Of The Circle Of Willis. *69th Annual Meeting Of The American Physical Society Division Of Fluid Dynamics, Portland, Oregon*. November 2016.
- Jani, N.D., **Mukherjee, D.**, and Shadden S.C. Influence Of Variations In Circle Of Willis Anatomy On Cerebral Circulation & Embolus Distribution. *Annual Meeting Of The Biomedical Engineering Society, Minneapolis, Minnesota*. October 2016.
- **Mukherjee, D.**, and Shadden, S.C. Thrombus Hemodynamics Interactions: From Intra-Thrombus Transport To Macro-Scale Flow Structures. *Mechbio Symposium: Putting Together The Cell Mechanome, San Diego, California*. August 2016.
- **Mukherjee, D.**, and Shadden, S.C. Modeling Embolus Transport & Thrombus Interaction With Arterial Hemodynamics & Its Relevance To Improving Treatment Procedures. *5th International Conference on Engineering Frontiers In Pediatric & Congenital Heart Disease, Orlando, Florida*. June 2016.
**Recipient of the conference Best Poster Award*
- **Mukherjee, D.**, Jani, N.D., and Shadden, S.C. Characterizing Embolus Transport To The Circle Of Willis. *8th International Bio-Fluids Symposium, Pasadena, California*. February 2016.
- 2015 ■ **Mukherjee, D.**, Jani, N.D., and Shadden, S.C. Modeling And Simulation Of Cardiogenic Embolic Particle Transport To The Brain. *68th Annual Meeting Of The American Physical Society Division Of Fluid Dynamics, Boston, Massachusetts*. November 2015.

Presentations (continued)

- Casas, G., Mukherjee, D., Celigueta, M.A., Zohdi, T.I., and Onate, E. Large-Scale Grain Distribution Simulations With Rotating Machinery Using Efficient Discrete Element Models. *Particles 2015 - IV International Conference On Particle-Based Methods: Fundamentals And Applications, Barcelona, Spain*. September 2015.
- Mukherjee, D., and Shadden, S.C. Embolus Interactions With Blood Flow And Its Role In Stroke. *13th United States National Congress On Computational Mechanics, San Diego, California*. July 2015.
- 2014 ■ Mukherjee, D., and Shadden, S.C. A Patient-Specific CFD-Based Study Of Embolic Particle Transport For Stroke. *67th Annual Meeting Of The American Physical Society Division Of Fluid Dynamics, San Francisco, California*. November 2014.
- Mukherjee, D., Zaky, Z., Zohdi, T.I., Salama, A., and Sun, S. Investigation Of Noninvasive Healing Of Damaged Piping System Using Electro-Magneto-Mechanical Methods. *Society Of Petroleum Engineers International Oilfield Corrosion Conference & Exhibition, Aberdeen, United Kingdom*. May 2014.
**Recipient of the conference Best Poster Award*
- 2013 ■ Mukherjee, D., and Zohdi, T.I. Collision Driven Particle Dynamics Simulations For Analyzing Flows Of Particulate Sprays And Jets. *66th Annual Meeting Of The American Physical Society Division Of Fluid Dynamics, Pittsburgh, Pennsylvania*. November 2013.
- Mukherjee, D., and Zohdi, T.I. Electromagnetic Control Of Charged Particulate Spray Systems - Planning The Spray-Gun Operations. *SIAM Conference On Geometrical And Physical Modeling, Denver, Colorado*. November 2013.
- Mukherjee, D., and Zohdi, T.I. Discrete Particle Simulation For The Analysis Of Colliding And Flowing Particulate Media. *Berkeley/Stanford Computational Mechanics Festival (CompFest), Berkeley, California*. October 2013.
- Mukherjee, D., and Zohdi, T.I. Development Of A Computer Simulation Tool For Discrete Element Method And Collision Driven Particle Dynamics Simulations. *12th United States National Congress On Computational Mechanics, Raleigh, North Carolina*. July 2013.

Invited Presentations And Seminars

- 2025 ■ *Rogue Blood Clots In The Brain: Fundamental Mechanisms To Disease Implications*.
Invited seminar: Biomedical Engineering, Texas A & M University. October 2025.
- *Emergence Of Organized Behavior In Biofluids: Modeling And Implications*.
Invited seminar: Boulder Fluids and Thermal Sciences Seminar Series. October 2025.
- *Digital Twins For Stroke And Cerebrovascular Accidents: Challenges And Opportunities*.
Invited seminar: Translational AI Center, Iowa State University. September 2025.
- *Science Shorts: Digital Twins For Heart Failure*.
Invited talk: BioFrontiers Institute, University of Colorado Boulder. June 2025.
- *The Fluid Dynamics Of Stroke: Mechanisms, Etiology, And Treatment Implications*
Invited seminar: Department of Biomedical Engineering, Colorado State University, Fort Collins. April 2025.
- *The Biofluid Mechanics Of Vascular Occlusions: Theory, Computations, And Experiments*
Invited seminar: American Society of Mechanical Engineering (ASME) Bioengineering Division (BED) Fluids Technical Committee. March 2025.
- 2024 ■ *Mesoscale Replication Of Clot Contraction Phenomena*
Invited talk: Virtual Soft Cell series, University of Minnesota. December 2024.
- *Blood Clot And Blood Flow: How Can We See This Unseen Conversation?*
Invited seminar: Department of Mechanical Engineering, University of Louisville. August 2024.
- *Open Source Technology Integration For Active Learning*.
Invited talk: NSF funded Active Learning Symposium, University of Colorado Boulder. May 2024.
(co-presenter: Jeremy Koch).
- 2023 ■ *The Hemodynamic Underpinnings of Complications in Patients with an Operating Left Ventricular Assist Device*.
Invited seminar: College of Engineering, University of Colorado Denver. September 2023.
- *Computational Modeling Of Thrombosis: Perspectives on clot, flow, and stuff around it*.
Invited talk: Biorheology Scientific and Standardization Committee, International Society on Thrombosis and Haemostasis (ISTH) Congress. June 2023.

