Biographical Sketch

Dr. Saad Bhamla is an Associate Professor at Georgia Tech's School of Chemical & Biomolecular Engineering. His interdisciplinary research in the physics of living systems uncovers the principles underlying ultrafast movements in biology and informs the design of bioinspired robotics. He is also at the vanguard of the emerging field of frugal science, to develop affordable and accessible tools for global health.

He directs notable projects like the Frugal Science Academy and the Jungle Biomechanics Laboratory in the Amazon Rainforest to democratize access to science to provide diverse training opportunities, empowering underrepresented students and teachers to engage in synthetic biology. He has also commercially translated a low-cost RNA vaccine technology (ePatch) via a venture-funded startup. At Georgia Tech, he has published over 40 articles and guided 3 postdocs to tenure-track positions.

His achievements been recognized through numerous awards, including the Moore Inventor Fellowship, NSF Career Award, NIH Outstanding Investigator Award, Sigma Xi Young Faculty Award, CTL Award for Teaching Excellence, and the 3M Non-Tenured Faculty Award. His dedication to making science accessible and enjoyable through the creation of multilingual comics, titled "A Curious Zoo of Extraordinary Organisms," has been honored with the National Academies' Eric and Wendy Schmidt Award for Excellence in Science Communication. In 2023, Newsweek listed him among the top 10 Innovators transforming healthcare.

SAAD BHAMLA
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I. EARNED DEGREES

2015 Ph.D. in Chemical Engineering, Stanford University
2010 B.Tech in Chemical Engineering, Indian Institute of Technology Madras

II. EMPLOYMENT HISTORY

2024 - present	Associate Professor, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology
2017 - 2024	Assistant Professor, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology
2015-2017	School of Medicine Dean's Postdoctoral Fellow with Prof. Manu Prakash, Bioengineering Department, Stanford University
2010-2015	Graduate Research Assistant with Prof. Gerald G Fuller, Department of Chemical Engineering, Stanford University

III. HONORS AND AWARDS

2024 Moore Inventor Fellow [url]
2024 Judith H. Greenberg Early Career Investigator Lecture, NIGMS NIH [url]
2024 Winner, Gallery of Soft Matter, American Physical Society [url]
2023 National Academies and Schmidt Award for Excellence in Sci Comm. [url]
2023 10 Innovators revolutionizing healthcare, Newsweek Magazine [url]
2023 Soft Matter Emerging Investigator
2023 3M Non-tenured Faculty Award (NTFA)
2023 Sigma Xi Young Faculty Award, Georgia Tech
2023 CTL/BP Junior Faculty Teaching Excellence Award
2021 TED Global Idea Search Winner and TED Speaker [url]
2021 NIH R35 MIRA Outstanding Investigator Award
2021 *Industrial & Engineering Chemistry (I&EC)* Class of Influential Researchers
2020 NSF CAREER award
2020 CS for Social Justice Hero, 1 of 10, CSEdWeek. *For accessible hearing aid.* [url]
2019 National Geographic Explorer
2018 Beazley Design Award, Best Product for Paperfuge [url]
2017 Medgadget's Best Medical Technology [url]
2017 INDEX: Design to Improve Life Award for 20-cent Paperfuge [url]
2016 Innovation in MedTech Award, American India Foundation and Stanford [url]
2016 Dean's Postdoctoral Fellowship, School of Medicine, Stanford University

2015 Centennial Teaching Assistant Award, Stanford University
2015 Milton van Dyke Award, American Physical Society DFD, [video]
2014 Accel Innovation Scholar, Stanford University

IV. SELECTED PUBLICATIONS

h-index=**16**: https://scholar.google.com/citations?user=1tRXS9gAAAAJ&hl=en

** indicates co-authorship; § indicates senior corresponding author; Colored items indicate work done partially or wholly at Georgia Tech;* ***boldface*** *indicates GT advisees*

14. **Elio J Challita** M Saad Bhamla§. Unifying Fluidic Excretion Across Life from Cicadas to Elephants. **PNAS** (2024)

13. Carlos Floyd, AT Molines, **Xiangting Lei**, JE Honts, F Chang, MW Elting§, S Vaikuntanathan§, AR Dinner§, M Saad Bhamla§. A unified model for the dynamics of ATP-independent ultrafast contraction. **PNAS** (2023)

12. V Patil*, **H Tuazon*, E Kaufaman, T Chakrobortty, D Qin**, J Dunkel§ and M Saad Bhamla§. Ultrafast reversible self-assembly of living tangled matter. **Science** (2023)

