

Vinny Chandran Suja

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EDUCATION AND EXPERIENCE

Harvard University	Postdoc in School of Engineering and Applied Science (Advisor: Prof. Samir Mitragotri)	Jan, 2021 - <i>present</i>
Stanford University	PhD in Chemical Engineering (Advisor: Prof. Gerry Fuller)	Dec, 2020
Ecole Polytechnique, Paris	Masters in Mechanics (Advisors: Profs. Abdul Barakat and David Quéré)	Aug, 2015

ACADEMIC APPOINTMENTS

Associate Editor, Journal of Emerging Investigators (Nonprofit high school research journal)	Apr 2024 – <i>present</i>
Thesis Reader, Università degli Studi di Napoli Federico II	Feb 2024 – <i>present</i>
Guest Editor, American Institute of Physics - Physics of Fluids	Sep 2022 – <i>present</i>
Research fellow, Massachusetts General Hospital	Jan 2022 – <i>present</i>
Guest Editor, Journal of Visual Experiments	Dec 2021 – Dec 2022
Research fellow, Wyss Institute for Biologically Inspired Engineering	Jan 2021 – <i>present</i>

SELECTED AWARDS AND HONORS

• Viktor K. Lamer Award (American Chemical Society)	2024
• Leadership in Mentoring Award (American Chemical Society)	2024
• Future Faculty in Soft Matter (Selective NSF Workshop)	2024
• Rising Star in Soft and Biological Matter (NSF MRSEC)	2023
• International Congress of Rheology Gallery Contest Award	2020
• Scientific Curiosity Award (World Young Scientist Summit, Wenzhou, China)	2019
• Distinguished Student Scholar (Stanford ChemE Department)	2019
• Centennial TA award (Highest Honor for TA's at Stanford University)	2019
• TA of the Year Award (Department of Chemical Engineering)	2018
• NorCal STLE Research Scholarship	2016
• Université Paris-Saclay Outgoing Student Mobility Scholarship	2015
• Charpak Scholar, Embassy of France in India	2014
• Junior Research Fellow, Council for Industrial and Scientific Research-India	2013

FUNDING PROPOSALS

- NIH K99/R00 (2024). Solo Proposal. *Under review*
- BWF CASI (2024). Solo Proposal. *LOI under review*
- PhRMA Foundation (2024). Solo Proposal. *LOI Accepted, Full proposal under review*
- NIH RFA-DK-21-005 (2021). Co-authored with Prof. Samir Mitragotri. *Not funded*
- Lubrizol Research (2019). Co-authored with Prof. Gerry Fuller. *Funded*
- NorCal STLE (2017). Solo proposal. *Funded*

PUBLICATIONS (Total:37, First author:20, Senior author:3, h-Index:17, i10-index:24) *Equal, #Senior

Keywords:

Interfacial phenomena, Single colloid manipulation, Molecular rheometry, Topological engineering of biomaterials, Machine learning in interfacial, colloidal and transport phenomena.

Summary of key contributions:

a. Topologically and surface engineered colloidal particle-based drug delivery systems. Topologically and surface-engineered colloidal particles can evade phagocytosis and interact favorably with cells, creating novel opportunities for cell-mediated theranostics. During my postdoc, I contributed to the development of topologically engineered, macrophage-adhering, gadolinium-loaded microparticles for diagnosing mild traumatic brain injury, and engineered AAV-red blood cell anchoring for targeted gene delivery.

- L. Wang, Y. Gao, **V. Chandran Suja** et al., Macrophage hitchhiking Gadolinium micropatches: A living contrast agent for diagnosis of traumatic brain injury. (2023) *Science Translational Medicine* 16(728) PMID: 38170792.
- Zhao, Z., Kim, J., **Chandran Suja, V.**, N. Kapate, Y. Gao, J Guo, VR Muzykantov & S. Mitragotri. Red Blood Cell Anchoring Enables Targeted Transduction and Re-Administration of AAV-Mediated Gene Therapy. (2022) *Advanced Science* PMID: 35780495.
- K. Adebawale*, R. Liao*, **V. Chandran Suja** N. Kapate, A. Lu Y. Gao & S. Mitragotri. Materials for Cell Surface Engineering (2023). *Advanced Materials* e2210059, PMID: 36809574.

