Dr. Aritra Chatterjee

Assistant Professor,
Department of Mechanical Engineering,
BITS Pilani, Hyderabad Campus,
Hyderabad 500078, Telangana, India

aritra.chatterjee@hyderabad.bits-pilani.ac.in
https://aritrac.wixsite.com/labpage

Research Interests

- Mechanical Characterization and constitutive modelling of tissues and soft materials.
- Cell mechanobiology, cell substrate-interactions under mechanical stimuli.
- Role of mechanics in the growth and remodeling of biological systems like cells and tissues.
- Force spectroscopy-based measurements on cells and tissues.

Education

2016-2021 **Doctor of Philosophy (Ph.D.) & M.Tech (Res.)** - *Centre for Biosystems Science and Engineering, Indian Institute of Science, Bangalore. (Date of Defense – 24/02/022)*
CGPA- 8.7/10, *Awarded Institute Medal for best PhD thesis in the department*.
Thesis advisors- Prof. Namrata Gundiah (*Dept. of Mechanical Engineering*) and
Prof. Paturu Kondaiah (*Dept. of Molecular Reproduction, Development & Genetics*).

2012-2016 **Bachelor of Engineering (First Class, Honors)** – *Dept. of Mechanical Engineering, Indian Institute of Engineering Science and Technology (IIEST), Shibpur*
CGPA- 8.86/10, Class Rank – 2nd

2010-2012 **Indian School Certificate Examination (Class – XII)** – *St. Xavier's Institution*
Score- 92.25%

2010 **Indian Certificate of Secondary Education Examination (Class- X)**
– *St. Xavier's Institution,* Score- 94.2%

Research Experience

2023– Present **Birla Institute of Technology & Science (BITS), Pilani, Hyderabad Campus,**
Department of Mechanical Engineering, Telangana, India
Working as an Assistant Professor (Grade - I), involved in teaching UG and PG courses and research. on problems related to soft materials, bio-inspired design and multiscale biomechanics.

2022– 2023 **Chan (MRI) Laboratory,** *Weldon School of Biomedical Engineering,* Purdue University, USA
2022– 23 – **Postdoctoral Research** work on Multiscale biomechanics of ovine knee joint and tissue explants
Skills: *Design and Fabrication of whole joint testing set-up, Joint Laxity Testing, Mechanical Characterization of tissues and tissue explants, explant culture, Tissue collection and dissection, Mice handling and restraint, euthanasia and necropsy, Histology and imaging.*
2022– ongoing – Mechanical characterization of 3d printed HA scaffolds for tissue engineering (collaboration with Dr. Juana Mendenhall, Morehouse College, USA)
Skills: *Atomic force microscopy, confocal microscopy, mechanical characterization of scaffolds*

2016– 2022 **Biomechanics Laboratory,** *Dept. of Mechanical Engineering,* Indian Institute of Science, Bangalore.
2016– 2017 – Design and Fabrication of a microscope mountable stretcher for cells and tissues
Skills:*3D printing, CAD modelling and fabrication, DIC, strain quantification using particle tracking, FEM*
2017– 2019 – Mechanobiology of fibroblasts under cyclic uniaxial stretch
Skills: *cell culture, preparation of ECM coated PDMS substrate, AFM, confocal and live-cell*

microscopy, developed codes for quantifying stress fiber orientation and length, image analysis, constitutive modelling of growth and remodeling in biological materials.

