

# ANSHID ABOOBACKER

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## PROFILE

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Mathematician and Machine Learning practitioner with 5+ years of experience teaching undergraduate students, postgraduate learners, and working professionals. Combines rigorous mathematical foundations with practical applications in machine learning, optimization, and data analytics. Experienced in designing industry-oriented courses that connect mathematics, artificial intelligence, and real-world decision-making.

## TEACHING EXPERIENCE

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**Guest Faculty, BITS Pilani Work Integrated Learning Programmes** 2025 – 2026  
Hyderabad, India

- Designed and delivered mathematics courses (Linear Algebra & Optimization, Calculus, Optimization Techniques for Machine Learning) to cohorts of 30+ working professionals from software, analytics, and engineering backgrounds.
- Designed modules connecting linear algebra, probability, and optimization with machine learning algorithms used in modern analytics and decision systems.

**Learning Facilitator, BITS Pilani Work Integrated Learning Programmes** 2025 – 2026  
Hyderabad, India

- Facilitated courses including Mathematics Foundations for Machine Learning, General Mathematics I, Zero level Math Foundations, etc, helping learners build strong analytical and quantitative reasoning skills.
- Contributed to curriculum development, concept-driven assessments, and workshops linking mathematical theory with real-world analytics applications.

**Teaching Assistant, Department of Mathematics, BITS Pilani** 2020 – 2025  
Hyderabad, India

- Supported undergraduate and postgraduate teaching across core and advanced mathematics, including Probability and Statistics, Differential Equations, Measure & Integration, Topology, Functional Analysis, Discrete Mathematics, Graphs and Networks, and Calculus.
- Conducted interactive tutorials and problem-solving sessions for large classes (50–90 students) and mentored 20+ students.
- Developed course materials and assessments to strengthen mathematical reasoning and conceptual clarity.

**CLM Instructor, CourseLeap Education (Global)** 2023 – 2025  
Remote

- Mentored international students in advanced mathematical reasoning and analytical problem solving through structured problem-based learning modules.
- Designed personalised learning plans for students from diverse educational systems.

## TEACHING INNOVATION & PEDAGOGY

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- Integrated interactive tools such as Desmos Classroom, Mentimeter, and digital diagnostics to improve engagement and conceptual understanding.
- Designed visual, exploratory, and Montessori-inspired learning frameworks for adult and professional learners.
- Developed problem-based modules connecting abstract mathematics with real-world and AI-driven applications.
- Explored the use of learning analytics and AI-supported feedback to personalise and improve student learning outcomes.

## EDUCATION

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**PhD in Mathematics** (Thesis Submitted), BITS Pilani, Hyderabad Campus 2020 - 2026

Relevant Coursework: Algebraic Topology, Topological Groups, Topological Dynamics, Ergodic Theory, and Dynamical Systems of Algebraic Origin.

Research in Topological Dynamics and Ergodic Theory.

Supervised by [Prof. Sharan Gopal](#) and funded by [CSIR, India](#)

**MSc in Mathematics**, University of Hyderabad 2018 - 2020

**BSc in Mathematics**, University of Calicut 2015 - 2018

Minor in Physics and Statistics.

## RESEARCH PUBLICATIONS

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Research in dynamical systems, chaos, and entropy with applications in measurable and topological dynamics. Also engaged in research on STEM education and learning in work-integrated environments.

*k*-type chaos of  $\mathbb{Z}^d$ -actions.

*k*-type entropy of  $\mathbb{Z}^d$ -actions.

*k*-type chaos for induced group actions on hyperspaces (Pre-print).

*Student epistemological beliefs and learning attitudes in STEM education in a work integrated learning setting: an empirical assessment.*

## EDUCATIONAL LEADERSHIP, INNOVATION & OUTREACH

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**Founder, Trajectories: Career Navigation for Mathematics PhD Students** 2025

Hyderabad, India

- Founded an initiative to support mathematics PhD students in exploring diverse career pathways through structured guidance and community-driven learning.
- Designed frameworks to map transferable skills from advanced mathematics to roles in AI, data science, and technology. Led strategy, communication, and content to build a scalable learning ecosystem; engaged **10+ researchers** and developed **15+ structured resources**.