b. Novel methods for quantifying biophysical transport and hydrodynamics in *in vitro* models. A quantitative understanding of transport in *in vitro* models is crucial for gaining mechanistic insights into biophysical processes, including drug delivery. Notably, I developed methods for using molecular flippers to measure lipid diffusivity in *in vitro* droplet-interface-bilayer models, a hydrodynamic theory of molecular rotor relaxation kinetics in lipid bilayers, as well as imaging protocols and mathematical models that link transport coefficients measured in organ-on-chip platforms to key systemic pharmacokinetic parameters. The latter was instrumental in addressing a pressing issue highlighted by the Subcutaneous Drug Development and Delivery Consortium: the rapid assessment of bioavailability in subcutaneously administered formulations.

- Y. Huang*, **V. Chandran Suja***[#], M. Yang, A. V. Malkovskiy, A. Tandon, A. Colom, J. Qin & G. G. Fuller [#]. (2023). An investigation of mechanical stresses on droplet interface bilayers using fluorescence lifetime imaging microscopy. *Journal of Colloid and Interface Science* 653, 1196-1204 * Equal contribution, [#] **Co-senior author**
- **Chandran Suja, V.***, Qi, Q* et al, A biomimetic chip to assess subcutaneous bioavailability of monoclonal antibodies in humans. (2023) *Proceedings of the National Academy of Sciences Nexus* 2 (10), pgad317 * Equal contribution
- N. Oppenheimer*, **V. Chandran Suja***, H. A. Stone. Hydrodynamics of molecular rotors in lipid membranes. *Submitted* *Equal contribution

c. Mass transport induced colloidal phenomena. Understanding the stability of colloidal systems, such as foams and emulsions, is important for industrial and biophysical applications. During my PhD, I discovered a previously overlooked physical phenomenon that can dramatically enhance the stability of colloidal foams in non-aqueous systems — mass transport-induced solutocapillary Marangoni flows. I subsequently engineered liquid mixtures leveraging this discovery to create the first miscible antifoam (foam mitigation additive). This invention has been patented and is currently being translated into industry.

- **Chandran Suja V.**, Kar, A., Cates, W., Remmert, S. M., Savage, P. D. & Fuller, G. G. (2018). Evaporation-induced foam stabilization in lubricating oils. *Proceedings of the National Academy of Sciences*, 115(31), 7919-7924.
- **Chandran Suja, V.**, Hadidi, A., Kannan, A., Chadwick, B.G.L. & Fuller, G. G. (2021). Axisymmetry breaking, chaos, and symmetry recovery in bubble film thickness profiles due to evaporation-induced Marangoni flows. *Physics of Fluids*, 33(1), 012112

d. Single colloid manipulation tools for probing colloidal systems. Through my graduate research, I developed a novel platform that combines the ability to manipulate single colloidal particles with advanced optical imaging—hyperspectral interferometry. This platform enables detailed characterization of colloidal and thin liquid film interactions, with significant applications for understanding their dynamics and stability. A variant of this setup, adapted to study thin liquid films, particularly the *in vivo* tear film, has been patented and translated to the industry, with two leading contact lens manufacturers acquiring the platform for a sum exceeding \$350K.

- **Chandran Suja, V.**, Sentmanat, J., Scales, C., Hoffman, G. & Fuller, G. G. (2020). Hyperspectral imaging for dynamic thin film interferometry. *Scientific reports*, 10(1), 11378.
- **Chandran Suja, V.**, M. Rodriguez-Hakim, J. Tajuelo & Fuller, G. G. (2020) Single bubble and drop techniques for characterizing foam and emulsion stability. *Adv. Colloids & Interface Science*, 286, 102295, PMID: 33161297.

e. Machine learning in colloidal, interfacial and transport phenomena. Advances in compute infrastructure and machine learning architectures are poised to revolutionize the engineering of colloidal, interfacial and transport phenomena. During my post-doc, I developed physics informed reinforcement learning architectures for controlling drug delivery via central venous catheters. Ongoing work focuses on developing transformer architecture based models for real time analysis of thin film interferograms, and structure-interfacial property prediction for macromolecules.