Presentations (continued)

- 2021
- *Investigations Into The Underlying Biomechanics Of Stroke.*
Invited talk: Anschutz Neurohospitalist Research Retreat, University of Colorado, Anschutz Medical Campus. August 2021.
 - *An Introduction To Particles In Cardiovascular Modeling.*
Invited lecture: Department of Mechanical Engineering, Iowa State University. May 2021.
 - *Flow-mediated Transport Phenomena In And Around Arterial Blood Clots.*
Invited seminar: Department of Chemical Engineering, University of Utah, Salt Lake City. March 2021.
 - *Looking Into Stroke And Thrombosis From A Flow Physics Perspective.*
Invited seminar: Department of Mechanical and Aerospace Engineering, University of California, San Diego. March 2021.
- 2020
- *Unraveling The Role Of Fluid Flow In Stroke And Thrombosis.*
Invited seminar: Mechanical Engineering Seminar Series, Rice University, Houston. November 2020.
 - *In Silico Approaches For Patient-specific Investigations On Stroke And Embolisms.*
Invited talk: Stroke/NH Didactics, Department of Neurology, University of Colorado School of Medicine, Anschutz Medical Campus. August 2020.
- 2019
- *Modeling Local Transport Processes In Arterial Blood Clots Using Particle Methods.*
Invited talk: "Vascular Biomechanics In Development And Disease" symposium in the Society of Engineering Science (SES) meeting, St. Louis. October 2019.
 - *In Silico We Trust! Noninvasive Insights On Physiological Systems Using Computational Platforms.*
'Faculty Show And Tell' research talk: BioFrontiers Institute, University of Colorado, Boulder. October 2019.
- 2018
- *Computational Investigations On Unravelling The Hemodynamic Underpinnings Of Cardiovascular Diseases.*
Invited seminar: Department of Mechanical Engineering, the University of Colorado Boulder. March 2018.
 - *Particles In Flow: Computational Insights Into The Rich Dynamics Of Particle Systems With Applications In Manufacturing And Biomechanics.*
Invited seminar: Department of Mechanical and Aerospace Engineering, the University at Buffalo. February 2018.
 - *Insights Into Developing Patient-specific Computational Fluid Dynamics Models For Cardiovascular Diseases.*
Invited seminar: Department of Mechanical Engineering, Villanova University. February 2018.
 - *Computational Investigations On The Hemodynamic Underpinnings Of Cardiovascular Diseases.*
Invited seminar: Department of Mechanical Engineering, University of Nevada, Reno. January 2018.
- 2017
- *Understanding Blood Flow And Flow Mediated Transport Around Arterial Blood Clots.*
Invited talk: Berkeley Fluids Seminar Series, U.C. Berkeley. October 2017.
 - *Discrete Particle Based Computational Techniques For Investigating The Role Of Hemodynamics In Stroke And Thrombosis.*
Invited seminar: Department of Mathematics, University of Houston. September 2017.
 - *Exploring The Hemodynamic Underpinnings Of Stroke, Thrombosis, And Embolisms.*
Invited seminar: Auburn University. September 2017.
 - *Hybrid Particle-continuum Modeling For Thrombosis And Embolism - An Overview.*
Invited talk: Diamond Lab, Institute for Medicine and Engineering, University of Pennsylvania. August 2017.
 - *Collective Dynamics And Flow Of Particle Systems: Applications In Industry And Healthcare.*
Invited seminar: Department of Mechanical Engineering, Stony Brook University. April 2017.
- 2016
- *Image-driven, Particle Based Computational Models For Thrombotic And Embolic Phenomena In Large Arteries.*
Invited seminar: Berkeley Fluids Seminar series, U.C. Berkeley. October 2016.
 - *Image-based Computational Modeling Of Thrombotic And Embolic Phenomena In Large Arteries.*
Invited talk: Medtronic Neurovascular, Irvine, California. June 2016.
- 2013
- *Discrete Particle Simulations For The Analysis Of Colliding And Flowing Particulate Media.*
Invited seminar: Berkeley Fluids Seminar series, U.C. Berkeley. October 2013.
 - *Discrete Element And Collision Driven Particle Dynamics Simulations For Manufacturing.*
Invited talk: Siemens Energy, Orlando, Florida. April 2013.

Presentations (continued)

- *The Story Of Sprays, Grains, And Computers - An Overview Of Probing Granular & Particulate Material Using Computer Simulations.*
Invited seminar: Department of Physics, Indian Institute of Science Education & Research, Bhopal, India. January 2013.

Software

- **FLATiron Toolkit:** Finite element library for flow physics and transport phenomena.
Role: Creator, developer, maintainer.
Link: <https://github.com/flowlabcu/FLATiron>
- **vSCAD:** Software for vascular geometry modeling for simulations and 3D printing.
Role: Creator, developer, maintainer.
Link: <https://github.com/flowlabcu/vSCAD>
- **Dataset: Transport and Distribution of Embolic Particles in Human Vasculature**
Role: Creator, developer, maintainer.
Link: <https://doi.org/10.17605/OSF.IO/CQKZT>
- **VCPrePost:** Open source package for facilitating particle-based modeling in biological flows.
Role: Creator, developer, maintainer.
Link: <https://gitlab.com/dbnbn/vcprepost-release>

Research Supervision

Principal Advisor: Post-doctoral Researchers - Ongoing

- None currently under Prof. Mukherjee's supervision.

Principal Advisor: Post-doctoral Researchers - Completed

- 2024 - 2025 ■ **Dr. Chayut Teeraratkul:** Mechanical Engineering, University of Colorado Boulder.
Position post-exit: Post-doctoral associate; David Geffen School of Medicine, UC Los Angeles.
- 2022 - 2024 ■ **Dr. Sreeparna Majee:** Mechanical Engineering, University of Colorado Boulder.
Position post-exit: TBD

Principal Advisor: Ph.D. - Completed

- 2019 - 2024 ■ **Chayut Teeraratkul:** Mechanical Engineering, University of Colorado Boulder.
Thesis: "*Development Of Data-Integrated Multiphysics In Silico Modeling Techniques For Blood Clot Mechanics And Clot-Flow Interactions.*"
Graduated: July 2024
Position post-graduation: Post-doctoral Associate, University of Colorado Boulder

Principal Advisor: Ph.D. - Ongoing

- 2026 - present ■ **Imtiaz Nahin Ahmed:** Mechanical Engineering, University of Colorado Boulder.
Primary advisor: Alex Barker, CU Anschutz Medical Campus; DM serves as Mech. Eng. advisor.
- 2024 - present ■ **Scott Malloy:** Mechanical Engineering, University of Colorado Boulder.
- **Jessica Holmes:** Mechanical Engineering, University of Colorado Boulder.
- **Adiba Ashrafee:** Biomedical Engineering, University of Colorado Boulder.
- 2023 - present ■ **Nick Rovito:** Mechanical Engineering, University of Colorado Boulder.
- 2021 - present ■ **Ricardo Roopnarinesingh:** Mechanical Engineering, University of Colorado Boulder.