2019– 2020 – Mechanical characterization of biomimetic Fiber Reinforced elastomers (FRE) for soft robotics

Skills: *Preparation of custom FRE specimens using filament winding technique, Uniaxial and biaxial tests, Constitutive modelling of transversely isotropic materials.*

2020– 2022 – Measuring cellular traction forces under cyclic stretch

Skills: *Traction force microscopy, digital image correlation, FTTC based inverse approaches to quantify cellular traction forces from bead displacements*

2016– present **Other projects in collaboration**

- Effect of TGF-β on elastic and viscoelastic properties of breast cancer cells using AFM- In collaboration with Dr. Ankur Kulkarni (Biomechanics Laboratory, IISc).
- Mechanical characterization of composite laminates for aerospace applications- In collaboration with Dr. Dinesh k. Harursampath and S.B Md KhajaMouniuddin (Dept. of Aerospace Engg, IISc)
- Role of growth-induced buckling in determining meristem morphologies in plant stem cell mutants - Collaboration with Dr. Pradeep Das and Lea Rambaud (ENS Lyon, France).
- Substrate stiffness dependent ECM remodeling in fibroblasts- Collaboration with Dr. Brijesh K. Verma (Biomechanics Laboratory, IISc).
- Mechanical transfer of graphene from copper sheets to polymeric interphases - Project funded by Hindustan Unilever, Collaboration with Prof. Srinivas Raghavan (Cense, IISc) and Prof. Praveen Ramamurthy (Materials Eng. IISc).
- Quantifying tissue stiffness of Human Cornea using AFM - Collaboration with Narayan Nethralaya and Anshul Srivastava (Biomechanics Laboratory, IISc).
- Measuring cell stiffness in Mfn2-null fibroblasts using AFM- Collaboration with Dr. Qing Deng and Yueyang Wang (Biological Science Division, Purdue University).
- Designing a pneumatically controlled device for uniaxial and biaxial cell stretching- Collaboration with Prof. Alex Chortos and Jue Wang (Department of Mechanical Engineering, Purdue University).
- Effect of palmar tension band technique on distal limb mechanics in horses – - Collaboration with Dr. Timothy Lescun and Stephanie Hansen (Department of Veterinary Clinical Sciences, Purdue University).
- Constitutive modeling of nonlinear viscoelastic properties of bacterial biofilms – Collaboration with Prof. Aravinda Raghavan (Department of Physics, BITS Pilani, Hyderabad campus).

Other Skills- *quantitative image analysis, MATLAB, Maple, IMAGE J, Atomic-J, ABAQUS, Solidworks*

Sponsored Research & Consulting projects

Ongoing Sanctioned Projects: -

- Tear Fracture and Surface Instabilities in Bioinspired Fiber Reinforced Elastomers - Role - ***PI*** Duration - 2 years, Amount -20 Lakhs, Year of Sanction -***2023***, Sponsoring Agency - ***BITS Pilani***
- Development and mechanical characterization of Self-healing polymers for sealant applications – Role – PI (Co-Pi- Dr. Nilanjan Dey and Dr. Prabakaran Saravanan), Duration – 4 years, Amount – 24.93 Lakhs (Fully paid stipend of a PhD candidate for 4 years with other benefits), Year of Sanction -***2024***, Sponsoring Agency – ***WIPRO (Wipro WIN Research Fellowship scheme)***.
- Synthesis, Characterization and Constitutive Modelling of homogeneous and Janus particle based Magnetorheological fluids (MRF) for smart cushioning technologies - Role – PI (Co-Pi- Dr. Sayan Das), Duration – 4 years, Amount ~ 25 Lakhs, Year of Sanction -***2024***, Sponsoring Agency – ***WIPRO Infrastructure Engineering (WIN).***
- Design and Development of a Portable Biaxial Cell and Tissue Stretching Device - Role- ***PI*** -Duration - 2 years, Amount -2 Lakh, INR, Year of Sanction -***2025***, Sponsoring Agency - ***BITS Pilani- SPARKLE initiative***.
- Self-propelled Janus Nanomotor for Site-specific Delivery of Chemotherapeutics in Gastric Cancer through the Oral Route- Role – Co-PI (PI – Prof. Swati Biswas). Duration -2 years, Amount – 33.34 lakhs, Year of Sanction -***2025***, Sponsoring Agency – ***BFI (Blockchain for impact)-BIOME.***

