

NIKHIL KOTHAVADE

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EDUCATION

Aditya Birla World Academy (ABWA), Mumbai, India

-- IB Diploma Program (IBDP): **41/42** in Report 4, **39/42** in Reports 2 & 3 2023-25

-- Cambridge IGCSE: **8 A*, 1 A**, Received ICE Distinction 2021-23

STANDARDIZED TESTS

SAT: 1550 / 1600 (superscore) 2024

TOEFL: 113 / 120 2024

AWARDS and HONORS

- John Locke Essay Competition: Commendation award 2024
- World Mathematics Team Championship (WMTC): 2 Bronze Medals 2021, 22
- Copernicus Math Olympiad: Silver Medal 2023
- Fermat Mathematics Olympiad: Silver Medal 2023
- FISO Physics Olympiad: 1 Silver Medal, 1 Bronze Medal 2022, 23
- Asian Math Olympiad (ASMO): Merit Award, Bronze Medal 2022, 23

RESEARCH

Cognitive Linguistics: Metaphor Usage Analysis in New York Times, with Prof. Lynn Andrea-Stein 2024

-- Analyzed 83,000+ metaphors in 44,000+ NYT articles to evaluate divisive vs. stability metaphor usage implications on societal discourse, across five US election cycles

-- Developed program to retrieve articles, prompt GPTs to identify and classify metaphors and report statistics

-- Authored report to highlight trends in metaphors, finding no substantive increase in divisiveness over decades

John Locke Essay Competition: Differences between Psychiatric Illnesses and Character Flaws (Psychology) 2024

-- Researched papers, journals and literature to study origins, manifestations and treatments of psychiatric illnesses and character flaws

-- Compared and contrasted findings in a 2000-word research paper, concluding psychiatric illnesses have a greater biological component

String Harmonics (Physics IA) 2023-24

-- Investigating the relationship between the tension of a string and the frequency of oscillations when a constant force is applied

Testing Atkinson & Shiffrin Memory Model (Psychology IA) 2023-24

-- Ran the Stroop test on 10 participants to investigate the validity of System 1 and 2 thinking between congruent and incongruent color-word conditions

INDUSTRY EXPERIENCE

TrueFoundry Internship: Plugin development for OpenAI interface with Google Calendar 2022

-- Developed tool harnessing ChatGPT's natural language capabilities to interface easily with Google Calendar, providing a valued productivity feature to 1000s of users

-- Learned and applied OpenAI and Google Calendar APIs in a Google Cloud development framework

Mansukh Securities Internship: Stock Price prediction using news sentiments 2023

-- Built a news sentiment model and stock price movement forecasting using GPT, enhancing stock trading signals and driving 7+% increase in investment returns

-- Extracted company news data from The Economic Times website, and cleaned and organized it for modelling

COMPUTING AND TECHNOLOGY

FRC: Robot programming and CAD

-- Coded computer vision component to locate target ball, move towards it and intake into bin 2020-24

-- Designed with AutoCAD the chassis, hook and shooter mechanisms, continuing into robot construction

-- Configured electronic systems and wiring and programmed firmware for robot operations

IB Extended Essay: Comparison of Sentiment Analysis methods in NLP 2023-24

-- Analyzed traditional ML-based sentiment analysis techniques vs. state-of-the-art LLMs, using Logistic Regression and GPT-4o mini

-- Utilized LangChain API framework for LLM interfacing and building training, testing and evaluation pipelines

Grade Prediction Tool (CompSci IA): Provided objective, automated tool to predict IB scores, using multiple ML algorithms that augment Teachers' predictions at my school	2023-24
Computational Cryptography (Math IA): Researched and explained the Math behind encryption/decryption in different secure communication algorithms	2023-24
Harvard CS50AI course: Earned certificate for mastering foundational AI concepts and algorithms, including regression, neural networks and NLP	2021-22
Programming Languages: Python, C++, Java, JavaScript	2016-22

LEADERSHIP

Founding Member, Team #8570 Binary Bolts, FRC	2020-21
-- Launched the 4 th FRC team in India, convincing school management of the merits of FIRST activities	
-- Partnered with rookie team through technical skilling, programming and robot design + construction to deliver a working robot	
Outreach Head, Team #8570 Binary Bolts, FRC	
-- Trained Avasara Academy's 14 underprivileged girl students in coding and robot construction, raised \$7,000 funds for laptops and equipment, enabling them to launch own FTC team	2020-22
-- Launched program to collect and repurpose materials into STEM kits, coached students from marginalized communities to experiment with them, sparking excitement for Science	2023-24
-- Drove girls interest in STEM with RocketDidi, a social media initiative showcasing successful women in STEM	2020-24
Safety Head, Team #8570 Binary Bolts, FRC	2023
-- Won peer-nominated Safety Award at New York Regionals	
-- Refreshed safety manuals, practical guidelines and conducted safety drills for the team	
Chief Technology Officer (CTO), 'Thinking Out Loud' NGO	2023-24
-- Innovated with a bot to automate text-to-speech conversion of books, enabling visually impaired individuals to access their content and learning	
-- Converted 100+ books and rolled out tool to a local School for the Blind	
Math Club Supervisor & Mentor	2023-24
-- Restructured the student-run club's activities and syllabus and tutored club members in solving Math problems, that led to doubling of enrollments	

COMMUNITY SERVICE

Beach Cleanup: Volunteered to clean Chowpatty Beach, in the heart of Mumbai city	2023
'The Happy Place': Organized activities and workshops at mental health awareness event hosted in school for Mumbai's students	2023
Mural Painting: Beautified exterior walls and facades of public spaces in my residential neighborhood	2021
Teaching: Collaborated with NGOs 'Dharavi Diaries' and 'Spark a Change' to tutor underprivileged primary and middle school students in English, Math and Science	2020-24

ART

Sketching	2016-24
-- Self-taught pencil and charcoal sketching skills, focusing on drawing still-life objects and fictional characters	
-- Developed portfolio of 30+ artworks in high school	
Qualification: Passed Elementary Art Exam, conducted by Maharashtra State Govt.	2018

EXTRA CURRICULAR ACTIVITIES

Sports	
-- Bronze medalist in 4x100m Relay at Annual Sports Athletics Meet	2022
-- Bronze medalist in swimming the 50m Freestyle Individual and 4x50m Freestyle Relay races	2020
Languages	
-- Fluent in English, Hindi, Marathi and Spanish	

INTERESTS

Oceans and marine life, Cooking shows, Soccer, Geo-Politics and Geography