Research Supervision (continued)

Principal Advisor: M.S. Thesis - Completed

- 2024 - 2025 ■ **Joshua Gregory:** Mechanical Engineering, University of Colorado Boulder.
Thesis: *"On Applications Of Deep Learning To Improve Blood Clot Permeability Predictions."*
Graduated: August 2025.
Position post-graduation: Product Evaluations Engineer, BDC Laboratories.
- 2021 - 2022 ■ **Summer Andrews:** Mechanical Engineering, University of Colorado Boulder
Thesis: *"Image-Derived In Silico Modeling Of Transarterial Radioembolization For Patients With Hepatocellular Carcinoma."*
Graduated: December 2022
Position post-graduation: Mechanical Engineer, Custom Microwave.
- **Thomas Puhr:** Mechanical Engineering, University of Colorado Boulder
Thesis: *"In Vitro Benchtop Flow Loop For Investigating Embolic Particle Distribution."*
Graduated: December 2022
Position post-graduation: Mechanical Engineer Technician, Electra (clean iron company).
- 2020 - 2021 ■ **Joseph Wilson:** Mechanical Engineering, University of Colorado Boulder
Thesis: *"Computational Modeling of Viral Infection Transmission and Control in Indoor Spaces."*
Graduated: August 2021
Position post-graduation: Development engineer, TPI Composites.
- 2019 - 2021 ■ **Akshita Sahni:** Mechanical Engineering, University of Colorado Boulder
Thesis: *"Image-based In Silico Investigations For Hemodynamic Assessment In Patients With Left Ventricle Assist Devices."*
Graduated: December 2021
Position post-graduation: Research associate; University of Colorado Boulder.
- **Byron Pullutasig:** Mechanical Engineering, University of Colorado Boulder
Thesis: *"Dynamics Of Contrast Agent Injected Into Arterial Blood Flow."*
Graduated: May 2021
Position post-graduation: National Renewable Energy Laboratory.

Principal Advisor: M.S. Thesis - Ongoing

- None currently under Prof. Mukherjee's supervision.

Principal Advisor: M.S. - Completed

- 2020 - 2023 ■ **Lindsey Nast:** Mechanical Engineering, University of Colorado Boulder.
- 2022-2022 ■ **Katheryn Holter:** Biomedical Engineering, University of Colorado Boulder.
- 2019-2020 ■ **Shailesh B. Khadangale:** Mechanical Engineering, University of Colorado Boulder.
- **Zachariah Irwin:** Mechanical Engineering, University of Colorado Boulder.

Principal Advisor: M.S. - Ongoing

- None currently under Prof. Mukherjee's supervision.

Principal Advisor: Undergraduate

- 2026 - present ■ **Mateo Aguilera:** Biomedical Engineering, University of Colorado Boulder.
- 2025 - present ■ **Mahi Kathait:** Biomedical Engineering, University of Colorado Boulder.
- 2024 - present ■ **Madison Kuo:** Biomedical Engineering, University of Colorado Boulder.
- 2023 - present ■ **Alena Tucker:** Biomedical Engineering, University of Colorado Boulder.
- 2023 - 2025 ■ **Nihal Pandra:** Biomedical Engineering, University of Colorado Boulder.
- 2023 - 2024 ■ **Sarthak Samal:** Biomedical Engineering, University of Colorado Boulder.
- 2022 - 2024 ■ **Joshua Gregory:** Mechanical Engineering, University of Colorado Boulder.
- 2021 - 2024 ■ **Kelly Cao:** Biomedical Engineering, University of Colorado Boulder.
- **Argudit Chauhan:** Biomedical Engineering (pre-med), University of Colorado Boulder.
- 2020 - 2022 ■ **Andrew Beiter:** Mechanical Engineering, University of Colorado Boulder.

Research Supervision (continued)

- 2020 – 2021 **Autumn Marie Zemlicka:** Mechanical Engineering, University of Colorado Boulder.
- 2020 – 2020 **Andrea Chamorro:** Computer Science, University of Colorado Boulder.
- 2019 – 2020 **Colin Armstrong:** Mechanical Engineering, University of Colorado Boulder.
- Afnan Dean Al Haj:** Mechanical Engineering, University of Colorado Boulder.

Awards Won By Trainees

- 2026 **Jessica Holmes:** *Outstanding Teaching Assistant Award;*
Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- 2025 **Ricardo Roopnarinesingh:** *Thomas and Brenda Geers Graduate Fellowship Award;*
Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- Nick Rovito:** *Singh Graduate Fellowship Award;*
Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- Jessica Holmes:** *Kenneth Johnsen Graduate Student Of The Month, Fall 2025;*
Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- Nick Rovito:** *NSF GRFP Fellowship Award;*
National Science Foundation Graduate Research Fellowship Program.
- 2024 **Nick Rovito:** *Young Engineers Paper Competition First Prize Winner;*
Fluids Engineering Division (FED), American Society of Mechanical Engineers (ASME).
- Chayut Teeraratkul:** *Best Poster Award: Post-doctoral Trainee Competition;*
MechBio Symposium 2024; Boulder, Colorado.
- Chayut Teeraratkul:** *Best Paper Award: PhD Student Paper Competition;*
2024 Summer Biomechanics, Bioengineering, and Biotransport Conference.
- Nick Rovito:** *Outstanding Teaching Assistant Award;*
Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- Joshua Gregory:** *College of Engineering & Applied Science Research Award;*
University of Colorado Boulder.
- Argudit Chauhan:** *College of Engineering & Applied Science Academic Engagement Award;*
University of Colorado Boulder.
- Kelly Cao:** *College of Engineering & Applied Science Research Award;*
University of Colorado Boulder.
- 2023 **Chayut Teeraratkul:** *Thomas and Brenda Geers Graduate Fellowship Award;*
Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- 2022 **Joseph Wilson:** *David T. Spalding Graduate Teaching Fund Fellowship Award;*
University of Colorado Boulder.
- 2021 **Lindsey Nast:** *NSF GRFP Honorable Mention;*
National Science Foundation Graduate Research Fellowship Program.
- Akshita Sahni:** *Best Paper Award; MS Student Paper Competition;*
2021 Summer Biomechanics, Bioengineering, and Biotransport Conference.
- Autumn Zemlicka:** *Best Paper Award; BS Student Paper Competition;*
2021 Summer Biomechanics, Bioengineering, and Biotransport Conference.
- 2020 **Chayut Teeraratkul:** *Best Poster Award;*
2020 High Performance Computing Symposium, Rocky Mountain Advanced Computing Consortium.