Submitted Research grant proposals (Currently under Review): -

- Development of thermoplastic ionomeric materials with self-healing characteristics" to ***ISRO*** Center: Vikram Sarabhai Space Centre (VSSC) under ***RESPOND*** Scheme, Role - ***PI, Year*** of Submission-***2025***.
- "Development and manufacturing of a Lateral Flow based Point of Care device for Serum Ferritin quantification" to Indian Council of Medical Research (***ICMR***), Role – ***Co-PI*** Year of Submission -***2025.***

Publications

1. Mahipal Malappuram K., **Chatterjee A.,** Chakraborty S., Debnath S., Chatterjee K., Nain A., 'Shape-Programmable Chitosan Films as Soft Microrobots toward the Development of Chemo-Mechanical Sensors', *Langmuir*, 2025 (https://doi.org/10.1021/acs.langmuir.5c01375)
2. **Chatterjee A.,** Kumar D., 'Role of fiber orientations and invariant coupling in the stress-strain non-coaxiality of bioinspired fiber-reinforced elastomers', *Journal of Applied Mechanics* (ASME), 2025(https://doi.org/10.1115/1.4068451).
3. **Chatterjee A.**, Davis Z.R., Lescun T, Chan D.D, 'Multiscale Correlations between Joint and Tissue-Specific Biomechanics and Anatomy in Postmortem Ovine Stifles', *Scientific Reports* ,2025 (https://doi.org/10.1038/s41598-025-87491-w) .
4. Pise S, **Chatterjee A.**, Dey N, 'Exploring Self-Assembly and Viscoelastic Behaviour of Pyrene-Based Fluorescent Hydrogel: Designing Paper Sensors for Water-Soluble Explosives' *European Journal of Organic Chemistry***,** 2025**(**https://doi.org/10.1002/ejoc.202401096).
5. Zigan M.C, Alston B C., **Chatterjee A**., Solorio L, Chan D.D, 'Characterization of Composite Agarose-Collagen Hydrogels for Chondrocyte Culture', *Annals of Biomedical Engineering,* 2024 (https://doi.org/10.1007/s10439-024-03613-x).
6. Rambaud-Lavigne L., **Chatterjee A**., Bovio S., Battu V, Lavigne Q., Gundiah N., Boudaoud A., Das P., 'Heterogeneous identity, stiffness and growth characterise the shoot apex of Arabidopsis stem cell mutants', *Development*, 2024 (https://doi.org/10.1242/dev.202810).
7. Wang J., **Chatterjee A.**, Zigan C.M., Alborn M., Chan D.D, Chortos A., 'Pneumatic Non-Equibiaxial Cell Stretching Device with Live-Cell Imaging', *IEEE Transactions on Biomedical Engineering* 2023 (https://doi.org/10.1109/TBME.2023.3319013).