- **Chandran Suja, V.**, A. Detry* et al. Transport physics informed reinforcement learning agents deployed in standalone infusion pumps for managing multidrug delivery in critical care. *Submitted* *Equal contribution

Key manuscripts (Sorted according to relevance):

41. **Chandran Suja, V.***, Qi, Q* et al, A biomimetic chip to assess subcutaneous bioavailability of monoclonal antibodies in humans. (2023) *Proceedings of the National Academy of Sciences Nexus* 2 (10), pgad317 * Equal contribution
40. L. Wang, Y. Gao, **V. Chandran Suja** et al, Macrophage hitchhiking Gadolinium micropatches: A living contrast agent for diagnosis of traumatic brain injury. (2023) *Science Translational Medicine* 16(728).
39. Zhao, Z., Kim, J., **Chandran Suja, V.**, N. Kapate & Mitragotri, S. Red Blood Cell Anchoring Enables Targeted Transduction and Re-Administration of AAV-Mediated Gene Therapy. (2022) *Advanced Science*
38. Y. Huang*, **V. Chandran Suja*.#**, M. Yang, A. V. Malkovskiy, A. Tandon, A. Colom, J. Qin & G. G. Fuller #. (2023). An investigation of mechanical stresses on droplet interface bilayers using fluorescence lifetime imaging microscopy. *Journal of Colloid and Interface Science* 653, 1196-1204 * Equal contribution, # **Co-senior author**
37. Huang, Y.*, Fuller, G. G. & **Chandran Suja, V.*** (2022) Physicochemical characteristics of Droplet Interface Bilayers *Adv. Colloids & Interface Science* 304, 102666 * Equal contribution, **Senior Author**
36. **Chandran Suja, V.**, Sentmanat, J., Scales, C., Hoffman, G. & Fuller, G. G. (2020). Hyperspectral imaging for dynamic thin film interferometry. *Scientific reports*, 10(1), 11378.
 - *Industrial/Clinical Translation*: Patented instrument (see patents section) reported in the paper acquired by Vision Care division of Johnson & Johnson for \$90,000 and undergoing in house clinical trials. The same instrument was also acquired by the Head, Surgical and Vision care research division of Alcon for a sum exceeding \$250K for end-user ophthalmic product development.
35. **Chandran Suja, V.**, M. Rodriguez-Hakim, J. Tajuelo & Fuller, G. G. (2020) Single bubble and drop techniques for characterizing foam and emulsion stability. *Adv. Colloids & Interface Science* doi:10.1016/j.cis.2020.102295
 - *Trade Journal Coverage*: Highlighted in Tribology and Lubrication Technology Magazine Feb 2021 (Author Dr. Neil Canter)
34. **Chandran Suja V.**, Kar, A., Cates, W., Remmert, S. M., Savage, P. D. & Fuller, G. G. (2018). Evaporation-induced foam stabilization in lubricating oils. *Proceedings of the National Academy of Sciences*, 115(31), 7919-7924.
 - *Trade Journal Coverage*: Highlighted in Tribology and Lubrication Technology Magazine Dec 2018 (Author Dr. Neil Canter)
 - *Major Press Coverage*: Stanford News, Phys.org, and 2 others.
33. Tammamaro, D., **Chandran Suja, V.***, Kannan, A.*, Gala, L.D., Maio, D.E., Fuller, G. G., & Maffettone, P.L. (2021). Flowering in bursting bubbles with viscoelastic interfaces *Proceedings of the National Academy of Sciences*, 118(30), e2105058118. * Equal contribution

Supporting manuscripts (Reverse Chronological):

