DR. SAYANTAN GUHA

Assistant Professor
Centre for Data Science,
Institute of Technical Education and Research (ITER),
Siksha 'O' Anusandhan (Deemed to be University)
Bhubaneswar, Odisha 751030, India.

PERSONAL INFORMATION AND CONTACT DETAILS

Full Name: Sayantan Guha **Nationality**: Indian **DOB**: May 7, 1992 **Gender**: Male
Home address: Indraprastha Apartment, 1st Floor, Flat - 7B, Raghunathpur (E), Tegharia, V.I.P. Road, RAB - 11/B, Kolkata-700059, West Bengal, India.
Work address: Centre for Data Science, Institute of Technical Education and Research (ITER), Siksha 'O' Anusandhan (Deemed to be University), ITER College Rd, Jagmohan Nagar, Bhubaneswar, Odisha 751030, India.
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CAREER OBJECTIVE

To work in an organization that I can contribute to with my mathematical knowledge and skills, whereby I can responsibly aid the organization to move in a positive direction.

RESEARCH INTERESTS

• Applied Mathematics • Partial Differential Equations • Mathematical Modeling • Solid Mechanics • Wave Propagation • Piezoelectricity • Thermoelasticity • Smart Materials and Structures • Smart fiber-reinforced composites • MEMS/ NEMS

ACADEMIC EXPERIENCE

Sl. No.	Position held	Name of the Institute	Duration	
			From	To
1	Assistant Professor	Institute of Technical Education and Research, Siksha 'O' Anusandhan (Deemed to be University)	19.08.2022	Till date

EDUCATION

- **Doctor of Philosophy (Ph.D.):** Applied Mathematics from **Indian Institute of Technology (Indian School of Mines)**, **Dhanbad**, Jharkhand, India. **(2017-2022)**. Final viva-voce exam: 20.10.2022
  Ph.D. Thesis title: **Wave characteristics in fiber-reinforced smart composites and thermoelastic damping & frequency shift of beams with complexities**.
  Supervisor : **Prof. Abhishek Kumar Singh (Associate Professor)**.
- **Post Graduation (M.Sc.)**: Mathematics & Computing from **Indian Institute of Technology (Indian School of Mines), Dhanbad, India.**
  (2014-2016). OGPA **9.33/10 (First class with Distinction).**

M.Sc. Thesis title: **Reflection and transmission of plane waves at an imperfect interface between two dissimilar monoclinic elastic half-spaces: a review**.

Supervisor : **Prof. Sanjeev Anand Sahu (Associate Professor)**

- **Graduation (B.Sc.) Honors**: Mathematics from St. Xavier's College, Kolkata, India (Autonomous) (Calcutta University). **(2011-2014)**. CGPA **6.31/10.**
- **Intermediate (Class 12)**: Patha Bhavan (West Bengal Council of Higher Secondary Education). **(2011)**. Total **81%**.
- **Matriculation (Class 10)**: South Point High School (West Bengal Board of Secondary Education). **(2009)**. Total **79%**.

RESEARCH PAPERS PUBLISHED

[The quartiles are of those years when each respective paper was published. Source: Web of Science]

2025

27. Singh, A. K., **Guha, S.**, & Maji, A. (2025). Analysis of thermoelastic damping and frequency shift of nano-scale piezoelectric fiber-reinforced thermoelastic composite beam under single, dual, and three phase-lag models: A comparative approach. *Thin-Walled Structures*, 211, 113134. **(Impact factor 5.7) (Elsevier) SCIE (Q1)**

26. Dholey, B., Alneamy, A., Mistri, K., **Guha, S.**, & Tharwan, M. (2025). The Influence of SH-wave Propagation in a Tri-layered Composite Structure with Interfacial Imperfections. *Journal of Vibration Engineering & Technologies*, *13*(2), 197. **(Impact factor 2.3) (Springer Nature) SCIE (Q2)**

25. **Guha, S.**, & Alneamy, A. (2025). The Influence of Flexible Support on the Material Properties of Piezothermoelastic Fiber-Reinforced Composite Beam. *Journal of Vibration Engineering & Technologies*, *13*(2), 1-17. **(Impact factor 2.3) (Springer Nature) SCIE (Q2)**

2024

24. Alneamy, Ayman M., **Guha, S.**, and Tharwan, Mohammed Y. (2024). Modeling and Analysis of Thermoelastic Damping in a Piezoelectro-Magneto-Thermoelastic Imperfect Flexible Beam. *Mathematics*, 12(24), 4011. **(Impact factor 2.3) (MDPI) SCIE (Q1)**

