RIHAAN SODHANI
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EDUCATION

Dhirubhai Ambani International School (DAIS), Mumbai, India
- *International Baccalaureate (IB) Diploma Program, Grade 12* 2025–Present
- *Indian Certificate of Secondary Education (ICSE), Grade 10* 2022–2025

STANDARDIZED TESTS AND APs

- **SAT:** *Total – 1600*; Math – 800; Reading and Writing – 800 2025
- **AP Examinations:** Environmental Science – 5; Computer Science A – 5; Precalculus – 5; Psychology – 5 2025
- **IELTS:** *Total – 8.5*; Listening – 9.0; Reading – 9.0; Writing – 8.0; Speaking – 8.0 2025

ACADEMIC HONORS AND AWARDS

School Awards
- Academic Excellence Award for achieving 40+/42 IB Points throughout Grade 11 (42/42 in both terms) 2025–2026
- Outstanding Learner Award in Grade 11 2025–2026
- Subject Achievement Awards in Physics, Math, and Chemistry HL; Economics, English Language and Literature, and French B SL; and Theory of Knowledge in Grade 11 2025–2026
- Academic Excellence Award for ranking 1st/32 students and 3rd in India in the ICSE Grade 10 examinations (99.6%) 2024–2025
- All India Rank 1 in 4 subjects in Grade 10: Mathematics (100%); Physics, Chemistry, and Biology (100%); Technical Drawing (100%); History & Civics and Geography (100%) 2024–2025
- AP Scholar with Honor Award 2025

International Awards
- Finalist, S.T. Yau High School Science Award (Asia) for "Lightweight Machine Learning Decoding for Quantum Error Correction," delivered an oral defence at the University of Hong Kong. 2026
- CREST Gold Award for "A Transcriptomic Framework for Heat-Stress Therapies in Mammals" (15/15 criteria met) 2026
- Asian Silver Medal in the Physics Bowl organized by the American Association of Physics Teachers (32/40) 2026
- Certificate of Distinction with World Rank 68 in the Sir Isaac Newton Examination, the University of Waterloo (100%) 2026
- Certificate of Distinction in the Euclid Examination organized by the University of Waterloo (75%) 2026
- Certificate of Distinction in the Fermat Examination organized by the University of Waterloo (130/150) 2026
- Certificate of Distinction with World Rank 60 in the Avogadro Examination, the University of Waterloo (96.88%) 2026
- Certificate of High Distinction in the International Chemistry Quiz, the Royal Australian Chemical Institute 2026
- High Commendation in the John Locke Global Essay Prize in Philosophy for the essay "Why is incest wrong?" 2026

ANIMAL WELFARE

Human-Animal Conflict Education 2026–Present
- Developed a curriculum on human-animal conflict; presented to 1,000+ students; collaborated with 10+ schools and NGOs.
- Created an accompanying booklet, now used in participating schools' libraries.
- Trained and mentored 5+ students to continue the initiative.

Urban Heat Mapping for Stray Animals 2026–Present
- Developed a street-level heat map of Mumbai's H/West and H/East wards to identify optimal intervention sites for stray animals.
- Collaborated with the animal-welfare NGO PAL foundation to place 10+ water bowls on identified hotspots.
- Authored a white paper entitled "Urban Heat Map for Stray Animals: Pilot Study in Bandra, Khar and Santacruz, Mumbai."

Volunteer and Fundraiser at the NGO World For All Animal Care and Adoptions 2018–Present
- Supported animal care, shelter operations, rescue, transport, foster care, photography, and adoption events for 500+ animals, including Adoptathon, Asia's largest animal adoption camp.
- Raised 3,500+ USD to establish Healing Haven, a shelter in Karjat housing 210+ dogs with permanent disabilities.

ENGINEERING AND RESEARCH EXPERIENCES

Research

Quantum Error Correction 2025–2026
- Authored a research paper entitled "Lightweight Machine Learning Decoding for Quantum Error Correction."
- Finalist at the S.T. Yau High School Science Award (Asia), delivered an Oral Defence at the University of Hong Kong.
- Under peer review at the Journal of High School Science.

Heat-Stress Mitigation in Mammals 2026
- Authored a research paper entitled "Integrative Transcriptomic and Network Based Framework for Designing Heat-Stress and Protective Topical Therapies in Mammals" using DE, network & pathway analysis,& molecular docking.
- Published in the Oxford Journal of Student Scholarship after peer review.
- Awarded CREST Gold (15/15 criteria met).

Multispectral Albedometer Design 2025
- Designed, built, and calibrated a device to measure the albedo of surfaces at different wavelengths, and tested passive cooling.
- Authored a research paper entitled "Engineering and testing a low-cost portable device for multispectral albedo measurement."

Damping in RLC circuits, DAIS 2026
- Investigated the effect of varying resistance on the transient decay characteristics and neper frequency of a series RLC circuit.

Internships

Tata Institute of Fundamental Research (TIFR), Mumbai, India (https://www.tifr.res.in/) 2026

TIFR is a national research institute under India's Department of Atomic Energy that conducts fundamental research in physics, chemistry, biology, mathematics, computer science, and science education.