32. S. G. K. Calhoun*, **Chandran Suja, V.***, et al., Antifoams in diesel fuels: thin liquid film dynamics and antifoam mechanisms. *Journal of Colloid and Interface Science* 675, 1059 - 1068. * Equal contribution
31. Knudsen, A., Arney, E. A., Butterfield, R. D., Sims, N. M., **Chandran Suja, V.**, Peterfreund, R. A, Pump-driven clinical infusions: Laboratory comparison of pump types, fluid composition and flow rates on model drug delivery applying a new quantitative tool, the pharmacokinetic coefficient of short-term variation (PK-CV) (2024). *Journal of Clinical Monitoring and Computing* 1 - 16.
30. N. Kapate, M. Dunne, A. Gottlieb, M. Mukherji, **V. Chandran Suja** et al, Polymer Backpack-loaded Tissue Infiltrating Monocytes for Treating Cancer. (2024) *Advanced Healthcare Materials* 2304144.
29. N. Kumbhojkar, S. Prakash, K. Adu-Berchie, N. Kapate, R. An, S. Darko, **V. Chandran Suja**, K. Park, L. Wang, D. J. Mooney & S. Mitragotri, Cyto-Adhesive Micro-Platforms for Neutrophil-Based Immunotherapy. *Nature Biomedical Engineering*
28. Chopade, P., Chopade, N., Zhao, Z., Mitragotri, S., Liao R.*, & **Chandran Suja, V.*** Alzheimer's and Parkinson's Disease Therapies in the Clinic (2023) *Bio-engineering and Translation Medicine* * Equal contribution, **Senior Author**
27. K. Adebawale*, R. Liao*, **V. Chandran Suja** et al, Materials for Cell Surface Engineering (2023). *Advanced Materials* doi:10.1002/adma.202210059. * Equal contribution
26. N Kapate, M. Dunne, N. Kumbhojkar, S. Prakash, L. Wang, A Graveline, K. S. Park, **V. Chandran Suja**, J. Goyal, J. R. Clegg, S. Mitragotri. A Backpack-based Myeloid Cell Therapy for Multiple sclerosis (2023). *Proceedings of the National Academy of Sciences*. 120(17), e2221535120.