23. Biswas, M. & **Guha, S.** (2024). Influence of dynamic fiber volume fraction on Love wave velocity in PFRC plate imperfectly bonded with piezoelectric-viscoelastic substrate. *Acta Mechanica*, 236(1), 321-341. **(Impact factor 2.3) (Springer Nature) SCIE (Q2)**

22. Singh, A. K., Singh, A. K., Yadav, R. P., & **Guha, S.** (2024). Analysis of stress intensity factor for moving Griffith crack in a transversely isotropic strip under punch pressure. *Arabian Journal of Geosciences*, 17(11), 1-12. **Springer Nature**

21. Kumari, R., Singh, A. K., Kumar, S., & **Guha, S.** (2024). Transmission of Lamb wave in a micro-mechanically piezoelectric fiber-reinforced composite plate. *Wave Motion*, 128, 103307. **(Impact factor 2.4) (Elsevier) ISISCI (Q2)**

2023

20. **Guha, S.**, Singh, A. K., & Singh, S. (2023). Thermoelastic damping and frequency shift of different micro-scale piezoelectro-magneto-thermoelastic beams. *Physica Scripta*, 99(1), 015203. **(Impact factor 2.9) (IOPScience) SCI (Q2)**

19. **Guha, S.** & Singh, A. K. (2023) On-plane waves reflecting at the impedance boundary of an initially stressed micromechanically modeled piezomagnetic fiber-reinforced composite half-space. *Mechanics of Advanced Materials and Structures*, 1-18. **(Impact factor 2.8) (Taylor & Francis) SCIE (Q2)**

18. Singh, A. K., Singh, A. K., **Guha, S.** & Kumar, D. (2023). Mathematical analysis on the propagation of Griffith crack in an initially stressed strip subjected to punch pressure. *Mechanics Based Design of Structures and Machines*, 52(7), 4133-4151. **(Impact factor 3.9) (Taylor & Francis) SCIE (Q1)**

17. Nain, S. & **Guha, S.** (2023). Influence of fiber orientation on reflection and attenuation phenomenon in fiber-reinforced viscoelastic medium. *Archive of Applied Mechanics*, 93(7), 2993-3005. **(Impact factor 2.8) (Springer Nature) SCI/SCIE (Q3)**

2022

16. **Guha, S.** & Singh, A. K. (2022). Transference of SH waves in a piezoelectric fiber-reinforced composite layered structure employing perfectly matched layer and infinite element techniques coupled with finite elements. *Finite Elements in Analysis and Design*, 209, 103814. **(Impact factor 3.1) (Elsevier) SCIE (Q1)**
15. **Guha, S.** & Singh, A. K. (2022). Frequency shifts and thermoelastic damping in distinct Micro-/Nano-scale piezothermoelastic fiber-reinforced composite beams under three heat conduction models. *Journal of Ocean Engineering and Science*. **(Impact factor 7.1) (Elsevier) SCIE (Q1)**
14. Singh, S., Singh, A. K., & **Guha, S.** (2022). Reflection of plane waves at the stress-free/rigid surface of a micro-mechanically modelled Piezo-Electro-Magnetic Fiber-Reinforced half-space. *Waves in Random and Complex Media*, 1-30. **(Impact factor 4.051) (Taylor & Francis) SCI (Q1)**
13. Singh, A. K., Rajput, P., **Guha, S.**, & Singh, S. (2022). Propagation characteristics of love-type wave at the electro-mechanical imperfect interface of a piezoelectric fiber-reinforced composite layer overlying a piezoelectric half-space. *European Journal of Mechanics-A/Solids*, 93, 104527. **(Impact factor 4.1) (Elsevier) SCI/SCIE (Q1)**