11. E. Challita, P. Sehgal, R. Krugner, M. Saad Bhamla§. Droplet superpropulsion in an energetically constrained insect. **Nature Communications** (2023)

10. **Victor M. Ortega-Jimenez, Elio Challita**, Baekgyeom Kimd, **Hungtang Ko**, Minseok Gwond, Je-Sung Koh, and M Saad Bhamla§. Directional takeoff, aerial righting and adhesion landing of semiaquatic springtails. **PNAS** (2022)

9. **Xia D., Jin R, Byagathvalli G., Yu H., Ye L.**, and Bhamla, M. S.§, Yang C.§, and Prausnitz M.§, An Ultra-Low-Cost Electroporator with Microneedle Electrodes (ePatch) for SARS-CoV-2 Vaccination. **PNAS** (2021)

8. **Ozkan-Aydin Y.,** Goldman DI, and Bhamla, M. S.§, Collective dynamics in entangled worm and robot blobs. **PNAS** (2021)

7. **Sinha S., Irani U.**, Manchaiah V. and Bhamla, M. S.§, LoCHAid: An ultra-low-cost hearing aid for age-related hearing loss **PLOS ONE**, 15(9), e0238922 (2020)

6. **Alexander S.** and Bhamla, M. S.§, Ultrafast launch of slingshot spiders using conical silk webs. **Current Biology**, (2020)

5. **Byagathvalli G., Sinha S., Zhang Y**, Styczynski M, Standeven J., Bhamla, M. S.§. ElectroPen: An ultra-low–cost, electricity-free, portable electroporator. **PLOS Biology** (2020)

4. Mathijssen A, **Culver J.** Bhamla MS§, Prakash M.§ Collective intercellular communication through ultra-fast hydrodynamic trigger waves. **Nature** (2019)

3. **Byagathvalli G.***, Pomerantz A.F.*, **Sinha S.**, Standeven J., Bhamla, M. S.§. A 3D-printed hand-powered centrifuge for molecular biology **PLOS Biology**, 17(5):e3000251 (2019)

2. Ilton M., Bhamla M. S. ... and Patek S. N.§. The Principles of Cascading Power Limits in Small, Fast Biological and Engineering Systems. **Science** (2018)

1. Bhamla M.S., Benson B., Chai C., Katsikis G., Johri A., Prakash M.§ Hand-powered ultralow-cost paper centrifuge. **Nature Biomedical Engineering** (2017)

V. GRANTS AND CONTRACTS

15.5M Total Funds Raised
10.0M Funds to Bhamla Lab at GT

Co-Founder of Piezo Therepeutics (Dec 2022). Raised **2M** in seed funding. The mission of this GT spin-out company is to develop and commercialize technology to enhance delivery of genetic material by electroporation. Other co-founders include Mark Prausnitz, Gaurav Byagathvalli and Cynthia Sundell.

Lead PI of Frugal Science Academy (FSA) (Sept 2022). NIH R25 award **1.3M**. Founded the Frugal Science Academy (FSA) at Georgia Tech to provide underrepresented minority students and rural teachers in Georgia access to synthetic biology. The FSA enables high school students to create and disseminate "frugal hardware" for synthetic biology, enhancing hands-on STEM education in under-equipped labs. This initiative, emphasizing affordability and accessibility, has increased diversity and innovation in synthetic biology and was recognized by the 2024 CTL Educational Partnership Award for its impact on STEM education and inclusion.

Director of Jungle Biomechanics Laboratory (JBL) (2023 - present)
Founded the NSF-funded in-situ JBL initiative to enable research on the physics of living systems in the Peruvian Amazon Rainforest, providing U.S. students opportunities to study non-traditional organisms. The JBL program, based in a frugally equipped jungle biomechanics lab at Finca Las Piedras, serves as a model for field-based research, enhancing intercultural research skills and training the next generation of interdisciplinary scientists and engineers.

Creator of A Curious Zoo of Extraordinary Organisms (2020 - present)
Created the multilingual comic series "A Curious Zoo of Extraordinary Organisms" to make science accessible and engaging for young children, focusing on historically excluded groups. This initiative broadens the accessibility of scientific knowledge across linguistic barriers and has been recognized with the 2023 Eric and Wendy Schmidt Award for Excellence in Science Communication and the CTL BP Junior Faculty Teaching Excellence Award at Georgia Tech.