

# Debanjan Mukherjee, Ph.D.

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📍 ECME 275, Engineering Center  
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## 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.
- 1998 – 2001    **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

- 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 2020 Trailblazer Award** for new and early stage investigators.  
**Oak Ridge Associated Universities (ORAU) 2020 Ralph E. Powe Junior Faculty Enhancement Award.**
- 2019    **University of Colorado Boulder Mechanical Engineering Outstanding Graduate Educator Award 2019** for contributions towards developing a new computational fluid dynamics course.
- 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”.**  
**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.**  
**Outreach for Engineers Specialty Forum Scholarship by ASME-IPTI for the International Conference on Ocean & Offshore, and Arctic Engineering.**  
**Allen D. Wilson Memorial Scholarship by the Department of Mechanical Engineering, University of California, Berkeley.**  
**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)

## Professional Experience (continued)

- 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

- 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.* (accepted, in press).  
[author preprint: medRxiv: <https://doi.org/10.1101/2023.04.20.23288892>]
- Gutierrez, N.G.\*, **Mukherjee, D.\***, and Bark, D.\* Decoding Hemostasis and Thrombosis Through Code: A Computational Modeling Review. *Journal of Thrombosis and Haemostasis.* (accepted, in press).  
[\*Invited review: all authors contributed equally]
- 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.* (accepted, in press).  
[author preprint: medRxiv: <https://doi.org/10.1101/2022.07.12.22277566>]
- 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.  
[author preprint: medRxiv: <https://doi.org/10.1101/2022.06.17.22276555>]
- 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).
- **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.  
[author preprint: medRxiv: <https://doi.org/10.1101/2022.05.20.22275409>]
- 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.

## Research Publications (continued)

- 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.
- 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.  
[author preprint: medRxiv: 2021.08.22.21262447]
- 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.
- Teeraratkul, C.**, and **Mukherjee, D.** Microstructure Aware Modeling Of Biochemical Transport In Arterial Blood Clots. *Journal of Biomechanics*. 127:110692. 2021.  
[author preprint: bioRxiv 2021.01.25.428179]
- 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.
- 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.  
[author preprint: bioRxiv 2020.06.11.147488]
- Mukherjee, D.** Developing Effective Screencast Modules For Teaching Computational Techniques In Remote Modalities. *Biomedical Engineering Education* 1(2):307-311. 2021.
- 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.  
[author preprint: medRxiv 2020.07.04.20143123]
- 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.  
*\*selected as journal cover feature for August 2018 issue of Annals of Biomedical Engineering*  
[author preprint: bioRxiv-190579]
- 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.
- 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.
- 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.  
[\*Authors contributed equally]
- 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.
- 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.
- 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.
- 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.
- 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. *Journal of Society of Petroleum Engineers*. 20(4):872-883. 2015.

## Research Publications (continued)

- 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.

### Peer-Reviewed Journal Publications (Submitted)

- 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. (*submitted, under review*).  
[author preprint: medRxiv: <https://doi.org/10.1101/2023.08.03.23292572>]
- Teeraratkul, C, Tomaiuolo, M., Stalker, T.J., and **Mukherjee, D.** Investigating clot flow interactions by integrating intravital imaging with in silico modeling: flow, transport, and hemodynamic forces. (*submitted, under review*).  
[author preprint: bioRxiv: <https://doi.org/10.1101/2023.06.03.543557>]
- **Mukherjee, D.**, Lai, V., Huang, Z., and Singh, A. The BIORES-21 Survey: Insights Into Remote And Online Education In Biomechanics And Mechanobiology. (*submitted, under review*).

### Peer-Reviewed Proceedings

- 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*
- 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.*

## Research Publications (continued)

- 2017 ■ 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.*
- 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.** In Silico Investigation Of Embolus Transport Patterns In The Brain From Carotid Artery Stenosis. (*manuscript in preparation*)
- 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. (*manuscript in preparation*)
- Zablak, J.E., Shorofsky, M.J., Cao, K., and **Mukherjee, D.** Computational Fluid Dynamic Assessment Of Patients With Congenital Heart Disease From 3D Rotational Angiography Obtained In The Catheterization Laboratory. (*manuscript in preparation*).
- Majee, S., Sahni, A., Roopnarinesingh, R., Balu, A., Krishnamurthy, A., and **Mukherjee, D.** Accelerating Lagrangian Flow Analysis Using Distance Fields. (*manuscript in preparation*).