2021

12. Singh, A. K., Mahto, S., & **Guha, S.** (2021) Analysis of plane wave reflection and transmission phenomenon at the interface of two distinct micro-mechanically modeled rotating initially stressed piezomagnetic fiber-reinforced half-spaces. *Mechanics of Advanced Materials and Structures*, 1-17. **(Impact factor 2.8) (Taylor & Francis) SCIE (Q1)**
11. Singh, S., Singh, A. K., & **Guha, S.** (2021). Shear waves in a Piezo-Fiber-Reinforced-Poroelastic composite structure with sandwiched Functionally Graded Buffer Layer: Power Series approach. *European Journal of Mechanics-A/Solids*, 92, 104470. **(Impact factor 4.1) (Elsevier) SCI/SCIE (Q1)**
10. Singh, A. K., Mahto, S., & **Guha, S.** (2021). Analysis of plane wave reflection phenomenon from the surface of a micro-mechanically modeled piezomagnetic fiber-reinforced composite half-space. *Waves in Random and Complex Media*, 1-22. **(Impact factor 4.051) (Taylor & Francis) SCI (Q1)**
9. Singh, S., Singh, A. K., & **Guha, S.** (2021). Impact of interfacial imperfections on the Reflection and Transmission phenomenon of plane waves in a Porous-Piezoelectric model. *Applied Mathematical Modelling*, 100, 656-675. **(Impact factor 5) (Elsevier) SCIE (Q1)**
8. **Guha, S.** & Singh, A. K. (2021). Influence of varying fiber volume fractions on plane waves reflecting from the stress-free/rigid surface of a piezoelectric fiber-reinforced composite half-space. *Mechanics of Advanced Materials and Structures*, 1-15. **(Impact factor 2.8) (Taylor & Francis) SCIE (Q1)**
7. **Guha, S.**, & Singh, A. K. (2021). Frequency shifts and thermoelastic damping in different types of Nano-/Micro-scale beams with sandiness and voids under three thermoelasticity theories. *Journal of Sound and Vibration*, 510, 116301. **(Impact factor 4.7) (Elsevier) SCI/SCIE(Q1)**
6. **Guha, S.**, & Singh, A. K. (2021). Plane wave reflection/transmission in imperfectly bonded initially stressed rotating piezothermoelastic fiber-reinforced composite half-spaces. *European Journal of Mechanics-A/Solids*, 88, 104242. **(Impact factor 4.1) (Elsevier) SCI/SCIE (Q1)**

2020

5. **Guha, S.** On energies carried by reflected waves for incidence of plane wave in a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite half-space: A fiber volume fraction comparison. *Proc. of 65th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM)*, December 9-11, 2020, Gandhi Institute of Technology and Management (GITAM) Hyderabad, India.
4. Singh, P., Singh, A. K., Chattopadhyay, A., & **Guha, S.** (2020). Mathematical study on the reflection and refraction phenomena of three-dimensional plane waves in a structure with floating frozen layer. *Applied Mathematics and Computation*, 386, 125488. **(Impact factor 4) (Elsevier) SCIE (Q1)**
3. **Guha, S.**, & Singh, A. K. (2020). Effects of Initial Stresses on Reflection phenomenon of plane waves at the free surface of a Rotating Piezothermoelastic Fiber-Reinforced Composite half-space. *International Journal of Mechanical Sciences*, 181, 105766. **(Impact factor 7.3) (Elsevier) SCI/SCIE (Q1)**
2. Singh, A. K., & **Guha, S.** (2020). Reflection of plane waves from the surface of a piezothermoelastic fiber-reinforced composite half-space. *Mechanics of Advanced Materials and Structures*, 28(22), 2370-2382. **(Impact factor 2.8) (Taylor & Francis) SCIE (Q1)**

2019

1. **Guha, S.**, Singh, A. K., & Das, A. (2019). Analysis on different types of imperfect interfaces between two dissimilar piezothermoelastic half-spaces on reflection and refraction phenomenon of plane waves. *Waves in Random and Complex Media*, 31(4), 660-689. **(Impact factor 4.051) (Taylor & Francis) SCI (Q1)**

BOOK CHAPTERS PUBLISHED

3. Singh, S., & **Guha, S.** (2022). Modeling of SH waves in a functionally graded piezo-poroelastic structure with sensitive coating in presence of point source of disturbance. In *Corrosion Mitigation Coatings* (pp. 369-384). De Gruyter.

2. Singh, A. K., & **Guha, S.** (2022). Mathematical Study of Reflection and Transmission Phenomenon of Plane Waves at the Interface of Two Dissimilar Initially Stressed Rotating Micro-Mechanically Modeled Piezoelectric Fiber-Reinforced Composite Half-spaces. In *Wave Dynamics* (pp. 131-162). *World Scientific*.

1. Chaki, M. S., **Guha, S.**, & Singh, A. K. (2018, July). Impact of Rectangular/Parabolic Shaped Irregularity on the Propagation of Shear Horizontal Wave in a Slightly Compressible Layered Structure. In *International Conference on Mathematical Modelling and Scientific Computation* (pp. 61-74). *Springer, Singapore*.

PATENTS CHAPTERS PUBLISHED

1. Tandon, A., Barua, R., Saha, S., Das, P., Singh, P., **Guha, S.**, Lahe, A.D., Datta, S., Kamble, N.A., Rabade, S.S., Patil, K.S., Banerjee, B. (2025). Adaptive AI-Driven VR Engine for Personalized Real-Time Immersive Experiences. *Patent and Design Journal (Govt. of India)*, Journal No. 08/2025, page 18458.