Mentorship Roles Prior to Joining University of Colorado Boulder

- 2015–2018 **Supervisor and mentor:** undergraduate student researchers working on computational fluid dynamics in the brain; Mechanical Engineering; University of California, Berkeley.
- Anusree Oruganti
 - Abhinav Koppu
 - Aditya Aiyer
 - Neel D. Jani
 - Kartiga Selvagesan
 - Christopher Lee Weng

Research Supervision (continued)

- 2012–2013 **Capstone Mentor:** ‘Gas turbine blade thermo-mechanical design’ with Siemens Corporation; Fall 2012–Spring 2013; Department of Mechanical Engineering; University of California, Berkeley.

Teaching

Lecture-Based Courses

- 2026 **Computational Fluid Dynamics;** Level: *undergrad/grad*; Spring 2026.
- 2025 **Fluid Mechanics;** Level: *undergraduate*; Fall 2025.
Fluid Mechanics; Level: *undergraduate*; Spring 2025.
Computational Fluid Dynamics; Level: *undergrad/grad*; Spring 2025.
- 2024 **Fluid Mechanics in the Human Body;** Level: *undergrad/grad*; Spring 2024.
Computational Fluid Dynamics; Level: *undergrad/grad*; Spring 2024.
- 2023 **Fluid Mechanics;** Level: *undergraduate*; Fall 2023.
Computational Fluid Dynamics; Level: *undergrad/grad*; Spring 2023.
- 2022 **Fluid Mechanics;** Level: *undergraduate*; Fall 2022.
Fluid Mechanics in the Human Body; Level: *undergrad/grad*; Fall 2022.
Computational Fluid Dynamics; Level: *undergrad/grad*; Spring 2022.
- 2021 **Computational Fluid Dynamics;** Level: *undergrad/grad*; Spring 2021.
- 2020 **Macroscale Biofluid Mechanics;** Level: *undergrad/grad*; Fall 2020.
(developed brand new course from scratch).
Computational Fluid Dynamics; Level: *undergrad/grad*; Spring 2020.
- 2019 **Introduction to Fluid Dynamics;** Level: *graduate*; Fall 2019
(cross-listed with ASEN 5051: Fluid Mechanics; Aerospace Engineering Dept).
Computational Fluid Dynamics; Level: *undergrad/grad*; Spring 2019
(developed brand new course from scratch)

Graduate Independent Study Supervision

- 2026 **Callie Wynn:** Aerospace Engineering; Spring 2026.
Topic: *Gravitational Fluid Mechanics In The Human Body*.
- 2024 **Isabelle Eskay:** Biomedical Engineering; Spring 2024.
Topic: *Biochemical Transport in Complex Flows*.
- 2020 **Akshita Sahni:** Mechanical Engineering; Spring 2020.
Topic: *Image-based Modeling in Biomechanics*.

Undergraduate Independent Study Supervision

- 2025 **Adam Mokhmer:** Mechanical Engineering; Fall 2025
Topic: *Computational Exploration Of Dynamical Systems*.
- Mahi Kathait:** Biomedical Engineering; Fall 2025
Topic: *Biofluid Principles In Cerebral Circulation With Applications In Drug Delivery*.
- 2024 **Nihal Pandra:** Biomedical Engineering; Fall 2024
Topic: *Image-based Modeling in Biomechanics*.
- 2022 **Kelly Cao:** Biomedical Engineering; Fall 2022
Topic: *Image-based Fluid Mechanics*.
- 2019 **Afnan Dean Al Haj:** Mechanical Engineering; Spring 2019
Topic: *Fluid Particle Modeling Techniques with Applications in Stroke Biomechanics*.
- Zachariah Irwin:** Mechanical Engineering; Spring 2019
Topic: *Lagrangian Analysis Techniques for Complex Flows*.

Teaching (continued)

Guest Lectures

- 2024 **BMEN 1000: Spring 2024;** Biomedical Engineering; University of Colorado Boulder
Guest lecture titled: “*Fluid Flows in the Human Body: What, Why, How.*”
- 2023 **BME Graduate Seminars: Fall 2023;** Biomedical Engineering; University of Colorado Boulder
Guest seminar titled: “*Biofluids in Health and Disease: Exploring flow, transport, and forces with applications in the vascular system.*”
- BMEN 1000: Spring 2023;** Biomedical Engineering; University of Colorado Boulder
Guest lecture titled: “*Fluid Flows in the Human Body: What, Why, How.*”
- 2020 **MCEN 4228/5228-003: Fall 2020;** Mechanical Engineering; University of Colorado Boulder
Guest lecture titled “*Hemodynamic Phenomena in Microfluidic Systems: An Overview*”
- 2019 **MCEN 4133/5133: Spring 2019;** Mechanical Engineering; University of Colorado Boulder
Guest lecture titled “*The Biomechanics of Blood Clots*”