## Presentations

### Conference Presentations

- 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. (submitted).*
- Chetia, T., Chauhan, A., Pühr, 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. (submitted).*
- 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. (submitted).*
- 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. (submitted).*

## Presentations (continued)

- 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. (submitted).
- 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. (submitted).
- Majee, S., Sahni, A., Roopnarinesingh, R., Balu, A., Krishnamurthy, A., and **Mukherjee, D.** Distance Field-Based Algorithms for Particle Contact Modeling in Physiological Flows. *The 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. *The 17th United States National Congress On Computational Mechanics, Albuquerque, New Mexico.* July 2023.
- 2022 ■ Teeraratkul, C., Stalker, T.J., Tomiuolo, 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.
- 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. *The 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. *The 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. *The 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. *The 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. *The 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. *The 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.

## Presentations (continued)

- 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. *The 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. *The 16th United States National Congress On Computational Mechanics.* July 2021. *(held online).*
- Teeraratkul, C., and **Mukherjee, D.** Computational Model For Biochemical Transport In Large Arterial Thrombus Neighborhood. *The 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*

## Presentations (continued)

- Sahni, A., Beiter, A., and **Mukherjee, D.** Variations In Aortic Hemodynamics Due To Surgical Anastomosis And Flow Modulation In Left Ventricle Assist Devices. *The 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. *The 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. *The 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. *The 14'th 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. *The 10'th 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.
- 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. *The 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. *The 8'th World Congress Of Biomechanics, Dublin, Ireland.* July 2018.
- **Mukherjee, D.**, and Shadden S.C. Hybrid Particle-continuum Computational Models For Thrombus Biomechanics. *The 13'th 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. *70'th 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. *The 14th Annual UCSF Imaging Research Symposium, San Francisco, California.* October 2017.



## Presentations (continued)

- 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. *The 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. *The 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.
  - 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.
- 2014
- 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.
  - 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.

## Presentations (continued)

### Invited Presentations And Seminars

- 2023  *Computational Modeling Of Thrombosis: Perspectives on clot, flow, and stuff around it.* - invited talk at the Biorheology Scientific and Standardization Committee, International Society on Thrombosis and Hemostasis (ISTH) Congress, June 2023.
- 2021  *Investigations Into The Underlying Biomechanics Of Stroke.* - invited talk at the Anschutz Neurohospitalist Research Retreat, University of Colorado, Anschutz Medical Campus, August 2021.
-  *An Introduction To Particles In Cardiovascular Modeling.* - invited lecture, IDEALab (<https://web.me.iastate.edu/idealab/>), Department of Mechanical Engineering, Iowa State University, May 2021.
-  *Flow-mediated Transport Phenomena In And Around Arterial Blood Clots.* - invited talk at the Department of Chemical Engineering, University of Utah, Salt Lake City, March 2021.
-  *Looking Into Stroke And Thrombosis From A Flow Physics Perspective.* - invited talk at the Fluid Mechanics, Combustion, and Engineering Physics Seminar Series, 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 talk at the Mechanical Engineering Seminar Series, Rice University, Houston, November 2020.
-  *In Silico Approaches For Patient-specific Investigations On Stroke And Embolisms.* - invited talk at the 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 at the "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 at the BioFrontiers Institute, University of Colorado, Boulder, October 2019.
- 2018  *Computational Investigations On Unravelling The Hemodynamic Underpinnings Of Cardiovascular Diseases.* - invited talk at the 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 talk at the 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 talk at the Department of Mechanical Engineering, Villanova University, February 2018.
-  *Computational Investigations On The Hemodynamic Underpinnings Of Cardiovascular Diseases.* - invited talk at the Department of Mechanical Engineering, University of Nevada, Reno, January 2018.
- 2017  *Understanding Blood Flow And Flow Mediated Transport Around Arterial Blood Clots.* - invited talk at the 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 talk at Department of Mathematics, University of Houston, September 2017.
-  *Exploring The Hemodynamic Underpinnings Of Stroke, Thrombosis, And Embolisms.* - invited talk at Auburn University, September 2017.
-  *Hybrid Particle-continuum Modeling For Thrombosis And Embolism - An Overview.* - invited talk at the 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 talk at the 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 talk at the Berkeley Fluids Seminar series, U.C. Berkeley, October 2016.
-  *Image-based Computational Modeling Of Thrombotic And Embolic Phenomena In Large Arteries.* - invited talk at Medtronic Neurovascular, Irvine, California, June 2016.
- 2013  *Discrete Particle Simulations For The Analysis Of Colliding And Flowing Particulate Media.* - invited talk at the Berkeley Fluids Seminar series, U.C. Berkeley, October, 2013.

## Presentations (continued)

- *Discrete Element And Collision Driven Particle Dynamics Simulations For Manufacturing*. - invited talk at Siemens Energy, Orlando, Florida, April, 2013.
- *The Story Of Sprays, Grains, And Computers - An Overview Of Probing Granular & Particulate Material Using Computer Simulations*. - invited talk at the Department of Physics, Indian Institute of Science Education & Research, Bhopal, India, January 2013.