CONFERENCES / WORKSHOPS / WEBINARS

INVITATIONS

7. Invited Speaker: 3rd International Conference on "Recent Trends in Materials Science & Devices 2025" (ICRTMD-2025), organized by Department of Physics, JVMGRR College, Charkhi Dadri, Haryana, India and Research Plateau Publishers, during 24-26 March, 2025. Paper title: "*Thermoelastic damping in micro-scale piezothermoelastic fiber-reinforced composite clamped beam*".
Received the "**Best Paper Award**" in Technical Session: ICRTMD 24 [Faculty/Scientist (Invited)].

6. National Advisory Committee Member and Invited Speaker: International Conference on Recent Trends & Innovations in Mathematics Statistics and Scientific Computing (IC-RTIMSSC-2025), organized by Department of Mathematics and Department of Computer Science & Engineering Indira Gandhi University Meerpur, Rewari, HR. India, during March 5-6, 2025. Paper title: "*Wave reflections in piezoelectric fiber-reinforced composite half-space*".

5. Session Chair and Coordinator: 3rd International Conference on Applied Mathematics in Science and Engineering (AMSE – 2024), organized by ITER, Siksha 'O' Anusandhan University, Bhubaneswar and Co-organized by NIT, Arunachal Pradesh, during July 25-27, 2024.

4. Invited Speaker: International Conference on Composite Materials for Environment Protection & Remediation (ICCMEPR-2024) (online mode), jointly organized by Department of Chemistry, G. B. College, Ramgarh VKS University, Ara, Bihar, India & Research Plateau Publishers, during July 02-03, 2024. Paper title: "*Love wave propagation in layered piezoelectric structures for sensor based applications*".

Received the "**Best Paper Award**" in Technical Session 02 [Faculty/Scientist (Invited) Speakers], themed "**Emerging Smart and Responsive Materials / Energy Applications of Materials**".

3. **Keynote Speaker: 12th International Conference on Mechanical Science and Engineering (ICMSE 2024)** (online mode), organized by IAMSET (International Association of Management Science and Engineering Technology) on June 27, 2024. Paper title: "*Wave Reflection Characteristics in a Micro-mechanically Modeled Piezoelectric Fiber-reinforced Composite Half-space*".
2. **Keynote Speaker: International Conference on "Mathematical Innovations and Modelling" (ICMIM2024)**, organized by PG Department of Mathematics, **Sri Sarada College for Women**, Tirunelveli - 627011, Tamilnadu, India on January 05, 2024. Paper title: "*Mathematical investigation of the reflection of qP/qSV waves from the stress-free/rigid surface of a half-space of a micromechanically modelled piezoelectric fiber-reinforced composite*".
1. **Invited Speaker: 2nd International Conference on "Recent Trends in Materials Science & Devices 2023" (ICRTMD-2023)**, organized by Sat Kabir Institute of Technology & Management, Haryana, India, during December 29-31, 2023. Paper title: "*Natures of reflected waves generated due to incident qP/qSV waves at the stress-free surface of a micro-mechanically modeled PFRC half-space*".

OTHER PARTICIPATIONS

20. Was one of the five **nationally shortlisted** people to participate in the section **Mathematical Sciences (including Statistics)** at the **108th Indian Science Congress Young Scientists Award Programme** organized by **Rashtrasant Tukadoji Maharaj (RTM) University, Nagpur, Maharashtra, India**, during January 3-7, 2023, wherein, I presented a paper entitled "*Mathematical study of plane wave reflection and transmission at the interface of two dissimilar rotating piezoelectric fiber-reinforced composite half-spaces*".
19. Participated in the **Global Initiative of Academic Networks (GIAN) course** entitled **"Global Seismology"** organized by the **Department of Applied Geophysics, IIT(ISM) Dhanbad, India**, during May 09 - 18, 2022. **Obtained 87 marks (out of 100) with a grade "A" in the examination conducted after the completion of the entire course**.
18. Attended a 1-day webinar on **"Effective writing skills for promoting research - what do we need to know?"** organized by **Elsevier** at the **Indian Council of Medical Research**, on December 13, 2021.
17. Was **internationally shortlisted** to participate in the section **Impact Mechanics and Wave Propagation** at the **25th International Congress of Theoretical and Applied Mechanics (ICTAM)** (online conference) organized by the **International Union of Theoretical and Applied Mechanics (IUTAM)** at **Milan, Italy**, during August 22-27, 2021, wherein, I made a short oral presentation entitled "*Mathematical study of wave reflection and refraction phenomenon at the interface of two dissimilar piezoelectric fiber-reinforced composite half-spaces*" with a poster.
16. Was one of the two **nationally shortlisted** people to participate in the section **IMS Prize-group-5: Solid Mechanics** at the **86th Annual Conference of Indian Mathematical Society – An International Meet,** (online conference) organized by **VIT Vellore, India**, during December 17-20, 2020, wherein, I presented a paper entitled "*Mathematical study of reflection of qP and qSV waves from the stress-free/rigid surface of a micromechanically modeled Piezoelectric Fiber-Reinforced Composite half-space*".
15. Was one of the four **nationally shortlisted** people to participate in the section **SM7: Mechanics of Composites** at the **65th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM)** (online mode) organized by **Gandhi Institute of Technology and Management (GITAM) Hyderabad, India**, during December 9-11, 2020, wherein, I presented a paper entitled "*On energies carried by reflected waves for incidence of plane wave in a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite halfspace: A fiber volume fraction comparison*" and received **"Young Scientist Award" (awarding agency – IIT Kharagpur**).
14. Attended **International Conference on Advances in Differential Equations and Numerical Analysis (ICADENA 2020)** (online mode) organized by **IIT Guwahati, India**, during October 12-14, 2020, wherein, I presented a paper