Prior to Joining University of Colorado Boulder

- 2014 **Instructor:** Bootcamp Summer Session on *Basics of MATLAB Programming* for students at the Transfer To Excellence Research Experience for Undergraduates (TTE REU) program; University of California, Berkeley.
- Guest Lecturer:** *Software Tools for Hemodynamics Modeling*; for graduate course titled Fluid Mechanics of Biological Systems; Spring 2014; Department of Mechanical Engineering; University of California, Berkeley.
- 2013 **Instructor and Co-organizer:** Freshman Energy Engineering Seminar Series; Fall 2013; College of Engineering; University of California, Berkeley.
- 2012 **Graduate Teaching Assistant:** Course: *Computational Design of Multi-functional Materials*; Level: Graduate; Spring 2012; Department of Mechanical Engineering; University of California, Berkeley.
- Graduate Teaching Assistant:** Course: *Graduate Introduction to Finite Element Analysis*; Level: Graduate; Fall 2012; Department of Mechanical Engineering; University of California, Berkeley.
- 2011 **Graduate Teaching Assistant:** Course: *Microprocessor Based Mechanical Systems*; Level: Undergraduate; Spring 2011; Department of Mechanical Engineering; University of California, Berkeley.
- 2010 **Graduate Teaching Assistant:** Course: *Measurement Systems for Mechatronics*; Level: Undergraduate; Spring 2010; Department of Mechanical Engineering; University of California, Berkeley.
- 2009 **Graduate Teaching Assistant:** Course: *Experimentation and Measurements*; Level: Undergraduate; Fall 2009; Department of Mechanical Engineering; University of California, Berkeley.
- Graduate Teaching Assistant:** Course: *Experimentation and Measurements*; Level: Undergraduate; Spring 2009; Department of Mechanical Engineering; University of California, Berkeley.
- 2008 **Graduate Teaching Assistant:** Course: *Experimentation and Measurements*; Level: Undergraduate; Fall 2008; Department of Mechanical Engineering; University of California, Berkeley.

Journal And Peer-Review Service

Journal Editorial Board

- 2023–2024 **Guest Editor:** *Special Issue on Education in Biomechanics; ASME Journal of Biomechanical Engineering.*
- 2020 – present **Editorial Board Member: Review Editor:** *Computational Physiology and Medicine*; speciality section of *Frontiers in Bioengineering and Biotechnology* and *Frontiers in Physiology.*

Proposal Reviews

- 2026 **European Research Council (ERC).**
- 2025 **University of Colorado Research and Innovation Office (RIO): Internal Competitions.**
- University of Colorado Research and Innovation Office (RIO) Seed Grant Program.**
- Austrian Science Fund (FWF).**
- 2024 **National Institutes of Health: *MABS Study Section.***

Journal And Peer-Review Service (continued)

- 2023
 - Translational Research Institute for Space Health (TRISH).
 - National Institutes of Health: *Selected as NIH Early Career Reviewer (ECR)*.
 - University of Colorado Anschutz–Boulder (AB) Nexus Program.
 - ORAU Ralph Power Junior Faculty Enhancement Award Program.
 - Colorado Clinical and Translational Sciences Institute Grant Program.
 - National Science Foundation.
- 2022
 - Colorado Clinical and Translational Sciences Institute Grant Program.
 - University of Colorado Anschutz–Boulder (AB) Nexus Program.
- 2021
 - ORAU Ralph Power Junior Faculty Enhancement Award Program.
 - Colorado Clinical and Translational Sciences Institute Grant Program.
 - University of Colorado Undergraduate Research Opportunities Program.
 - University of Colorado Anschutz–Boulder (AB) Nexus Program.
- 2019
 - University of Colorado Research and Innovation Office (RIO) Seed Grant Program.

Journal Peer-Reviews

- ongoing
 - Reviewer (current and completed) for the following international journals:
 - *Computational Mechanics; Journal of Computational Particle Mechanics; Journal of Biomechanical Engineering; Journal of Biomechanics; Cardiovascular Engineering and Technology; Biomechanics and Modeling in Mechanobiology; Annals of Biomedical Engineering; Computer Methods in Applied Mechanics and Engineering; Journal of Computational Physics; Engineering with Computers; International Journal for Numerical Methods in Biomedical Engineering; International Journal for Numerical Methods in Engineering; International Journal of Computational Fluid Dynamics; PLoS One; British Journal of Radiology; Current Opinion in Biomedical Engineering; Computer Modeling in Engineering and Science; Applied Mathematical Modeling; Journal of Neurovirology; Engineering Reports; AiChE Journal.*

Professional Service

Professional Societies

- 2025-present
 - **Co-chair:** American Society of Mechanical Engineering (ASME) Bioengineering Division (BED); Education Technical Committee.
 - **Vice-chair:** United States Association of Computational Mechanics; Biological Systems Technical Thrust Area.
 - **Member:** United States Association of Computational Mechanics; Education Sub-committee.
- 2021–2025
 - **Member at Large:** United States Association of Computational Mechanics; Biological Systems Technical Thrust Area.

Conferences and Workshops

- 2026
 - **Organizer:** *MechBio Symposium 2026*, an interdisciplinary thematic mechanobiology meeting at Boulder, Colorado. May 2026.
 - **Co-organizer:** *Minisymposium: Multiphysics and Data-driven Modeling for Cardiovascular Biomedicine* at the 17th World Congress on Computational Mechanics, Munich, Germany. July 2026. (*scheduled*).
- 2025
 - **Co-organizer:** *Minisymposium: Multiphysics and Data-driven Modeling for Cardiovascular Biomedicine* at the 18th United States National Congress on Computational Mechanics, Chicago, Illinois. July 2025.
 - **Session Chair:** The 2025 ASME SB3C Summer Bioengineering Conference, Santa Ana Pueblo, New Mexico. Track: *PhD Student Paper Competition: Biotransport and Modeling Systems*. June 2025.
 - **Organizing Committee: Information Chair:** The 2025 ASME SB3C Summer Bioengineering Conference at Santa Ana Pueblo, New Mexico. June 2025.