25. N. Kapate, R. Liao, R. L. Sodemann, T. Stinson, S. Prakash, N. Kumbhojkar, **V. Chandran Suja** et al. Backpack-mediated anti-inflammatory macrophage cell therapy for the treatment of traumatic brain injury (2023). *Proceedings of the National Academy of Sciences Nexus*: pgad434.
24. S. Prakash, N. Kumbhojkar, A. Lu, N. Kapate, **V. Chandran Suja**, K. S. Park, L. Wang, S. Mitragotri. Polymer Micropatches as Natural Killer Cell Engagers for Tumor Therapy. (2023) *ACS Nano* doi:10.1021/acsnano.3c03980.
23. Tsao, A.C., Parker, M.J., Lovich, M.A., **Chandran Suja, V.**, Deng, H., Houle, T., & Peterfreund, R.A.(2022) Initiation of an Emulsion Microinfusion: Flow Direction Influences Delivery Onset Rate. *European Journal of Pharmaceutical Sciences*
22. Brower*, D., Calhoun, S*, **Chandran Suja, V.**, Kim, G., Wang, N., Radzysinski, M. McCully, A., Fuller, G. G, Kusumaatmaja, H., & Fordyce, P. M. (2022) Systematic characterization of effect of flow rates and buffer compositions on double emulsion droplet volumes and stability *Lab on a Chip* doi:10.1039/D2LC00229A * Equal contribution
 - Featured in themed collection - Lab on a Chip HOT Articles 2022
21. Huang, Y., **Chandran Suja, V.**, L Amirthalingam, & Fuller, G. G. (2022) Influence of Salt on the Formation and Separation of Droplet Interface Bilayers (2022) *Physics of Fluids*
 - Featured article in Physics of Fluids
20. **Chandran Suja, V.***, Verma, A.*, Mossige, E. J. L., Cui, K., Xia, V., Zhang, Y., Sinha, D., Joslin, S. & Fuller, G.G. (2022) Dewetting Characteristics of Contact Lenses coated with Wetting agents. *Journal of Colloid and Interface Science* 614, 24-32. * Equal contribution
19. **Chandran Suja, V.** (2022). Challenges in Mitigating Lubricant Foaming. *Lubricants*, 10(6), 108.
18. **Chandran Suja, V.**, Hadidi,A., Kannan, A., Chadwick, B.G.L. & Fuller, G. G. (2021). Axisymmetry breaking, chaos, and symmetry recovery in bubble film thickness profiles due to evaporation-induced Marangoni flows. *Physics of Fluids*, 33(1), 012112
 - Featured article in Physics of Fluids
17. Huang, Y.*, **Chandran Suja, V.***, Tajuelo, J. & Fuller, G. G. (2021). Surface Energy and Separation Mechanics of Droplet Interface Phospholipid Bilayers. *J. R. Soc. Interface* 18: 20200860 * Equal contribution
16. Calhoun, S.G.K.C.*, **Chandran Suja, V.***, & Fuller, G. G. (2021) Foaming and antifoaming in non-aqueous liquids. *Current Opinion in Colloids & Interface Science* * Equal contribution
15. Kannan, A., Shieh, I., Negulescu, P., **Chandran Suja, V.** & Fuller, G. G. (2021) Adsorption and aggregation of monoclonal antibodies at silicone oil-water interfaces. *Molecular Pharmaceutics*
14. Mossige, E.J*, **Chandran Suja, V.***, Walls, D.* & Fuller, G. G. (2021), Dynamics of Freely Suspended Drops Translating through Miscible Environments *Physics of Fluids* * Equal contribution
13. **Chandran Suja, V.**, Kar, A. & Fuller, G. G. (2020). Foam stability in filtered lubricants containing antifoams. *Journal of Colloid and Interface Science*, 567, 1-9.
 - Trade Journal Coverage: Highlighted in Tribology and Lubrication Technology Magazine May 2020 (Author Dr. Neil Canter)
12. **Chandran Suja, V.***, Kannan, A.*, Kubicka, B., Hadidi, A. & Fuller, G. G. (2020). Bubble coalescence at wormlike micellar solution-air interfaces. *Langmuir* doi:10.1021/acs.langmuir.0c01861 * Equal contribution
11. Mossige, E.J.*, **Chandran Suja, V.***, Wheeler, S. F. & Fuller, G. G. (2020). Evaporation driven Rayleigh-Taylor Instability in Aqueous Polymer Solutions. *Phil. Trans. R. Soc. A*, 378: 20190533 * Equal contribution
10. Vamsi Krishna, C.* , **Chandran Suja, V.***, Watton, P.N., Arakeri, J.H. & Gundiah, N. (2020). Shear Stress Rosettes Capture the Complex Flow Physics in Diseased Arteries. *Journal of Biomechanics*, 104(7), 109721. * Equal contribution
9. Kamkar, M., Bazazi, P., Kannan, A., **Chandran Suja, V.**, Hejazi, S.H. & Fuller, G.G. (2020). Polymetric-Nanofluids Stabilized Emulsions: Interfacial versus Bulk Rheology. *Journal of Colloid and Interface Science* 576, 252-263.
8. **Chandran Suja, V.** & Barakat, A. I. (2018). A Mathematical Model for the Sounds Produced by Knuckle Cracking. *Scientific reports*, 8(1), 4600.
 - Nature Scientific Reports Top 10 paper (2018)
 - International Awards: World Young Scientist Summit - Scientific Curiosity Award (Night of Science Pineapple Science Award)
 - Major Press Coverage: ScienceAlert, BBC, Times, New York Times, NPR and 50+ others.

7. **Chandran Suja, V.**, Frostad, J. M. & Fuller, G. G. (2016). Impact of Compressibility on the Control of Bubble-Pressure Tensiometers. *Langmuir*, 32(46), 12031-12038.
6. Suresh Babu,A., **Chandran Suja, V.** & Vinay Reddy, C. (2014). Three dimensional trajectory optimization of a homing parafoil. *IFAC Proceedings*, 47(1), 847-854.