entitled "*Mathematical study of reflection of plane waves from the stress-free/rigid surface of a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite half-space*".

13. Attended **five days online Short Term Course on "Recent Trends in Advanced Materials and Devices"** organized by the **Department of Physics** and the **Department of Electronics and Communication Engineering, Dr. B. R. Ambedkar National Institute of Technology Jalandhar, Punjab, India**, during September 21-25, 2020.

12. Attended **five days online Short Term Course on "Numerical Solutions of Differential Equations"** organized by the **Department of Mathematics, Dr. B. R. Ambedkar National Institute of Technology Jalandhar, Punjab, India**, during September 16-20, 2020.

11. Attended one day **Webinar** on the History of Mathematics entitled "**From Numbers to Analysis: A Historical Journey**" organized the **Calcutta Mathematical Society (CMS), Kolkata, India**, on September 06, 2020.

10. Attended **International Webinar Series on Applications of Mathematics** organized by the **Department of Mathematics, Gurucharan College, Silchar, Assam, India**, during August 20 – 22, 2020.

9. Was one of the three **nationally shortlisted** people to participate in **ISC Best Poster Award Programme** at the **107th Indian Science Congress Association** in the section of **Engineering Sciences** held at the **University of Agricultural Sciences, GKVK Campus, Bangalore**, **Karnataka, India**, during January 03 – 07, 2020, wherein, I made a presentation entitled "*Analysis of reflection phenomenon of plane waves at the isothermal stress free / rigid surface of a piezothermoelastic fiber-reinforced composite half-space*" with a poster.

8. Participated in **Advanced training in Mathematics (ATM) School Workshop** entitled **"Continuum Mechanics : Principles and Applications"** organized by the **Department of Mathematics, Panjab University, Chandigarh, India**, during November 19 - 24, 2018.

7. Attended **International Conference on Mathematical Modelling and Scientific Computing (ICMMSC 2018)** organized by **IIT Indore, India**, during July 19 - 21, 2018, wherein, I presented a paper entitled "*Impact of irregularity on the propagation of SH wave in a slightly compressible composite structure*".

6. Co-authored a paper that was presented at the **10th European Solid Mechanics Conference (ESMC 2018)** held at **Bologna, Italy**, during July 02 - 06, 2018.

5. Participated in the **Global Initiative of Academic Networks (GIAN) course** entitled **"Seismic Anisotropy: Estimation, Imaging, & Reservoir Characterization"** organized by the **Department of Earth Science, IIT Roorkee, India**, during June 25 - 29, 2018.

4. Attended **International Conference on Composite Materials and Structures (ICCMS 2017)** organized by **IIT Hyderabad, India**, during December 27 – 29, 2017, wherein, I presented a paper entitled "*Impact of irregularity on the propagation of SH wave in a slightly compressible composite structure*".

3. Participated in the **National Training Programme** on **"Research Methodology"** organized by **IIT (ISM) Dhanbad**, **Jharkhand, India**, during December 18 – 23, 2017.

2. Participated in an International Seminar on Science and Religion "**The Unknowable and the Counterintuitive**" organized by **St. Xavier's College, Kolkata**, on July 08, 2013.

1. Participated in "**St. Xavier's Global Earth Summit III**" in an International Conference on **"Environmental Stewardship and Corporate Social Responsibility"** organized by **St. Xavier's College, Kolkata** for a presentation, during February 22-23, 2013.