8. Wang, Y., Troughton L, Xu, F., **Chatterjee A.**, Zhao H, Cifuentes, L. P., Wagner, B. R., Chen, J., Kuang, S., Suter, Yuan C, Chan D., Huang, F., Oakes P.W., Deng, Q. 'Atypical peripheral actin band formation via overactivation of RhoA and Non-muscle myosin II in Mitofusin 2 deficient cells', *Elife*, 2023 (https://doi.org/10.7554/eLife.88828).
9. Verma BK., **Chatterjee A.**, Kondaiah P., Gundiah N., 'Substrate stiffness modulates TGF-β activation and ECM-associated gene expression in fibroblasts', *Bioengineering*, 2023. (https://doi.org/10.3390/bioengineering10090998).
10. Samim MM, Dhar D, Goyal S, Dey T, Naznin P, Shah R, Singh V, Chowdhury S, Bhavesh M, Verghese N, Abhishek G, Chowdhury A, **Chatterjee A**, Siddiqui S., 'AI-CoV Study: Autoimmune Encephalitis associated with COVID-19 and it's vaccine- a Systematic review ', *Journal of Clinical Neurology* , 2022 (https://doi.org/10.3988/jcn.2022.18.6.692).
11. **Chatterjee A**., Kondaiah P., Gundiah N.'Stress fiber growth and remodeling determines cellular morphomechanics under uniaxial cyclic stretch', *Biomechanics and Modeling in Mechanobiology* 2022(http://dx.doi.org/10.1007/s10237-021-01548-z).
12. KhajaMouniuddin S.B. Md. [#], **Chatterjee A**. [#], Bhat M.R, Harursampath D., Gundiah N., 'Mechanical characterization of a woven multi-layered hyperelastic composite laminate under uniaxial loading', *Journal of Composite Materials*, 2021 (https://doi.org/10.1177/00219983211011528).
    # Equal Contribution
13. Dhar D**,** Dey T, Samim MM, Padmanabha H, **Chatterjee A**, Naznin P, Chandra SR, Mallesh K, Shah R, Siddiqui S, Pratik K, Ameya P, Abhishek G., 'Systemic inflammatory syndrome in COVID-19–SISCoV study: systematic review and meta-analysis', *Pediatric Research,* 2021 (https://doi.org/10.1038/s41390-021-01545-z)
14. **Chatterjee A**., Chahare N., Kondaiah P., Gundiah N. 'Role of fiber orientations in the mechanics of bioinspired fiber reinforced elastomers. *Soft Robotics,* 2020 (https://doi.org/10.1089/soro.2019.0191).
15. Kulkarni A.H., **Chatterjee A**., Kondaiah P., Gundiah N. 'TGF-β induces changes in breast cancer cell deformability'. *Physical Biology,* 2018 (https://doi.org/10.1088/1478-3975/aac3ba).
16. **Chatterjee A**., Dutta S., Mandal B.K., 'Combustion performance and emission characteristics of hydrogen as an Internal Combustion Engine Fuel'. *Journal of Aeronautical & Automotive Engineering* (JAAE), 2014, ISSN, 2393-8579.