Professional Service (continued)

- 2024
- **Session Chair:** The 77th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, Utah; Session title: *Physiological Fluid Mechanics IV: Large Vessels*. November 2024.
 - **Organizer:** *MechBio Symposium 2024*, an interdisciplinary thematic mechanobiology meeting at Boulder, Colorado. August 2024.
 - **Co-organizer:** *Minisymposium: Multiphysics and Data-driven Modeling for Cardiovascular Biomedicine* at the 16th World Congress on Computational Mechanics and 4th Pan American Congress on Computational Mechanics, Vancouver, Canada. July 2024.
- 2023
- **Session Chair:** The 76th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Washington DC; Session title: *Biofluids: Large Vessels and Arteries III*. November 2023.
 - **Organizer:** *Invited Session: Particle Based Models for Biological and Biomedical Systems* at the VIII International Conference on Particle-Based Methods, Milan, Italy. October 2023.
 - **Session Chair:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), Vail, Colorado. Track: *PhD Student Paper Competition: Multiscale Biomechanics and Fluid Dynamics/Transport*. June 2023.
 - **Session Chair:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), Vail, Colorado. Track: *Thrombosis and Hemolysis*. June 2023.
 - **Review Committee Member:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), Vail, Colorado. June 2023.
 - **Co-organizer:** *Minisymposium: Multiphysics and Data-driven Modeling for Cardiovascular Biomedicine* at the 17th United States National Congress on Computational Mechanics (US-NCCM), Albuquerque, New Mexico. July 2022.
- 2022
- **Judge: Gallery of Fluid Mechanics:** The 75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana. November 2022.
 - **Session Chair:** The 75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, Indiana; Session title: *Cardiac and Cardiovascular Mechanics*. November 2022.
 - **Co-organizer:** *The 8th Annual Rocky Mountain Fluid Mechanics Research Symposium* at Boulder, Colorado. August 2022.
 - **Co-organizer:** *Minisymposium: Multiphysics and Data-driven Modeling for Cardiovascular Biomedicine* at the 15th World Congress on Computational Mechanics (WCCM), Japan (*held virtually*). July 2022.
 - **Judge:** Student Paper Competition: The Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Eastern Shore, Maryland. June 2022.
- 2021
- **Session chair:** The 74th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Phoenix, Arizona; Session title: *Biological fluid dynamics: Physiological Large Vessels I*. November 2021.
 - **Co-organizer:** *Workshop: Remote and Online Teaching of Biomechanics and Mechanobiology Concepts*; The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C). June 2021. (*held virtually*).
 - **Session Chair:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C); Track: *Advances in Biomedical Engineering Education*; June 2021. (*held virtually*).
 - **Co-organizer:** *Minisymposium: Multiphysics and Data-driven Modeling for Cardiovascular Biomedicine* at the 16th United States National Congress on Computational Mechanics (US-NCCM). (*held online*).
- 2020
- **Co-chair:** *Curated Virtual Poster Walk* Poster Session at the CCTSI CU-CSU Summit VIII: Covid-19 and the Colorado Research Environment. August 2020. (*held online*).
 - **Co-organizer:** *Minisymposium: Computational Multiphysics Modeling of Cardiovascular Systems* at the 14th World Congress on Computational Mechanics (WCCM). (*held online*).
 - **Review committee member:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C). June 2020. (*held online*).

Professional Service (continued)

- 2019 ■ **Co-organizer:** *Minisymposium: Computational Multiphysics Modeling of Cardiovascular Systems* at the 15th United States National Congress on Computational Mechanics (USNCCM), Austin, Texas.
- **Review committee member:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), Seven springs, Pennsylvania. June 2019.
- 2018 ■ **Co-organizer:** *Minisymposium: Computational Multiphysics Modeling of Cardiovascular Systems* at the 13th World Congress on Computational Mechanics (WCCM), New York City, New York.
- 2016 ■ **Co-organizer:** Inaugural edition of the AmeriMech mechanobiology symposium titled *Putting Together The Cell Mechanome: Finding The Pieces, Building The Puzzle*, August 2016, San Diego, California.
- 2013 ■ **Co-organizer:** *The Berkeley-Stanford Computational Mechanics Festival (CompFest)* workshop, October, 2013, Berkeley, California.

Professional Memberships

- American Heart Association
- American Physical Society
- United States Association for Computational Mechanics
- American Society of Mechanical Engineers

Specific Professional Development and Training

**Specific activities that required dedicated time/resources, and/or involved a selection process.*

- 2023 ■ **Faculty Success Program:** National Center for Faculty Development and Diversity.
- 2022 ■ **Scientific Communication Advances Research Excellence (SCOARE):** SciComm Mentoring Training Program.
- **Learning By Design Fall 2022 Cohort:** University of Colorado Active Learning Academy funded by the National Science Foundation.
- 2020 ■ **PI Academy:** Research development training through Research and Innovation Office University of Colorado Boulder.
- 2015 ■ **Training in pedagogy:** Selected for the *Intensive College Level Teaching* program organized by the Postdoc Teaching Opportunities Program (PTOP); University of California, Berkeley; October 2015. (20/73 applicants selected).
- 2013 ■ **Training in pedagogy:** Selected as an institute fellow for the *Summer Institute for Preparing Future Faculty* by the Graduate Division, University of California, Berkeley.

Faculty Service

- 2025-2026 ■ **Faculty Advocate:** K-12 Outreach; Department of Mechanical Engineering; University of Colorado Boulder.
- **Executive Committee:** Department of Mechanical Engineering; University of Colorado Boulder.
- **ME Course Hours and Enrollment (MECHE) Working Group:** Summer focus group on course and enrollment strategy and visioning; Department of Mechanical Engineering; University of Colorado Boulder.
- 2024-2025 ■ **Faculty Search Committee:** Computational engineering T/TT faculty search; Department of Mechanical Engineering; University of Colorado Boulder.
- 2023-2024 ■ **Faculty Lead:** Graduate Engineering Annual Research & Recruitment Symposium (GEARRS); Department of Mechanical Engineering; University of Colorado Boulder.
- 2022-2023 ■ **Faculty Co-Lead:** Graduate Engineering Annual Research & Recruitment Symposium (GEARRS); Department of Mechanical Engineering, University of Colorado Boulder.
- 2021-2022 ■ **Faculty Search Committee:** Fluids teaching faculty search; Department of Mechanical Engineering, University of Colorado Boulder.

Faculty Service (continued)

- 2020-2021 **Organizer:** *ME Distinguished Zoominar Series*, Department of Mechanical Engineering, University of Colorado Boulder.
- 2019-2020 **Faculty Lead:** Oral Preliminary Examination Committee; Fluid Mechanics; Department of Mechanical Engineering, University of Colorado Boulder.
Organizer: *Distinguished Seminar Series*, Department of Mechanical Engineering, University of Colorado Boulder.
- 2019-2025 **Graduate Committee:** Department of Mechanical Engineering, University of Colorado Boulder.
- 2018-2019 **Faculty Lead:** Oral Preliminary Examination Committee; Fluid Mechanics; Department of Mechanical Engineering, University of Colorado Boulder.