REVIEWER

Journals (Alphabetical order):

Acta Mechanica (Springer), **American Journal of Mechanical and Materials Engineering** (Science Publishing Group Inc.), **Archive of Applied Mechanics** (Springer Link), **Archive of Mechanics** (Polish Academy of Sciences), **Asian Journal of Advanced Research and Reports**, **Contemporary Mathematics** (Universal Wiser Publisher), **Coupled Systems Mechanics** (Techno Press), **European Journal of Mechanics - A/Solids** (Elsevier), **Geomechanics and**

Geophysics for Geo-Energy and Geo-Resources (Springer Link), **International Journal of Mathematics and Mathematical Sciences** (Hindawi), **International Journal of Modern Physics B (**World Scientific), **International Journal of Oceanography & Aquaculture (IJOAC)** (Medwin Publishers), **Journal of Computational Electronics** (Springer Link), **Journal of Thermal Stresses** (Taylor and Francis), **Mathematical Problems in Engineering** (Hindawi), **Mechanics of Advanced Materials and Structures** (Taylor and Francis), **Mechanics of Time-Dependent Materials** (Springer Link), **Physica Scripta** (IOPscience), **Shock and Vibration** (Hindawi), **Smart Materials and Structures** (IOPscience), **Thin-Walled Structures (**Elsevier), **Wave Motion** (Elsevier), **Waves in Random and Complex Media** (Taylor and Francis), **ZAMM - Journal of Applied Mathematics and Mechanics / Zeitschrift für Angewandte Mathematik und Mechanik** (Wiley).

Conferences:
International Conference on Intelligent and Cloud Computing (ICoICC 2025); The 7th International Conference on Mechanical, Electric, and Industrial Engineering (2024)**;** The 4th International Conference on Electrical, Computer and Energy Technologies (2024)**;** The 2nd International Conference on Mechanics, Electronics, Automation and Automatic Control (MEAAC 2024)**;** International Conference on Ambient Intelligence in Health Care (2023)**;** International Conference on Mechanical, Automotive and Mechatronics Engineering (2023)**.**

TEACHING EXPERIENCE

Courses taught at ITER, SOA:

1. Python for Computer Science and Data Science: Theory classes and practical labs of three sections of CSE branch during 2024-2025.
2. Basic Programming in Python: Theory classes and practical labs of three sections of CSE branch during 2023-2024.
3. Introductory Graph Theory: Theory classes and problem solving sessions of two sections of CSIT branch during 2023-2024.
4. Advanced Discrete Mathematics: Theory classes and problem solving sessions of three sections of CSE and CSIT branches during 2022-2023.

Teaching Assistant (TA) duties performed during Ph.D. tenure at IIT(ISM) Dhanbad:

1. Digital Electronics and Computer Organization: Practical classes during Monsoon Semester 2018-19.
2. Design and Analysis of Algorithms: Practical classes during Winter Semester 2018-19.
3. Vector Calculus: Theory and Tutorial classes during Winter Semester 2018-19.
4. Complex Analysis: Theory and Tutorial classes during Monsoon 2019-20.
5. Modern Algebra: Theory classes during Monsoon 2019-20
6. Computer Organization: Theory classes during Winter Semester, 2019-2020.
7. Matrix Theory and Differential Equations: Theory and Tutorial classes during Winter Semester, 2019-2020.

Assisted in M.Sc. Project work and Thesis:

1. **"Analysis of plane waves reflecting from the stress-free and rigid surfaces of an initially stressed micro-mechanically modeled PMFRC half-space"** by Mr. Jitendra Chaurasiya (Adm. No. 20MS0049), May 2022.
2. **"Study of plane waves reflecting from the impedance boundary of a micro-mechanically modeled PMFRC half-space"** by Mr. Dandu Vedanand Varma (Adm. No. 20MS0154), May 2022.

I also have experience in the process of preparing Sponsored R&D project proposals for national agencies such as DST(SERB), CSIR, and NBHM.

AWARDS/ ACHIEVEMENTS/ FELLOWSHIPS/ SCHOLARSHIPS

10. Received the "**Best Paper Award**" in Technical Session: ICRTMD 24 [Faculty/Scientist (Invited)] at the **3rd International Conference on "Recent Trends in Materials Science & Devices 2025" (ICRTMD-2025)**, organized by Department of Physics, JVMGRR College, Charkhi Dadri, Haryana, India and Research Plateau Publishers, during 24-26 March, 2025, for presenting a paper entitled " *Thermoelastic damping in micro-scale piezothermoelastic fiber-reinforced composite clamped beam* " as an **Invited Speaker**.