Patents

1. Namrata Gundiah, Nidheesh Puliyath, **Aritra Chatterjee**, Chaitanya Gaikwad (IISc, Bangalore) on "STRETCHING OF CELLS AND TISSUES", Indian Patent, (Patent No: - 434396, Date of Grant: - 9th June,2023).

Manuscripts Under Review/Preparation

1. Sahu G, Reddy A P K, Chatterjee **A**., Roy S, Banerjee S., 'Enhancement of mechanical properties for a PVA-nanoparticle composite', 2025 (*under preparation*)

Conference Proceedings/Presentations/ Invited Talks

1. Chatterjee **A**., Mahipal M K, Chatterjee K, Nain A, Gundiah N., 'Bio-inspired Materials for Soft Robotic Applications', CISM Summer School on "Mechanics to Build and Program Soft Robots", 7-11 July, CISM, Udine, Italy (Poster Presentation).
2. Sahu G, Reddy A P K, Chatterjee **A**., Roy S, Banerjee S, 'Enhancement in the mechanical properties of PVA-MoS2 QD composite: An experimental and numerical study' 8th International Conference on Nanoscience and Nanotechnology (ICONN2025), 24-26 March, SRM Institute of Science and Technology, Chennai, India (Poster Presentation).

3. **Chatterjee A**, 'Heterogeneous Cellular Growth and Stiffness Determine Morphometrics in Plant Stem Cell Mutants', Third International Symposium on Physics of Cells and Tissues, (POCT 3.0), IISC Bangalore, India, Feb 21-22, 2025 (Invited talk).
4. Aiswarya N M, **Chatterjee A**, Narayanan RA, "Signatures of metastable complex fluid in Xanthan gum solutions revealed using Large Amplitude Oscillatory Shear Rheology"- CompFlu, December. 2024, IIT Hyderabad, India (Flash Talk and Poster Presentation).
5. Hansen SH , Bramlage LR, Weng H , Main R, **Chatterjee A** , Lescun TB, 'An Ex Vivo Non-destructive Cyclic Comparison of Two Tension Band Techniques for Equine Metacarpophalangeal Joint Arthrodesis', ACVS (American College of Veterinary Surgeons) Surgery Summit, Arizona, USA, October 24-26, 2024 (Oral Presentation) Conference Proceedings Published – Veterinary Surgery, *Wiley*, Vol 53, Issue 7, 2024. (https://doi.org/10.1111/vsu.14148).
6. Hansen SH , Bramlage LR , Weng H , Main R, **Chatterjee A** , Lescun TB , 'An Ex Vivo Biomechanical Comparison of Two Palmar Tension Band Techniques for Equine Metacarpophalangeal Joint Arthrodesis ', ACVS (American College of Veterinary Surgeons) Surgery Summit, Arizona, USA, October 24-26, 2024 (Oral Presentation). Conference Proceedings Published - Veterinary Surgery, *Wiley*, Vol 53, Issue 7, 2024. (https://doi.org/10.1111/vsu.14148).
7. Hansen SH, **Chatterjee A**, Bramlage LR, Lescun TB, "Effect of palmar tension band technique used in fetlock joint arthrodesis on distal limb joint angles in cadaveric horse limbs during loading.", ECVS (European College of Veterinary Surgeons) Annual Scientific Meeting, Valencia, Spain, July 4-6, 2024 (Oral Presentation).
8. **Chatterjee A**, 'Tunable Agarose-Collagen Hydrogels to study Chondrocyte Mechanobiology', Soft Matter Young Investigator Meet, (SMYIM), Kodaikanal, India, June 12-14, 2024 (Invited talk).
9. **Chatterjee A.**, Davis Z.R., Lescun T, Chan D.D, 'Multiscale correlations between, joint and tissue biomechanics and morphology in ovine stifles', Summer Biomechanics, Bioengineering and Biotransport Conference (SB^3C), Wisconsin, USA, June 11-14, 2024. (Poster Presentation).
10. **Chatterjee A** , 'Role of fiber orientation in the mechanics of cells and tissues under stretch', Five-day Online FDP on "Modelling of Complex Systems using Mathematics", Vellore Institute of Technology (VIT), Chennai, November 6-10, 2023 (Invited talk).
11. Zigan M.C, **Chatterjee A.**, Alston B C., Solorio L, Chan D.D, 'Assessment of Agarose-Collagen Hydrogels for Chondrocyte Mechanobiology Studies', 12th Annual Musculoskeletal Repair and Regeneration Symposium, Albert Einstein College of Medicine, USA October 25, 2023, (Poster Presentation).