Student Service

Ph.D. Dissertation Committee

- 2025 **Morteza Garousi:** Mechanical & Aerospace Engineering, University of Colorado, Colorado Springs.
Advisor: Prof. Michael Calvisi; Defense: November 2025.
Title: *Hybrid Immersed Boundary-Lattice Boltzmann Simulations Of Encapsulated Microbubbles For Biomedical Applications.*
- James Wright:** Aerospace Engineering, University of Colorado Boulder.
Advisor: Prof. Kenneth Jansen; Defense: May 2025.
Title: *Improving The Efficiency And Performance Of Scale-Resolving Simulations Using Stabilized Continuous-Galerkin Finite Elements.*
- Nils Wunsch:** Aerospace Engineering, University of Colorado Boulder.
Advisor: Prof. Kurt Maute; Defense: March 2025.
Title: *An Adaptive Enriched Immersogeometric Analysis Framework For Multi-material Problems.*
- Jennifer Miklaszewski:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Peter Hamlington; Defense: January 2025.
Title: *Machine Learning Driven Optimization Of Complex Turbulent Flows.*
- 2024 **Zachariah Irwin:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Richard Regueiro; Defense: October 2024.
Title: *A Multiphase Continuum Mechanics Model For Shock Loading Of Soft Porous Materials.*
- 2023 **Lawrence Smith:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Robert MacCurdy; Defense: July 2023.
Title: *Stretching the Boundary: Computational Design and Fabrication of Soft Systems.*
- Jake Castellini:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Wangda Zuo; Defense: May 2023.
Title: *Moving Beyond Well Mixed Rooms: Developing Stochastic Surrogate Models To Predict In-Room Spatiotemporal Uncertainty In Airborne Contaminant Transport.*
- DeAnna Sewell Gilchrist:** Aerospace Engineering, University of Colorado Boulder.
Advisor: Prof. John Evans; Defense: May 2023.
Title: *Conservative and Free Stream Preserving Stabilized Finite Element Methods For Compressible Flow On Deforming Domains.*
- 2022 **Julia Marilyn Hartig:** Chemical and Biological Engineering, University of Colorado Boulder.
Advisor: Prof. Alan W. Weimer; Defense: July, 2022.
Title: *Characterization Of Continuous Spatial Particle Atomic Layer Deposition.*
- Michael Meehan:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Peter Hamlington; Defense: May, 2022.
Title: *The Near-field Dynamics Of Buoyant Helium Plumes.*
- 2021 **Julian Quick:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Peter Hamlington; Defense: December, 2021.
Title: *Outer-loop Applications Of Computational Fluid Dynamics For Wind Energy Systems.*
- Corey W. Nelson:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. John A Evans; Defense: January, 2021.
Title: *Interactive Geometric Domain Iteration Of Massively Parallel CFD Simulations.*

Student Service (continued)

- 2020 **Caelan Lapointe:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Peter Hamlington; Defense: October, 2020.
Title: *Efficient Simulation Of Complex Fire Phenomena In OpenFOAM Using Adaptive Mesh Refinement.*
- Olga Doronina:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Peter Hamlington; Defense: August, 2020.
Title: *Turbulence Model Development Using Approximate Bayesian Computation.*
- Xu Han:** Civil, Environmental, and Architectural Engineering, University of Colorado Boulder.
Advisor: Prof. Wangda Zuo; Defense: August, 2020.
Title: *Holistic Optimization Of Data Center Cooling Systems And Airflow Management.*

M.S. Thesis Committee

- 2025 **Shrey Waghmare:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Nicole Labbe; Defense: May 2025.
- 2022 **Nicholas Barancyk:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Kyri Baker; Defense: November 2022.
- 2020 **Guoxiang (Grayson) Tong:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. John Evans; Defense: April 2020.
- 2019 **Samira Hajebrahimi:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Maureen E. Lynch; Defense: July 2019.
- Matthew Hanley:** Mechanical Engineering, University of Colorado Boulder.
Advisor: Prof. Shalom Ruben; Defense: May 2019.

Ph.D. Preliminary and Comprehensive Exam Committee

- 2025 **Shreya Venkatesh:** Mechanical Engineering; University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Maureen Lynch; Date: May 2025.
- Dhairya Agnihotry:** Mechanical Engineering; University of Colorado Boulder.
Preliminary Exam Committee; Advisor: Prof. John Pellegrino; Date: April 2025.
- Corey Lynn Murphy:** Computer Science, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Elizabeth Bradley; Date: April 2025.
- 2024 **Jennifer Miklaszewski:** Mechanical Engineering, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Peter Hamlington; Date: September 2024.
- 2023 **Corey Lynn Murphy:** Computer Science, University of Colorado Boulder.
Preliminary/Area Exam Committee; Advisor: Prof. Elizabeth Bradley; Date: December 2023.
- Jennifer Miklaszewski:** Mechanical Engineering, University of Colorado Boulder.
Preliminary Exam Committee; Advisor: Prof. Peter Hamlington; Date: June 2023.
- Shreya Venkatesh:** Mechanical Engineering, University of Colorado Boulder.
Preliminary Exam Committee; Advisor: Prof. Maureen Lynch; Date: May 2023.
- Samantha Friess:** Mechanical Engineering, University of Colorado Boulder.
Preliminary Exam Committee; Advisor: Prof. John Evans; Date: April 2023.
- Nils Wunsch:** Aerospace Engineering, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Kurt Maute; Date: April 2023.
- Lawrence Smith:** Mechanical Engineering, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Robert MacCurdy; Date: February 2023.
- 2022 **Jake Castellini:** Mechanical Engineering, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Wangda Zuo; Date: October 2022.
- DeAnna Sewell Gilchrist:** Aerospace Engineering, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. John Evans; Date: April 2022.
- Jake Castellini:** Mechanical Engineering, University of Colorado Boulder.
Preliminary Exam Committee; Advisor: Prof. Wangda Zuo; Date: February 2022.
- 2021 **Michael Meehan:** Mechanical Engineering, University of Colorado Boulder.
Comprehensive Exam Committee; Advisor: Prof. Peter Hamlington; Date: October 2021.