**Problem of the Day Initiative** 2021–2026

Co-founded a daily mathematics challenge platform promoting problem-solving and collaborative learning. Developed and maintained a public repository; reached **500+ learners**.

**Code in Place, Stanford University — Section Leader** 2025

Mentored a global cohort of **15+ learners** in a Python course through interactive and project-based learning.

**Mathematics Training and Talent Search (MTTS)** 2020–2021

Mentored undergraduate students in national workshops, focusing on conceptual clarity and problem-solving.

**Pi-Square Mathematics Club — Co-founder and President** 2015–2018

Built a peer-learning culture through seminars, festivals, and competitions; engaged **500+ students**.

## TALKS & WORKSHOPS

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### Selected Contributed Talks

- ***k*-type chaos of  $\mathbb{Z}^d$ -actions**, 39th Summer Conference on Topology and Its Applications, 12 Aug 2025.
- **Cohomology for Dynamical Systems**, 28th International Internet Seminar on Ergodic Structure Theory and Applications, Dresden University of Technology, 15 Jul 2025.
- ***k*-type chaos of  $\mathbb{Z}^d$ -actions**, International Conference on Mathematics for Data Science & Dynamics (ICMDD 2024), 01 Feb 2024.

## Selected Workshops & Schools

- **LEAN for the Curious Mathematician**, International Centre for Theoretical Sciences (ICTS), Bengaluru, Apr 2025.
- **Ergodic Theory and Dynamical Systems**, International Centre for Theoretical Sciences (ICTS), Bengaluru, Dec 2022.
- **Applications of Linear Algebra to Machine Learning & AI**, ARSD College, University of Delhi, Aug 2022.
- **NASI-TMC Summer School on Differential Geometry**, Central University of Punjab, Jul 2021.
- **Ergodic Correspondence and Combinatorics Workshop**, Gujarat University, Ahmedabad, Nov 2020.
- **Mathematics Training and Talent Search (MTTS)**, SSN College of Engineering, Chennai, Jun 2018.

## AWARDS

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**CSIR JRF/NET Mathematics.** (Dec 2019)

Received research fellowship and eligibility for the Lectureship/Assistant Professor positions in India.

## SKILLS

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**Machine Learning & AI:** Deep Learning, Reinforcement Learning, Mathematical Modeling, Optimization

**Mathematics:** Linear Algebra, Probability, Stochastic Processes, Dynamical Systems

**Programming:** Python (NumPy, scikit-learn, PyTorch, TensorFlow), SQL, Git,  $\text{\LaTeX}$

**Teaching & Curriculum Design:** Interactive pedagogy, curriculum design, assessment design, mentoring

**Platforms & Tools:** Desmos, Jupyter, Google Workspace

**Soft Skills:** Communication, leadership, problem-solving, adaptability

## SELECTED CERTIFICATIONS

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Focused on integrating mathematics, artificial intelligence, and interactive pedagogy to design modern STEM learning experiences.

### AI & Machine Learning

- TensorFlow Developer Professional Certificate – DeepLearning.AI, 2026.
- Google AI Professional Certificate – Google, 2026.
- Mathematics for Machine Learning and Data Science – DeepLearning.AI, 2025.
- Generative AI for Data Scientists Specialization – IBM, 2024.

### AI Systems & Responsible AI

- Machine Learning in Production – DeepLearning.AI, 2025.
- Responsible AI Practices – DataCamp, 2025.
- Introduction to Responsible AI – Google Cloud, 2024.
- Decoding Decision Modeling – DataCamp, 2025.
- Build Generative AI Agents with Vertex AI and Flutter – Google Cloud, 2026.

### Education & Instructional Design

- Instructional Design Foundations and Applications – University of Illinois Urbana-Champaign, 2026.
- Google Certified Educator (Level 1 & 2), 2025.
- Generative AI for Educators with Gemini – Google, 2025.