12. **Chatterjee A.**, Turner J., Banks J., Adebowale J., Chan D.D, Mendenhall J., 'Fabrication and mechanical characterization of direct ink write 3d printed methacrylated hyaluronic acid cerium oxide scaffolds', Summer Biomechanics, Bioengineering and Biotransport Conference (SB^3C), Vail, Colorado, USA, June 4-8, 2023. (Poster Presentation).
13. Wang J., **Chatterjee A.**, Zigan M. C., Chortos A., Chan D.D, 'A pneumatically controlled device for uniaxial and biaxial cell stretching', Summer Biomechanics, Bioengineering and Biotransport Conference (SB^3C), Vail, Colorado, USA, June 4-8, 2023. (Poster Presentation).
14. Zigan C., Nguyen H., **Chatterjee A.**, Chortos A., Chan D.D, 'Effects of dynamic compressive loading on mechanical and biochemical properties of chondrocyte-embedded hydrogels',Summer Biomechanics, Bioengineering and Biotransport Conference (SB^3C), Vail, Colorado, USA, June 4-8, 2023. (Poster Presentation).
15. **Chatterjee A.**, Chan D. D., 'AFM and Multi-scale Biomechanics- from cells to tissues. EMBRIO Institute Annual Meeting. Purdue University, USA July, 2022.
16. Verma B K., **Chatterjee A**., Kondaiah P., Gundiah N, "Role of substrate stiffness in regulating integrin α5 expression and ECM-associated gene expression in fibroblasts". 9th World Congress on Biomechanics, Taipei, 2022 (Poster Presentation).
17. **Chatterjee A**., Paddillaya N, Gaikwad C, Kondaiah P, Gundiah N, Stress fiber growth and remodeling enhances cellular contractility in fibroblasts under uniaxial cyclic stretch'. 9th World Congress of Biomechanics, Taipei, 2022.
18. **Chatterjee A**., Ramboud L., Gundiah N., Das P., 'Cellular Growth and Stiffness Determines Morphometrics in Plant Stem Cell Mutants', Biophysical Society 64th Annual Meeting, San Diego, February 15-19, 2020 (https://doi.org/10.1016/j.bpj.2019.11.2003).
19. Khaja Moinuddin S.B.Md, **Chatterjee A**., Bhat M.R, Gundiah N., Harursampath D.K., 'Mechanical Characterization & Constitutive Modelling of a Compressible Hyperelastic Material', Indian Conference on Applied Mechanics (INCAM), IISc, Bangalore, July 2019.
20. **Chatterjee A**., Chahare N., Bekkari K., Kondaiah P., Gundiah N. 'Constitutive properties of bio-inspired fiber reinforced elastomers with transverse isotropic symmetry', Workshop on Non-Classical Advanced Mechanics of Materials, IISc, Bangalore, 2019.
21. **Chatterjee A**., Kondaiah P, Gundiah N,' Cyclic stretch dependent actin growth and remodelling determines cellular morphoelastic response. Proceeding of the Fourth Soft Tissue Modelling Workshop, Glasgow, 2019.
22. **Chatterjee A**., Kondaiah P, Gundiah N, 'Fibroblast growth, remodelling, and stiffness changes due to actin and microtubule re-alignment under cyclic stretch'. World Congress of Biomechanics, Dublin, 2018(Poster Presentation).
23. Kulkarni A K., **Chatterjee A**., Kondaiah P., Gundiah N, "TGF-β induces changes in cell deformability depend on the cell invasive potential". World Congress on Biomechanics, Dublin, 2018.
24. **Chatterjee A**., Chahare N.R., Kulkarni A.H., Kondaiah P., Gundiah N. -" Design of A Dynamic Cell Stretcher to Quantify Responses of Fibroblasts to Cyclic Stretching and TGF-beta". 5th International Conference on Computational and Mathematical Biomedical Engineering, University of Pittsburg. CMBE 2017 Proceedings Vol. 1, pp. 1273-1276.
25. **Chatterjee A**., Mandal B.K "Numerical Simulation of Water Filled Square Cavity Partially Heated from the Bottom" International Conference on Advanced Materials and Energy technology, IIEST Shibpur 2014.