In progress:

5. K. S. Park, A. Gotlieb, **Chandran Suja, V**, et al., Adoptive Macrophages as Cancer Vaccines. *Submitted*
4. M. Nakajima, N. Kapate, J. R. Clegg, **V. Chandran Suja** et al, Backpack-carrying macrophage immunotherapy for periodontitis. *Submitted*
3. A. Detry*, **Chandran Suja, V*** A method for temporally resolved continuous inline measurement of multicomponent fluid concentrations with microfluidic spectroscopy *Submitted* *Equal contribution
2. **Chandran Suja, V**, A. Detry* et al. Transport physics informed reinforcement learning agents deployed in standalone infusion pumps for managing multidrug delivery in critical care. *Submitted* *Equal contribution
1. N. Oppenheimer*, **V. Chandran Suja***, H. A. Stone. Effect of interleaflet friction on the dynamics of molecular rotors in lipid membranes. *Submitted* *Equal contribution

INVITED ARTICLES

1. Fuller, G. G. & **Chandran Suja, V.** (2020). The Froth Thickens. *Invited Viewpoint, American Physical Society* doi:v13/162
2. **Chandran Suja, V.** & Fuller, G. G. (2023). From improving eyesight to disease theranostics: The impact of ocular fluid mechanics research. *Invited Editorial, Physics of Fluids* doi:10.1063/5.0168773

INVITED TALKS

1. Dynamics of thin liquid films with interfacial mass transport: Insights from single bubble experiments and machine learning. **ACS Colloids conference**, June 26, 2024 (**1-hour plenary talk**).
2. Drug delivery across scales. **UCLA Chemical & Biomolecular Engineering**, Jan 19, 2024.
3. Subcutaneous administered monoclonal antibodies: Integrating tissue-on-a-chip measurements and transport modeling for assessing the elusive bioavailability. **Rising Stars in Soft and Biological Matter**, Oct 13, 2023
4. Platform and methods for spatiotemporally resolved measurements of dynamic tear film thickness, **Alcon, Texas**, Feb 14, 2023.
5. Mechanistic insights into foam/emulsion stability through single bubble/drop experiments, **Lubrizol Corporation, Ohio**, June 5, 2019.
6. Bubbles on Capillaries: (i) The bubble shape hysteresis (ii) Single bubble coalescence experiments for developing foam resistant lubricants, **U.C Berkeley Fluids Seminar**, May 8, 2017.

PATENTS

1. **Chandran Suja, V.** & Fuller, G. G. Platform and methods for the use of hyperspectral imaging for dynamic thin film measurements. Filed Feb 2021 with application No: US 2021/0264582 A1, Granted: Feb 2023 (US11580631B2)
 - *Industrial/Clinical Translation:* Patented instruments acquired by Vision Care division of Johnson & Johnson for \$90,000 and undergoing in house clinical trials. The same instrument was also acquired by the Head, Surgical and Vision care research division of Alcon for a sum exceeding \$250K for end-user ophthalmic product development.
2. **Chandran Suja, V.**, Fuller, G. G., & Calhoun, S. G. K. Fully Miscible Antifoam Formulations. Filed May 2022 with International Patent No: WO2022251469A1
3. **Chandran Suja, V.** & Fuller, G. G. Fully Miscible Antifoam Formulations. Filed Sept 2023 with US Patent No US20240076573
4. **Chandran Suja, V.**, Detry, A., Sims, N., Arney, A., Peterfreund, R., & Mitragotri, S. Device and methods for managing multidrug delivery via infusion pumps. Filed Jan 2024 with US Patent No. 63/619,874
5. **Chandran Suja, V.**, Tandon, A., & Fuller, G. G. Platform and Methods for data-driven analysis of thin film interferograms. Provisional patent to be filed.

