

ADHEESH TRIVEDI

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4TH YEAR, BS COMPUTER SCIENCE & ENGINEERING, IISER BHOPAL, INDIA

EDUCATION

IISER Bhopal | *GPA: 9.08*/10 (3.63/4)* 2022 – 2026
B.S. | *Computer Science & Engineering* *Bhopal, India*

O (Outstanding): 10/10 • A: 10/10 • B+: 9/10 • B: 8/10

Multivariable Calculus (B+)	Principles of Model Checking (A)
Discrete Mathematics (A)	Fundamentals of Database Systems (O)
Probability & Statistics (A)	Machine Learning (B+)
Complex Variables (A)	Computer Vision (B)
Real Analysis (B+)	Artificial Intelligence (B+)
Applied Optimization (B+)	Group Theory*
Introduction to C Programming (A)	Modern Cryptography*
Data Structures & Algorithms (B+)	Information Theory & Coding*
Signals & Systems (A)	Computer Organization*
Theory of Computation (A)	

RESEARCH PROJECTS

-  **On Robust Coloring of Graphs and ETH** *July 2025 – Present*
Mentor: [Dr. Prafullkumar Tale](#)
– Studying a relaxation of proper coloring in which edges with same color are associated with some cost.
– Studied the EXPONENTIAL TIME HYPOTHESIS, and ETH-Preserving reductions.
– Investigated treewidth; applied tree decompositions to dynamic programming on hard problems.
-  **Scientific Tool for Bridging Model Checking Ecosystems** *Dec 2024 – Present*
Mentor: [Dr. Arpit Sharma, PhD. Shonak Shaha](#)
– The Model Checking ecosystem remains fragmented, with various tools and frameworks lacking seamless interoperability specifically between action based and state based model checking.
– Developing high-performance converters between action-labeled models ([CADP](#)) and ([mCRL2](#)) and state-labeled models ([PRISM](#)) / ([Storm](#)) to enable cross-ecosystem model checking.
– Emphasis on parser design, memory-efficient graph transformations, semantic preservation, and interoperability testing.
-  **On the feasibility of parameterized algorithms for VC Dimensions** *May 2025 – July 2025*
Mentor: [Dr. Prafullkumar Tale](#)
– VC DIMENSION of a classification model is related to how complicated it can be, specifically in terms of the model's capacity to fit various datasets. Precisely, model's ability to generalize to unseen data.
– Tested efficient algorithms for computing the GRAPH VC DIMENSION.
– Assessed and compared the parameterized algorithm with current state-of-the-art for GRAPH VC DIMENSION for real world networks.
-  **Reading Project on Graph Theory** *Jan 2024 – Apr 2024*
Mentor: [Dr. Prafullkumar Tale](#)
– Studied *A First Look at Graph Theory* (Clark & Holton) with problem solving.
– Reinforced concepts: Graphs & their types, connectivity, traversals, matching problem, planarity.

*Ongoing

TECHNICAL PROJECTS

-  **Extensively Customizable Exam Scheduler using Graph Coloring** Oct 2024 – Jan 2025
Vivek Kumar, Rahul Jana, Ayushman Shaha, Dr. Prafullkumar Tale
- Discovered that exam schedules for 14,000+ students and course registrations were being created manually, requiring significant effort.
 - Developed an engine that assigns exams to time slots & halls minimizing same-day conflicts ($\leq 24h$) using graph coloring + randomized optimization heuristics.
 - Supports multi-hall allocation when enrollment exceeds single capacity; leverages NetworkX for constraint modeling.
-  **Texture Classification & Face Clustering for Image Search** Sep 2024 – Nov 2024
- The project aims to address the common challenge of navigating through directories containing a large collection of images, enabling users to efficiently filter and search for images.
 - Pipeline: MTCNN detection → InceptionResNetV1 embeddings → cosine similarity for face grouping.
 - Implemented batching to control GPU memory; evaluated multiple texture descriptors for retrieval precision.
-  **GUI Developer Intern** Feb 2024 – Aug 2024
Mentor: Prof. Vardharajan Srinivasan AITG Labs
-  AITG Labs
- Led integration of scientific engines ([Octopus](#), [GPAW](#), [NWChem](#)) within a Python toolkit for photo-induced phenomena simulations.
 - Automated submission workflows and job orchestration on national HPC clusters (PARAM-Ganga / PARAM-Kamrupa).
-  **Context aware Bag-of-Words Chatbot** Oct 2021 – Dec 2021
- Built a context-aware chatbot supporting tasks like to-do lists, word definitions, note taking, and time queries across timezones.
 - Trained a sequential neural network in TensorFlow on a custom dataset tailored to project requirements.
-  **General Purpose Discord Bot** Mar 2021
- Implemented modules for moderation, games, music playback, jokes & meme generation.
 - The project was written in Python and utilized PostgreSQL database to store every configuration for the bot, which was server and user specific. The bot was designed to be scalable.

TALKS & TEACHING

-  **Teaching Assistant - Theory of Computation** Aug 2025 – Dec 2025
Instructed by Dr. Arpit Sharma
-  **Fast Matrix Multiplication Algorithms** 1 Sept 2023
Math Club @ IISER Bhopal
- Delivered a talk on Strassen's algorithm and its implications on computational complexity.

LEADERSHIP & ENGAGEMENT

-  **Club Coordinator** May 2024 – May 2025
Coding club @ IISER Bhopal
-  **Hackathon Organizer – Armacode 0** Jan 2024 – Apr 2024
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ADDITIONAL INTERESTS

Music (Guitar) • Competitive Programming • Speed Typing • Mathematical Visualization (Desmos, Manim)