Student Service (continued)

- 2020
 - **Julia Marilyn Hartig** Chemical and Biological Engineering, University of Colorado Boulder. Comprehensive Exam Committee; Advisor: Prof. Alan Weimer; Date: May 2021.
 - **Julian Quick:** Mechanical Engineering, University of Colorado Boulder. Comprehensive Exam Committee; Advisor: Prof. Peter Hamlington; Date: April 2021.
 - **Lawrence Smith:** Mechanical Engineering, University of Colorado Boulder. Preliminary Exam Committee; Advisor: Prof. Robert MacCurdy; Date: September 2020.
 - **Corey W. Nelson:** Mechanical Engineering, University of Colorado Boulder. Comprehensive Exam Committee; Advisor: Prof. John Evans; Date: May 2020.
 - **Xu Han:** Civil, Environmental, and Architectural Engineering, University of Colorado Boulder. Comprehensive Exam Committee; Advisor: Prof. Wangda Zuo; Date: January 2020.
- 2019
 - **Jennifer Coulombe:** Interdisciplinary Quantitative Biology, University of Colorado Boulder. Preliminary Exam Committee; Advisor: Prof. Virginia Ferguson; Date: December 2019.
 - **Olga Doronina:** Mechanical Engineering, University of Colorado Boulder. Comprehensive Exam Committee; Advisor: Prof. Peter Hamlington; Date: December 2019.
 - **Caelan Lapointe:** Mechanical Engineering, University of Colorado Boulder. Comprehensive Exam Committee; Advisor: Prof. Peter Hamlington; Date: September 2019.
 - **Michael Meehan:** Mechanical Engineering, University of Colorado Boulder. Preliminary Exam Committee; Advisor: Prof. Peter Hamlington; Date: September 2019.

Outreach Activity

- 2025
 - **Faculty Mentor:** The APS DFD Connector Program, organized at the 78th Annual Meeting of the APS Division of Fluid Dynamics, Houston, Texas, USA.
 - **Mentor:** The 18th United States National Congress On Computational Mechanics (USNCCM18) Mentoring Program.
 - **High School Research Visitor Program:** Organized and mentored 1 high school student from Boulder County schools for a long term research exposure and training program.
 - **Panelist:** Invited panelist for the *Resilient Research Through Design* workshop for PhD students, Paul M Rady Department of Mechanical Engineering, University of Colorado Boulder.
- 2023
 - **High School Research Visitor Program:** Organized and mentored 3 high school students from Boulder County schools for a long term research exposure and training program.
 - **Mentor:** The APS-DFD Peer Mentoring Program, organized by the American Physical Society Division of Fluid Dynamics.
 - **Mentor: Undergraduate exchange program:** Mentoring two international undergraduate exchange students Guillermo Munoz Ovejero and Alvaro Carpio Chicote.
 - **Faculty Advisor:** University of Colorado Boulder Chapter of the American Association of Engineers of Indian Origin (*AAEIO Buffs*).
 - **Panelist:** Invited panelist for an international panel discussion hosted by *Women For STEM India (WFSI)*. November 2023.
- 2022
 - **Founding Faculty Advisor:** University of Colorado Boulder Chapter of the American Association of Engineers of Indian Origin (*AAEIO Buffs*).
 - **Panelist:** The Diversity Panel Discussion: hosted by the Committee for Equity in Mechanical Engineering, at the 8th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, Colorado. August 2022.
 - **Mentor:** *The Diversity Mentor-Mentee Program* at The Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Eastern Shore, Maryland. June 2022.
 - **Mentor:** The CU Science Discovery Program, University of Colorado Boulder (*mentored four high school students*). June 2022.
 - **Mentor: Undergraduate exchange program:** Mentoring two international undergraduate exchange students Guillermo Munoz Ovejero and Alvaro Carpio Chicote.

Outreach Activity (continued)

- 2021 **Panelist:** “*Sitting with BIPOC*” – panel discussion with students and faculty who identify as Black, Indigenous, and People of Color (BIPOC); Graduate Engineering Annual Research & Recruitment Symposium, February 2022.
- 2021 **Mentor:** The National Science Foundation S-STEM Program at University of Colorado Boulder.
- 2020 **Mentor:** The 2020 Mechanical Engineering Summer Program for Undergraduate Research (ME-SPUR) (*mentored two undergraduate researchers as part of this program*).
- Mentor:** The 2020 Ronald McNair Fellowship Program (*mentored one undergraduate student as part of this program over summer*).
- Diversity Panel Moderator:** *Diversity and Inclusion in the Fluid Mechanics Community*. The 6th Annual Rocky Mountain Fluid Mechanics Research Symposium, Boulder, CO, August 2020.
- 2019 **Mentor:** The CU Science Discovery Program, University of Colorado Boulder (*mentored two high school students*).

Prior to Joining University of Colorado Boulder

- 2017 **Mentor:** *Transfer To Excellence Research Experience For Undergraduates (TTE-REU)* – mentored undergraduate exchange student Jocelyn Garduno.
- Mentor:** *New York Academy of Sciences STEM Scholar Mentorship Program* – aimed at high-school STEM students from across the world.
- 2016 **Mentor:** *Berkeley Engineering Research Experience For Teachers (BE-RET)* – mentored two K-12 educators as part of this program:
 - **Suzanne LeBaron:** science educator from Oakland High School District.
 - **Russell Bierle:** pre-service teacher from the CalTeach program at Berkeley.
- 2015 **Mentor:** *Transfer To Excellence Research Experience For Undergraduates (TTE-REU)* – mentored undergraduate exchange student Tiffany Pan.
- Volunteer:** *Biomechanical Engineering in Healthcare* – an outreach event for middle school students organized through the Johns Hopkins Center for Talented Youth (JHU-CTY).
- 2014 **Mentor:** *Transfer To Excellence Research Experience For Undergraduates (TTE-REU)* – mentored undergraduate exchange student Jose Padilla.
- 2012 **Workshop Organizer:** *Discipline Cluster Workshop* for teaching conference aimed at training and mentoring first time graduate teaching assistants; GSI Teaching and Resource Center; University of California, Berkeley.
- 2010 **Math Instructor:** *Pre-Collegiate Academy, Incentive Awards Program*, University of California, Berkeley – developed and taught a complete six-week course on calculus for this preparatory program for high-performing high school students from underserved communities.