SELECTED CONFERENCES AND POSTERS

- 2023 - *American Institute of Chemical Engineers Annual Meeting*, Orlando, Florida, USA
- 2023 - *ACS Colloid & Surface Science Symposium, 97rd Annual Meeting*, Raleigh, North Carolina, USA
- 2021 - *Society of Tribology and Lubrication Engineers Annual Meeting*, Orlando, Florida, USA
- 2021 - *Society of Rheology, 92nd Annual Meeting*, Bangor, Maine, USA
- 2021 - *American Institute of Chemical Engineers Annual Meeting*, Boston, Massachusetts, USA
- 2021 - *American Physical Society, Division of Fluid Dynamics, 74th Annual Meeting*, Phoenix, Arizona, USA
- 2020 - *International Congress of Rheology*, Rio de Janeiro, Brazil
- 2020 - *Society of Tribology and Lubrication Engineers Frontiers Conference*, Virtual Event
- 2020 - *American Institute of Chemical Engineers Annual Meeting*, Virtual Event
- 2020 - *American Physical Society, Division of Fluid Dynamics, 73rd Annual Meeting*, Virtual Event
- 2019 - *American Physical Society, Far West Section*, Stanford, California, USA
- 2019 - *American Institute of Chemical Engineers Annual Meeting*, Orlando, Florida, USA
- 2019 - *American Physical Society, Division of Fluid Dynamics, 72nd Annual Meeting*, Seattle, Washington, USA
- 2019 - *ACS Colloid & Surface Science Symposium, 93rd Annual Meeting*, Atlanta, Georgia, USA
- 2018 - *American Physical Society, Division of Fluid Dynamics, 71st Annual Meeting*, Atlanta, Georgia, USA
- 2018 - *ACS Colloid & Surface Science Symposium, 92nd Annual Meeting*, State College, Pennsylvania, USA
- 2018 - *e-Wear Conference, 2nd Annual Meeting*, Stanford, California, USA
- 2017 - *American Physical Society, Division of Fluid Dynamics, 70th Annual Meeting*, Denver, Colorado, USA
- 2017 - *Society of Rheology, 88th Annual Meeting*, Tampa, Florida, USA
- 2016 - *American Institute of Chemical Engineers Annual Meeting*, San Francisco, California, USA

STUDENT ADVISING

Individually supervised students over quarter-long and year-long research internships. Developed customized projects and provided mentorship to ensure strong understanding of concepts as well as successful completion of rigorous scholarly work.

* indicates co-authorship in peer-reviewed papers and conferences

Graduate Students

- | | |
|---|------------------------|
| 1. Andrea Detry*, UNINA, Italy | Mar, 2023 – Mar, 2024 |
| 2. John Belanger, Stanford | Jul, 2019 – June, 2023 |
| 3. Yogi Huang*, Stanford (currently at Harvard) | Mar, 2020 – Jan, 2023 |
| 4. Suzanne Calhoun*, Stanford | May, 2020 – June, 2023 |
| 5. Severin Bahman, ETH Zurich (currently at Zurich Insurance Company Ltd) | Aug, 2017 – Nov, 2017 |
| 6. Meirbek Islamov*, Columbia University (currently PhD at U. Pittsburgh) | Jul, 2018 – Sep, 2018 |

Undergraduate Students

- | | |
|---|--------------------------|
| 1. Shubham Patel, IIT Gandhinagar, India | Oct, 2023 – May, 2024 |
| 2. Dania Villafuerte Gonzalez*, Harvard
<i>Advisor for Honor's Thesis "Cellular backpack mechanics under flow"</i> | Sept, 2022 – April, 2023 |
| 3. Juhee Goyal*, Harvard
<i>Co-advisor for Honor's Thesis "Migration assay for cellular backpacks adhered to monocytes"</i> | Jul, 2021 – April, 2022 |
| 4. Paola Carrillo Gonzalez, Harvard (currently PhD at Northwestern)
<i>Advisor for Honor's Thesis "A model system to evaluate macrophage migration in vitro"</i> | Jul, 2021 – April, 2022 |
| 5. Ignacio Blanco Jesus, Stanford (currently PhD at U. Mich)
<i>Advisor for Honor's Thesis "Dessication and dissolution instabilities of polymeric drops"</i> | Jul, 2019 – Jun, 2020 |
| 6. Archana Verma*, Stanford (currently PhD at UIUC) | Jul, 2019 – Apr, 2020 |
| 7. Dionne Thomas, Stanford | Jun, 2019 – Aug, 2019 |
| 8. Ao Chen, Zhejiang University (currently PhD at U. Wisconsin-Madison) | Jun, 2019 – Aug, 2019 |

9. Benjamin Chadwick*, Stanford	Jan, 2018 – Jun, 2018
10. Brian Edward Ly*, Stanford	Jan, 2018 – Jun, 2018
11. Finn Banks, Johns Hopkins	Jul, 2017 – Aug, 2017
12. Johnny Sentmanat*, Texas A&M (currently PhD at Georgia Tech)	Jun, 2018 – Aug, 2018