Research intern under Avik Dasgupta and Professor Shravan Hanasoge, Lightcurve.ai team

- Processed lightcurve data; used Box Least Squares periodograms, phase folding, and Kepler's laws to extract transit features.
- Implemented random forests to distinguish exoplanet transits from stellar rotation, testing lightcurve.ai's simulated data.

Alfaa UV, Mumbai, India (https://www.alfaauv.com/) 2026

Alfaa is an ISO 9001-certified company specializing in UV air and water purification systems. With 500,000+ users and exporting to 15 countries, it was acquired by U.S.-based Veralto Corporation in 2026.

Intern under Ankur Parikh, Managing Director

- Conducted a comparative analysis of UV disinfection and chlorination for wastewater treatment.
- Conducted a case study of the wastewater treatment plant at Trident Nariman Point, Mumbai.
- Authored and presented white paper entitled "Ultraviolet Disinfection and Chlorination for Wastewater Reuse: A Comparative Analysis and Case Study"; developed the paper into a presentation, which is used by Alfaa.

Prasol Chemicals, Navi Mumbai, India (https://www.prasolchem.com/) 2026

Prasol Chemicals is a specialty chemicals manufacturer producing 150+ organic and inorganic chemicals and exports to 69 countries.

Intern under Dr. Chhitra Vaidya, Head of R&D, and Pankil Dharia, Executive Director

- Contributed to industrial R&D, analyzing TBP using KF titration, Gas Chromatography, IR spectroscopy, and pH titration.
- Conducted a case study analyzing the development of tributyl phosphate from laboratory R&D to industrial process design.
- Authored a white paper entitled "From Laboratory Research to Process Design: A Case Study of Tributyl Phosphate"

Plaksha University, Chandigarh, India. 2025

Plaksha University is a technology-focused university dedicated to interdisciplinary engineering, science, and research.

Research intern under Professor Shashikant Pawar, Microclimate and Clean Energy Lab

- Studied the urban heat island effect.
- Designed and built a weather station deployed by Plaksha.

Robotics

FIRST Tech Challenge, CAD and Construction in Team Eureka (#20871) 2022–2023

- Designed and built the delivery system with pulley-driven slides, 4-bar, active cone holder; wrote 86-page engineering notebook.
- Winning Alliance at the Asia Pacific Open Championship.
- Innovate Award, First-Place Alliance Captain, and Raman Division Finalist Alliance Captain at the FIRST India Regionals.

FIRST Robotics Competition, CAD and Construction in Team Elev8 (#7539) 2023–2024

- Gracious Professionalism Award at the Marmara Regionals.

Online Courses

- **Multivariable differential calculus (XM521)**, final grade of 107.05% (A), Stanford University Pre-Collegiate Studies 2026
- **Introduction to Engineering Mechanics,** final grade of 80%, Georgia Institute of Technology 2025
- **Introduction to Philosophy,** final grade of 98%, University of Edinburgh 2026

Clubs

Club Leader (1 of 4) of the Mathematics Club, DAIS 2025–Present

- Developed a mathematical algorithm for optimizing elevator performance.
- Mentored 10+ students from grades 8–10; organized DAISMO, the interschool DAIS Mathematics Olympiad program.

COMMUNITY OUTREACH

Senior Tutor at Schoolhouse in collaboration with Khan Academy 2026–Present

- Tutored 50+ students in SAT preparation; mentored and peer-reviewed 20+ tutors.

Mathematics Tutor at Pali Chimbai Municipal School, run by Aseema Charitable Trust 2025–Present

- Taught mathematics to 100+ students.

Organizer (1 of 9) of Toy Donation Drive, CAS Fete at DAIS 2025

- Collected 700+ donated toys and books worth 2,000+ USD.

MUSIC ACHIEVEMENTS 2016–Present

- **Classical pianist – Grade 8 with Distinction,** London College of Music; preparing for a Diploma in Piano.
- **Music theorist – Grade 6 with Distinction**, London College of Music.
- 30+ solo and ensemble performances at concerts, auditoriums, malls, and DAIS events.

WRITING

- Wrote *Love is Blind*, an original 96-page comedy in 4 acts; ISBN-13 registered and published by Birch Books; distributed on Amazon and Bookscape; presented at the DAIS Literary Festival and local bookstores; sold 100+ copies & donated proceeds to Healing Haven, the animal shelter I helped establish, to fund its operations. 2024–Present
- Regularly publish English and French essays, short stories, and speeches in *Insignia*, the annual DAIS magazine. 2022–Present

LANGUAGES

- Fluent in English, French, and Hindi.
- Level B2 Diploma in French as a Foreign Language granted by the French Ministry of National Education. 2025
- Represented DAIS in poetry and monologue at *Fête de la Francophonie*, GEMS Modern Academy, Dubai. 2024

SKILLS AND INTERESTS

Programming in Java, C++, and Python | Classical music and opera | Theatre and musical theatre | LEGO design and engineering