## Software

- **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/dbnjin/vcprepost-release>

## Research Funding

### Completed

- 2020 - 2021
- **University of Colorado Anschutz-Boulder (AB) Nexus**  
Title: *Stroke Risk Assessment For Improved Left Ventricle Assist Device Therapy In Heart Failure Patients*.  
Award Number: *AB Nexus Research Collaboration Grant*  
Award Amount: \$ 50,000.00
  - **Extreme Science and Engineering Discovery Environment (XSEDE)**  
Title: *Computational Methods For Investigating Blood Flow And Transport Within And Around Arterial Blood Clots*.  
Award Number: TG-MCB200188  
Award Amount: 50,000 core hours
  - **Oak Ridge Associated Universities**  
Title: *Benchtop Flow-loop System For Stroke*.  
Award Number: *Through Ralph Powe Junior Faculty enhancement Award*.  
Award Amount: \$ 10,000.00  
Note: *award amount includes matching funds from Paul M Rady Mechanical Engineering Department*.
- 2016-2017
- **American Heart Association**  
Title: *A Meso-scale Discrete Element Framework for Simulations of Thrombus Growth and Embolization*.  
Award Number: 16POST27500023  
Award Amount: \$ 90,000.00
  - **Burroughs Wellcome Fund**  
Title: *Large Artery Thrombosis: Unifying Microscale Experiments And Mesoscale Computations*.  
Award Number: 1016360  
Award Amount: \$ 5,240.00

### Ongoing

- 2023 - 2024
- **University of Colorado Research and Innovation Office (RIO) Seed Grant**  
Title: *Motion Of Ellipsoidal Microparticles In Physiological Flows*.  
Award Amount: \$ 49,985.00
- 2022 - 2023
- **NCATS and CCTSI Translational Methods Pilot Grant**  
Title: *Computational Fluid Dynamic Assessment Of Patients With Congenital Heart Disease From 3D Rotational Angiography Obtained In The Catheterization Laboratory*.  
Award Number: TM-T-22-122  
Award Amount: \$ 20,000.00

## Research Funding (continued)

- 2020 – 2023    **National Institutes of Health – NIBIB R21**  
Title: *In Silico Mapping of the Heart-Brain Embolus Transport Pathway for Stroke.*  
Award Number: R21EB029736  
Award Amount: \$ 584,301.00

## Research Supervision

### Principal Advisor: Post-doctoral Researchers

- 2022 – present    **Dr. Sreeparna Majee:** Mechanical Engineering, University of Colorado Boulder.

### Principal Advisor: Ph.D. – Ongoing

- 2023 – present    **Nicholas Rovito:** Mechanical Engineering, University of Colorado Boulder.  
2021 – present    **Ricardo Roopnarinesingh:** Mechanical Engineering, University of Colorado Boulder.  
2019 – present    **Chayut Teeraratkul:** Mechanical Engineering, University of Colorado Boulder.

### Principal Advisor: M.S. Thesis – Completed

- 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

- 2022 – present    **Tandree Chetia:** Mechanical Engineering, University of Colorado Boulder

### 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: Undergraduate

- 2023 – present    **Alena Tucker:** Biomedical Engineering, University of Colorado Boulder.  
                    **Sarthak Samal:** Biomedical Engineering, University of Colorado Boulder.

## Research Supervision (continued)

- 2022 – present    **Joshua Gregory:** Mechanical Engineering, University of Colorado Boulder.
- 2021 – present    **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.
- 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.

### \*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 Selvaganesan
  - Christopher Lee Weng

## Teaching

### Lecture-Based Courses

- 2023    **MCEN 3021: Fluid Mechanics;** Fall 2023 (*scheduled to teach*)
  - MCEN 4231/5231: Computational Fluid Dynamics;** Spring 2023
- 2022    **MCEN 3021: Fluid Mechanics;** Fall 2022
  - MCEN 4228/5228-019: Fluid Mechanics in the Human Body;** Fall 2022
  - MCEN 4228/5228-005: Computational Fluid Dynamics;** Spring 2022
- 2021    **MCEN 4228/5228-003: Computational Fluid Dynamics;** Spring 2021
- 2020    **MCEN 4228/5228-009: Macroscale Biofluid Mechanics;** Fall 2020 (*developed brand new course from scratch*).
  - MCEN 4228/5228-005: Computational Fluid Dynamics;** Spring 2020.
- 2019    **MCEN 5021: Introduction to Fluid Dynamics;** Fall 2019 (*cross-listed with ASEN 5051: Fluid Mechanics; Aerospace Engineering Dept.*).
  - MCEN 4228/5228-005: Computational Fluid Dynamics;** Spring 2019 (*developed brand new course from scratch*)