High School Students

1. Vedath Ramji, India	Spring, Summer 2024
2. Gautam Anand, USA	Summer 2024
3. Pooja Chopade*, USA (currently undergrad at Stanford University)	Summer 2021
4. Neha Chopade*, USA (currently undergrad at Cornell)	Summer 2021
5. Avni Gokarn, USA	Summer 2021
6. Indeera Pujar, USA	Summer 2021
7. Arnuv Tandon*, USA (currently undergrad at Stanford University)	Spring, Summer 2020
8. Bruce Zhang, China	Summer 2020
9. Ben Rubinstien, USA	Summer, Fall 2019
10. Aaron Lipp, USA	Summer 2019
11. Joshua Kim, USA	Summer 2019
12. Manas Tiwari, India (currently undergrad at U. Wisconsin-Madison)	Summer 2019
13. Alex Hadidi*, USA (currently undergrad at UCLA)	Summer 2018
14. Zachary Ernst*, USA	Summer 2018
15. Bruce Kubicka*, USA (subsequently undergrad at Cornell)	Summer 2017, 2016
16. Andrei Bielay, Canada	Summer 2017
17. Cole Gillespie, USA	Summer 2016
18. Mathilde Lettinga, Germany	Summer 2016

TEACHING EXPERIENCE

Teaching Assistant ChemEng 120A:Fluid Mechanics	Winter 2018, Winter 2019
<ul style="list-style-type: none"> Delivered guest lectures, developed home works and midterm exams. Started the ‘Fluid Mechanics Video Lecture’, which is currently in its third iteration. Centennial TA award (Highest Honor for TA’s at Stanford University) TA of the Year Award (Department of Chemical Engineering) 	
Teaching Assistant Rheology Short Course in Beijing	Summer 2019
<ul style="list-style-type: none"> Invited to TA the short course on Rheology offered by Prof. Gerald Fuller at the Stanford Center at Peking University. Helped instruct a diverse international student cohort and provided guidance for their course presentations. 	
Mentor TA ChemE Department, Stanford	2019 - 2020
<ul style="list-style-type: none"> Trained new TA’s by holding orientation sessions and one on one discussions. 	

SERVICE AND OUTREACH

Co-Founder, Medicine Engineering and Drug Innovation Stars (MEDISTars)	2023 -
<ul style="list-style-type: none"> Summer program by Harvard School of Engineering and Applied Sciences for introducing high schoolers from diverse and underrepresented backgrounds to drug development and clinical trial process. 	
Co-Founder, Bio-Informatics, Omics, and Medicine Engineering Stars (BIOMESTars)	2024 -
<ul style="list-style-type: none"> Summer program for introducing high schoolers in India from socioeconomically challenged backgrounds to advances in bioinformatics currently driving drug development. 	
Journal Guest Editor	
<ul style="list-style-type: none"> Journal of Visualized Experiments (Special Issue - Biointerfaces), Coatings (Special issue - Fluid Interfaces in Colloidal Systems: Aerosols, Foams, and Emulsions), Physics of Fluids (Special Issue - Flow and the eye). 	
Journal Reviewer	
<ul style="list-style-type: none"> Proceedings of the National Academy of Sciences, Soft Matter, Langmuir, Journal of Colloids and Interface Science, Physical Review journals, Bioengineering & Translational Medicine, Physics of Fluids, Polymers, ACS Applied Materials, Materials, Royal Society Interface, Advances in Colloids and Interface Science 	

- Student Member, Stanford Chemical Engineering Faculty Search** 2018, 2019
- Evaluated the research, mentoring and teaching philosophies of prospective faculty candidates.
- Judge, Stanford Research Conference** 2017, 2018
- Evaluated undergraduate research from around the country for scientific content, students' thought processes and critical thinking.
- Judge, AIChE Undergraduate Research Conference** 2019
- Evaluated undergraduate research from around the country for scientific content, students' thought processes and critical thinking.

REFERENCES

1. Prof. Gerald Fuller (ggf@stanford.edu)
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