9. Received the "**Best Paper Award**" in Technical Session 02 [Faculty/Scientist (Invited) Speakers], themed "**Emerging Smart and Responsive Materials / Energy Applications of Materials**" at the **International Conference on Composite Materials for Environment Protection & Remediation (ICCMEPR-2024)** (online mode), jointly organized by Department of Chemistry, G. B. College, Ramgarh VKS University, Ara, Bihar, India & Research Plateau Publishers, during July 02-03, 2024, for presenting a paper entitled "*Love wave propagation in layered piezoelectric structures for sensor based applications*" as an **Invited Speaker**.

8. Received the **"Young Scientist Award"** at the **65th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM)** organized by Gandhi Institute of Technology and Management (GITAM) Hyderabad, India (Awarding agency – **IIT Kharagpur**), during December 9-11, 2020.

7. Secured **3rd rank at State Level (Jharkhand)** in the **Heartfulness Essay Event 2019** organized by Shri Ram Chandra Mission in collaboration with United Nations Information Centre for India and Bhutan & Heartfulness Education Trust.

6. Awarded **IITISM Junior Research Fellowship** during the last two years of **Ph.D.** (April 2020-June 2022).

5. Awarded Department of Science and Technology-Science and Engineering Research Board (DST-SERB) fellowship during the first three years of Ph.D. (June 2017-March 2020).

4. Cleared Graduate Aptitude Test in Engineering (**GATE**) in Mathematics paper with **AIR 199, GATE Score 454 (30.36 out of 100)** on 2017.

3. Secured **AIR 3** in **ISM M.Sc. Entrance Examination** (11th May 2014).

2. Cleared **Madhava Mathematics Competition (2012, 2013) organized by S.P. College, Pune & TIFR, Mumbai with financial support from NBHM** and participated in **Madhava Mathematics Camp**, organized at **St. Xavier's College, Kolkata (2012)**.

1. Recipient of **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholarship** sponsored by **DST (Department of Science and Technology, Government of India)** for five years (B.Sc+M.Sc 2011-2015) for being among the **Top 1% in class 12 Board Exams (WBCHSE)**.

MEMBERSHIPS IN SCIENTIFIC ORGANIZATIONS

7. Life member of "**International Association of Engineers (IAENG)**", since May 16, 2024 (Member Number: **372704**).

6. Life member of "**Global Initiative of Academic Networks (GIAN)**", Indian Institute of Technology, Kharagpur, West Bengal, India, since **December 17, 2017** (Application Number: **2015150368384**).

5. Life member of "**Indian Society of Theoretical and Applied Mechanics (ISTAM)**", Kharagpur, West Bengal, India, since **July 09, 2019** (Membership ID: **L/1164**).

4. Life member of "**The Indian Science Congress Association (ISCA)**", Kolkata, West Bengal, India, since **March 25, 2019** (Membership ID: **L37750**).

3. Life member of "**Indian Mathematical Society (IMS)**", Pune, Maharashtra, India, since **February 25, 2019** (Membership ID: **L/2019/23**).

2. Life member of "**Society of Applied Mathematics (SAM)**", IIT (ISM) Dhanbad, since **March 21, 2017** (Membership ID: **LM/2017-2018/132**).

1. Life member of "**Calcutta Mathematical Society (CMS)**", Kolkata, West Bengal, India, since **June 01, 2015** (License no. **LG/79**).

PROJECTS UNDERTAKEN

3. I was appointed as a **DST Project Fellow** (Junior Research Fellow for the first two years and Senior Research Fellow for the third year) to work under the **DST-SERB sponsored 3-year project entitled "Mathematical Study on Wave Propagation Aspects in Piezoelectric Composite Structures with Complexities" (Project No. EMR/2016/003985).** I have worked as a Project fellow for the entire duration of the project, and within that duration, I have **published three research articles in Q1 SCI/SCIE journals that acknowledge DST-SERB** as well.

2. Dissertation on **"Reflection and transmission of plane waves at an imperfect interface between two dissimilar monoclinic elastic half-spaces: a review"** under the supervision of **Dr. Sanjeev Anand Sahu** during **M.Sc.** (2014 - 2016).

1. Summer Internship Programme in **Numerical Analysis** under the guidance of **Prof. Natesan Srinivasan, Department of Mathematics, IIT Guwahati**, during May 2015 - July 2015.

