Maathangi S | **22B3316**
Mathematics | **B.S.**
Indian Institute of Technology Bombay | **Gender: Female**
DOB: 04/12/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	
Intermediate	NIOS	National Institute of Open Schooling	2022	
Matriculation	NIOS	National Institute of Open Schooling	2020	

Pursuing a **Minor** in **Computer Science** and **Engineering**

Scholastic Achievements

- Ranked **top 1%** to qualify for **Indian National Mathematical Olympiad** from the state *(Oct '19)*
- Secured **AIR 7** & **female topper** of Indian Statistical Institute's (Bangalore) entrance exam *(Apr '22)*
- Offered **100% scholarship** by Chennai Mathematical Institute (CMI) along with admission *(May '22)*
- Earned **AIR 131** in National Entrance Screening Test **(NEST)** as per CEBS rankings *(Jun '22)*
- Achieved **AIR 1662** in **JEE Mains** among 9.5 lakh candidates across the country *(Jun '22)*
- Attained **AIR 3895** in **JEE Advanced** among the top 1,50,000 candidates *(Aug '22)*
- Emerged in **top 3%** among 8k+ candidates in Indian Olympiad Qualifier Astronomy Part-I *(Mar '22)*
- **1 of 10000** recipients of **INSPIRE Scholarship** for meritorious performance in JEE Mains *('22)*

Professional & Research Experience

NoQs Digital | **Data Analyst Intern** *(May'24 - Jun'24)*

*Received **Best Team Player** award & **Recommendation Letter** from CEO for exceptional performance*

- Reduced time taken in certification process by **95%** (2h to 5 mins) by creating an Excel to Email trigger
- **Developed scrum management tool** to monitor key activities in the org for CEO using Power BI

Zeckendorf Game | **Polymath Jr. REU** | **Research Intern** *(Jun'24 - Present)*

Guide: Prof. Steven J Miller | Department of Mathematics, Williams College, US

- Studying Zeckendorf games and its properties focusing on its bounds in length & **winning strategies**
- Formulating an algorithm to solve an **open problem** that aims to **prove** or **disprove** a winning strategy

Key Projects

Stock Prediction via Deep Reinforcement Learning (DRL)| Research Project *(May'24 - Present)*

Guide: Prof. Sudeep R. Bapat | Shailesh J. Mehta School of Management, IIT Bombay

- Reviewed **15+** research papers & identified key inflection points in history of stock prediction algorithms
- Validating hybrid approach of DRL & sentiment analysis to be a superior trading algorithm using Python

Mountain Cargo Challenge | **Course Project** | **Makerspace** *(May '23 - Jun '23)*

Guide: Prof. Ankit Jain and Prof. Joseph John | Mechanical and Electrical Department, IIT Bombay

- Developed a **line follower bot** capable of climbing an inclined track carrying a payload of **300gm** and able to unload it in a designated area with a team of 6 students
- Programmed the bot utilizing **Arduino UNO** and designed the model using **AutoCAD**, employing IR Sensors, motor drivers for the Electrical aspects, and servo Motors for the unloading mechanism

Effects of Interest Hikes on Various Asset Classes | **Finsearch** | **Finance Club** *(Jun'24 - Present)*

- Examined the impact of interest rates over 60 years across **5+** asset classes like **stocks**, **derivatives**
- Analyzing its macroeconomic effects & implementation strategies through expert chats & historic data

ICICI Bank - Case Study | **Course Project** | **Introduction to Management** *(Dec '22)*

Guide: Prof. Ashish Pandey | Shailesh J. Mehta School of Management, IIT Bombay

- Analyzed various components of its **Business theory** and classified its products using **BCG Matrix**
- Collated a comprehensive report on its general strategies, organizational design, and business setup

Number Theory | Summer of Science | MnP Club *(May '23 - Jul '23)*

- Learned key number theory concepts such as divisibility of integers, Mersenne primes, Fermat's Little Theorem, and Euler's Totient Function, and applied them to solve a plethora of Olympiad problems
- Authored an exhaustive report and presented a video demonstrating proficiency and deep understanding of advanced mathematical concepts

Algebraic & Transcendental Numbers | Course Project *(Jan '23)*
Guide: Prof. Sudhir R. Ghorpade | Department of Mathematics, IIT Bombay

- Authored an in-depth report on Algebraic & Transcendental Numbers, delving into the significance of Louville's and Dirichlet's theorems, and proving the transcendence of e &π with unique insights
- Presented an interactive seminar to a class of over **20** students, fostering active participation

Cycle To Stool | Course Project | Introduction to Design *(Feb '23)*
Guide: Prof. B.K Chakravarty | IDC, IIT Bombay

- Innovatively engineered an **eco-friendly** stool using recycled bicycle frames, wheels, and pedals, showcasing creativity and sustainability
- Crafted a comfortable wooden seating surface with **aesthetic enhancements** and ensured safety through rigorous stability and weight-bearing tests

Positions of Responsibility

Institute Student Mentor | Student Mentor Program *(Jul'24 - Present)*

- One of **19** third-year students entrusted with responsibility of mentoring a group of incoming freshers
- Selected from **430+ applicants** via rigorous procedure comprising of SoP, peer reviews, interviews

Department Academic Mentor | Mathematics *(Jun'24 - Present)*

- **1 of 6** members enhancing exchange-program opportunities, student-faculty interactions
- Mentoring **4** sophomores across academic & extra-curricular activities via informational sessions

National Entrepreneurship Challenge (NEC) Mentor | E Cell *(Sep '23 - Feb'24)*
Asia's Largest Entrepreneurship promoting student body recognized by NEN | Patronage from UNESCO

- Managed **15+ colleges** to setup E-cells, recruit **60+ members** & organize **15+ events**
- Helped organize a **3-day finale** for **90+ top E-Cells** filtering from 350+ colleges & on-site execution
- Charted milestones for E-cell setup, drafted organizational structures & guided with events planning

Technical Skills

- **Programming:** C++, Python, LaTeX
- **Software:** Microsoft Office, SQL, Arduino, AutoCAD Fusion360

Courses Undertaken

Mathematics	Calculus I & II, Differential Equations, Mathematics & its History, An Introduction to Mathematical Concepts, **Linear Algebra**, Real Analysis, Basic Algebra, Complex Analysis, Multivariate Calculus, General Topology
Statistics	Probability I, Optimization, Applied Stochastic Processes
Computer Science	Computer Programming & utilization, Logic for CS, Discrete Structures
Others	Introduction to Management, Economics 101, Makerspace 101, Organic & Inorganic Chemistry, Physical Chemistry, Introduction to Design, Biology, Classical Physics, Introduction to Quantum Mechanics

Extracurricular Activities

Social	Addressed & inspired **50+** underprivileged students at KalpaVriksha institute about JEE
Cultural	Completed formal training in **Bharatanatyam** and **Western dance** for 2 years Performed multiple captivating group dances at the Tamil Cultural Association Fest
Sports	Accomplished **60+** hours of **NCC** training & a 2-month intensive Table Tennis program