### Graduate Independent Study Supervision

- 2020    **Akshita Sahni:** Spring 2020.  
Topic: *Image-based Modeling in Biomechanics.*

### Undergraduate Independent Study Supervision

- 2022    **Kelly Cao:** Fall 2022  
Topic: *Image-based Fluid Mechanics.*
- 2019    **Afnan Dean Al Haj:** Spring 2019  
Topic: *Fluid Particle Modeling Techniques with Applications in Stroke Biomechanics.*
- Zachariah Irwin:** Spring 2019  
Topic: *Lagrangian Analysis Techniques for Complex Flows.*

## Teaching (continued)

### Guest Lectures

- 2023    **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

- \*2015    **Training and 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).
- \*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.
  - Training and pedagogy**: Selected as an institute fellow for the *Summer Institute for Preparing Future Faculty* by the Graduate Division, University of California, Berkeley.
  - Capstone Mentor**: Capstone project - ‘*Gas turbine blade thermo-mechanical design*’ with Siemens Corporation; Spring 2013; Department of Mechanical 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.
  - Capstone Mentor**: Capstone project - ‘*Gas turbine blade thermo-mechanical design*’ with Siemens Corporation; 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 Section 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

- 2023    **Review Panel**: University of Colorado Anschutz–Boulder (AB) Nexus Program.

## Journal And Peer-Review Service (continued)

- Review Panel: ORAU Ralph Power Junior Faculty Enhancement Award Program.
- Review Panel: Colorado Clinical and Translational Sciences Institute Grant Program.
- Review Panel: National Science Foundation.
- 2022 Review Panel: Colorado Clinical and Translational Sciences Institute Grant Program.
- Review Panel: University of Colorado Anschutz-Boulder (AB) Nexus Program.
- 2021 Review Panel: ORAU Ralph Power Junior Faculty Enhancement Award Program.
- Review Panel: Colorado Clinical and Translational Sciences Institute Grant Program.
- Review Panel: University of Colorado Undergraduate Research Opportunities Program.
- Review Panel: University of Colorado Anschutz-Boulder (AB) Nexus Program.
- 2019 Review Panel: 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

- 2021-present Member at Large: United States Association of Computational Mechanics; Biological Systems Technical Thrust Area.

### Conferences and Workshops

- 2023 Session Chair: The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), Vail, Colorado. Track: *PhD-Level 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 2023 United States National Congress on Computational Mechanics, Albuquerque, New Mexico. July 2022.

## Professional Service (continued)

- 2022
- **Judge: Gallery of Fluid Mechanics:** The 75th Annual Meeting of the APS Division of Fluid Dynamics. November 2022.
  - **Session Chair:** The 75th Annual Meeting of the APS Division of Fluid Dynamics; Session titled: *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 2022 World Congress on Computational Mechanics, Japan (*held virtually*). July 2022.
  - **Judge: Student Paper Competition:** The Summer Biomechanics, Bioengineering, and Bio-transport Conference (SB3C), Eastern Shore, Maryland. June 2022.
- 2021
- **Session chair:** The 74th Annual Meeting of the APS Division of Fluid Dynamics; Session titled: *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 2021 United States National Congress on Computational Mechanics. (*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 2020 World Congress on Computational Mechanics. (*held online*).
  - **Review committee member:** The Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C). June 2020. (*held online*).
- 2019
- **Co-organizer: Minisymposium: Computational Multiphysics Modeling of Cardiovascular Systems** at the 2019 United States National Congress on Computational Mechanics, 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 2018 United States National Congress on Computational Mechanics, 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
- International Society on Thrombosis and Haemostasis
- Biomedical Engineering Society



## Faculty Service

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- 2022-2023    **Graduate Committee:** Department of Mechanical Engineering, University of Colorado Boulder.
- 2021-2022    **Search Committee:** Fluids teaching faculty search, Department of Mechanical Engineering, University of Colorado Boulder.
- 2020-2021    **Graduate Committee:** Department of Mechanical Engineering, University of Colorado Boulder.
- 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.
- Graduate Committee:** Department of Mechanical Engineering, University of Colorado Boulder.
- Organizer:** *Distinguished Seminar Series*, Department of Mechanical Engineering, University of Colorado Boulder.
- 2018-2019    **Graduate Committee:** Department of Mechanical Engineering, University of Colorado Boulder.
- Faculty Lead:** Oral Preliminary Examination Committee; Fluid Mechanics; Department of Mechanical Engineering, University of Colorado Boulder.

## Student Service

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### Ph.D. Dissertation Committee

- 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.*
- 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.*

## Student Service (continued)

- **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

- 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

- 2023 ■ **Jennifer Milaszewski:** 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.
- **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.
- 2020 ■ **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

- 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.
  - **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.

## References

- *References available upon request.*