LANGUAGES

- **English** – Fluent speaker, proficient writer
- **Hindi** – Native Language
- **Bengali** – State Language

SKILLS

1. Computer Skills:

- **Programming Languages:** Basic Python Programming, C.
- **Computational Software:** Mathematica.
- **Operating Systems:** Windows XP, Windows 7, Windows 8.1, Windows 10.
- **Text Processors:** LaTeX, MS-PowerPoint, MS-Excel, MS-Word.
- **Graphical illustrational Software:** Inkscape

2. Others:

Communication: My participation in some national/international level seminars/webinars/workshops/conferences since B.Sc. greatly enhanced my written and verbal communication skills. My interactions with an audience belonging to a broader area of scientific discipline have most certainly benefitted me immensely by enriching my oratory skills and subject knowledge.

POSITIONS OF RESPONSIBILITY

1. I served as a **Technical Committee member** for a **National level Short-Term Training Program (NLSTTP) on Statistical Machine Learning**, jointly organized by the Centre for Data Science (CDS) and Centre for Artificial Intelligence & Machine Learning (CAI&ML) under the Department of Computer Science and Engineering (CSE) during 7^{th}- 11^{th} August, 2023, at Institute Of Technical Education and Research, Siksha 'O' Anusandhan (Deemed to be university), Bhubaneswar 751030, Odisha, India. I, along with the other members of the committee, provided our technical expertise and guidance to ensure the programme's smooth operation.

2. **Coordinated Siksha 'O' Anusandhan Weekly Academic Lecture (SOAWAL 2022-2023)**.

SOAWAL (2nd Edition) is conducted at the Centre for Data Science every Saturday in online mode. Here, eminent faculties working in Higher Educational Institutions (HEIs) are invited to deliver lectures on their research areas.

i) **Coordinated the 42nd SOAWAL**. **Dr. Prerona Dutta** (Arnold Ross Assistant Professor Department of Mathematics, The Ohio State University, Columbus, USA) delivered a talk on "Metric entropy and nonlinear partial differential equations".

ii) **Coordinated the** 36th **SOAWAL**. **Prof. Natesan Srinivasan** (Professor (HAG), Dept. of Mathematics, IIT Guwahati) delivered a talk on "Moving Mesh Methods for Burgers' and Navier-Stokes Equations".

iii) **Coordinated the 27th SOAWAL**. **Prof. Ravi Sharma** (Assistant Professor, Dept. of Earth Sciences, IIT Roorkee) delivered a talk on "AI & ML Guided Feature Extraction for Quantified Estimates and Impacts on Long-term Storage of CO_2 and H_2 in Complex Carbonate and Shale Formations".

iv) **Coordinated the 14th SOAWAL**. **Prof. Snehashish Chakraverty** (Professor (HAG), Dept. of Mathematics, NIT Rourekla) delivered a talk on "Fuzzy-Affine Arithmetic: A New Perspective for Uncertainty Handling".

3. Joint-secretary, **SIAM (Society for Industrial and Applied Mathematics)** student chapter, **IIT(ISM) Dhanbad, India**. [2015-2016]
4. **Volunteer, Director and Head of Department, Games and Recreation, "ANALYTICA" 2011, 2012, 2013; Department of Mathematics, St. Xavier's College, Kolkata, India.** ANALYTICA is an annual festival organized by the students of the Department of Mathematics in St. Xavier's College, Kolkata. The 'Games and Recreation' is an integral part of this fest. Arranged several mathematical games for participants like solving Sudoku, Brainvita, and Tower of Hanoi; displayed pictures of Illusion by M.C. Escher and conducted the Math-Wiz and Math-Quiz, which are some of the main events of Analytica.
5. I was a **member of the editorial team** for **"Beacon"** – the departmental magazine in St. Xavier's College, Kolkata.
6. **Class representative** during **M.Sc.** for two years. My class conducted and participated in several events during my M.Sc., like Teacher's Day, Vishwakarma Puja, and Basant, under my supervision. Basant is an annual festival organized in IIT (ISM) in which Alumni of 50 years ago (from respective years) come to visit IIT (ISM) Dhanbad.

ACTIVITIES AND INTERESTS

- Taught Mathematics to some underprivileged students of class VIII after college hours in college premises as was arranged by St. Xavier's College, Kolkata (**National Social Service-NSS**), on 2012.
- Participated and volunteered in the annual festival, **ANALYTICA** organized by the students of the Department of Mathematics, St. Xavier's College, Kolkata for 3 consecutive years (2011, 2012, 2013).
- Playing Chess and solving Sudoku to enrich the mind.
- Reading to enrich the soul.
- Drawing (Mainly pencil sketching)
- I'm a numismatist - I like collecting currencies (both coins and banknotes) of different countries.
- Listening to Music

I hereby declare that all the aforementioned statements made by me are true, complete, and correct to the best of my knowledge and belief.

Sayantan Guha

(SAYANTAN GUHA)