26. **Chatterjee A**., Dutta S., Mandal B.K "Combustion Performance and Emission Characteristics of Hydrogen as an Internal Combustion Engine Fuel" 5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics" (ITMAEAP), JNU. Delhi, 2014.

Awards and Achievements

- Awarded the OPERA Award (Outstanding Potential for Excellence in Research and Academics), as part of my appointment as an Assistant Professor at BITS Pilani, Hyderabad.
- Awarded the 'Institute Medal (2021-22)' for best PhD thesis in the Centre for Biosystems Science and Engineering (BSSE), IISC by the Council of the Institute.
- Awarded travel grant from IUTAM, to attend summer school on "Growth and Remodeling in Soft Biological Tissues", organized by CISM - International Centre for Mechanical Sciences, held at Udine, July 2017.
- Awarded Tata Trust, Travel award from IISc to attend Fourth Soft Tissue Modelling Workshop at Glasgow,2019.
- Selected for "ICTP - ICTS Winter School on Quantitative Systems Biology, 2019" on morphogenesis held at ICTS, Bangalore, December 2019.
- Selected for attending the Mechano-developmental Biology Meeting, Coorg, India 2019.
- Awarded provisional offer for the PhD program in the Interdisciplinary Programs in Science and Engineering under the Prime Minister's Research Fellowship (PMRF) scheme.
- Selected for Summer Fellowship Program, 2015 at IIT Madras, Department of Applied Mechanics for a two month long paid internship program.
- Winner of 1965 ME (Mechanical Engineering) ALUMNI AWARD 2015-16, for Technical Excellence at IIEST Shibpur.
- Winner of Gouri & Jitendra Mohan Mazumder Undergraduate Fellowship Award 2014-15 at IIEST Shibpur.
- Ranked among top 1% candidates in WBJEE (West Bengal Joint Entrance Examination) and in top 2 % candidates in AIEEE (All India Engineering Entrance Examination) 2012.
- Awarded certificate of merit for being placed among the top 10% of the regional candidates for National Standard Examination in Physics 2011-12 (at Class XII level), organized by Indian Association of Physics Teachers.

Mentorship/Teaching

- Currently teaching/have taught a course on Solid Mechanics (ME F211), Cell and Tissue Biomechanics (ME F324) Engineering Optimization (ME F320) and also helping with Advanced Mathematical Methods lab course in the Mechanical Engineering Department at BITS Pilani, Hyderabad campus.
- Guest lectured a class on Contact Mechanics in a senior level UG course (BME31400 – Experimental Methods in Biomechanics) in Weldon School of Biomedical Engineering at Purdue University, during spring semester, 2023.
- Teaching assistant for Graduate level "Biomechanics Course" (Subject Code- ME 251) taught by Prof. Namrata Gundiah, Department of Mechanical Engineering. (Jan-May Semester 2019).
- Conducted weekly office hours and doubt-clearing sessions on topics involving fundamentals of continuum mechanics, nonlinear solid mechanics and viscoelasticity and their application to study biological systems.
- Helped the course instructor set questions for exams and grade assignments.
- Currently mentoring two PhD candidates for their doctoral thesis supervision as PI. Previously I had mentored one masters, two undergraduate and summer research students at Chan (MRI) lab at Purdue University. Also mentored one summer intern and project assistant in Biomechanics Laboratory at IISc.

Academic and Industrial Projects (Under-graduation)

- "Mechanical Modeling of Actin Filament and Numerical Analysis of Chemical Interaction with Gelsolin" under the guidance of, Prof. Saumendra Kumar Bajpai, Department of Applied Mechanics, IIT Madras (Duration: 15th May 2015 to 15th July 2015).
- Final year B.E project on "Finite Element Analysis for Stress & Deflection Characteristics of Isotropic & Orthotropic Plates with Cutouts", under the guidance of Prof. Debasis Datta, Department of Mechanical Engineering, IIEST Shibpur.
- "Finite element analysis of dental implants" under the guidance of Prof. Amit Roy Chowdhury, Department of Aerospace Engineering and Applied Mechanics, IIEST Shibpur.
- Industrial training intern on "Preparation of five roller assembly sets of Continuous Casting Shop" at Bhilai Steel Plant, SAIL. (Duration: 26th May,2014 to 21st June 2014).

Extracurricular activities

- Member of organizing committee of "Workshop on Theoretical and Computational Biology" and 6th Annual Research Symposium at the Centre for Biosystems Science and Engineering, January 23-25, 2020, IISc Bengaluru.

- Active student member of ISHRAE (Indian Society of Heating, Refrigeration, Air Conditioning Engineers) during B.E (2012-16) at IIEST Shibpur.
- Cleared up to Fourth Year in Painting from Bangiya Sangeet Parishad.