Yash M. Mehta

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EDUCATION

Indian Institute of Science, Bangalore   *August 2017 - Present*
Bachelor of Science (Physics Major)
CGPA : 8.8/10.0

Senior Secondary Education (CBSE)   *upto March 2017*
Science Subjects : 94.0%

RESEARCH EXPERIENCE

TIFR, Mumbai   *Dec 2018 - Dec 2019*
Advisor: Prof. Sourav Chatterjee

· Developed an assembly of codes (Python) to test whether a globular cluster's tidal potential is a responsible factor for lowering of binary fraction in such clusters, and how this varies with parameters.
· Modified the code of COSMIC-popsynth (FORTRAN and Python) to generate and evolve binary star systems of input initial age, mass distribution, time period distribution and other orbital parameters.

IIST, Trivandrum   *Dec 2017*
Advisor: Dr. Sarita Vig

· As a part of a group, calibrated and edited radio interferometric data from GMRT for the construction, display and analysis of an astronomical image with Fourier synthesis methods, using AIPS software.
· Estimated various parameters of the HII region and the corresponding massive YSO present in the radio image constructed; and refined our conclusions using the IRAS infrared images of the same region.

ACADEMIC AWARDS AND ACHIEVEMENTS

· Simon Marais Mathematics Competition merit list   *2020*
· National Initiative on Undergraduate Science (NIUS) Program in Physics   *2018-2019*
· Madhava Mathematics Competition merit list   *2018, 2019*
· Ranked 493rd in Joint Entrance Examination, taken up by 1.2 million students   *2017*
· Infosys Foundation felicitation and Cash prize for Olympiad medallists   *2016*
· **Silver Medalist** at the International Olympiad on Astronomy and Astrophysics (IOAA)   *2016*
· **Best Data Analyst** and Team Member Qualification at Astronomy Selection Camp   *2016*
· Ranked 42nd in KVPY, earned fellowship and financial award as a student in basic sciences *2016*
· Qualified for INMO (2015, 2016), INAO (2016, 2017), INPhO (2017) and INChO (2017)   *2015-2017*
· Country-wide rank 1 in IIT-Guwahati's **Technothlon**   *2015, 2016*
· Country-wide rank 1 in SOF **International Maths Olympiad**   *2009, 2013*

COMPUTER SKILLS

Languages	Python, JavaScript, C, C++, HTML, Julia*, FORTRAN*, Assembly*
Libraries	Numpy, Scipy, Pandas, Tensorflow, Tkinter, Selenium, Sockets, etc.
Web & Databases	CSS, Flask, Django*, React, Vue*, MySQL, PostgreSQL, SQLite, etc.
Other Tools	LaTeX, Git, Octave, SciDavis, Matplotlib, MATLAB*, Heroku, etc.
Operating Systems	Windows, Linux

MENTORING EXPERIENCE

Teaching Assistant (Code/Astro Workshop, Caltech)   *2021*
Responsible for curriculum review for teaching fundamental software engineering skills and best practices for building sustainable open-source packages for the workshop to be held on June 21-25.

Student Facilitator (Selection and Training Camp for IOAA / GeCAA, HBCSE, Mumbai)   *2018 - 2020*
Mentored about 30 country-wide top high school students at the orientation cum selection camp to select the national team for the International Olympiad on Astronomy and Astrophysics (IOAA) in 2018 and 2019; and mentored the selected team of 5 in 2019 (IOAA) and team of 10 in 2020 (GeCAA).

LEADERSHIP EXPERIENCE AND POSITIONS OF RESPONSIBILITY

Member of National Astronomy Olympiad Resource Generation Camp   *Oct 2018 - Present*
Responsible for generating candidate questions for the Indian National Astronomy Olympiad and the Selection Camp of team India for the International Olympiad on Astronomy and Astrophysics.

Convener of Rangmanch - IISc Dramatics Club   *Sep 2018 - Sep 2019*
Co-organised a rehearsed reading as the opening performance at the Rangashankara Theatre Festival.

Founder and Convener of IISc Astronomy and Astrophysics Club   *Dec 2017 - Aug 2019*
Invited talks from distinguished speakers such as the Director of Nehru Planetarium Delhi, initiated an astronomy outreach programme for school students in Bangalore, and hosted sky & telescope sessions.

Cofounder and Finances & Sponsorship in-charge of Cube Fiesta Surat   *Jan 2016 - Present*
Cofounded a non-profit organisation for promoting speedcubing as a popular sport by organising annual speedcubing competitions and workshops in Surat, affiliated with the World Cube Association.

CONFERENCES AND POPULAR TALKS

The Stellar Structure (Ensemble - IISc Physics Club)   *Sep 2018, Jan 2021*
Demonstrated the equilibrium model of a star under convective and radiative modes of transfer, using which, motivated stellar evolution on the HR diagram and the existence of variable stars.

Introduction to Astronomy 1 - 3 (Astrae - IISc Astronomy Club)   *Jan - Mar 2018*
Co-delivered a series of talks on topics ranging from positional astronomy to the distance ladder to night sky observation; as an introduction to astronomy in the newly formed Astronomy club.

Encounters on the Random Walk (Student Seminars, IISc Mathematics Dept.)   *Nov 2017*
Presented a generalised solution of the N-dimensoinal Random Walk problem, and subject to certain assumptions, put forth examples of its utility in determining the number of species in a certain habitat, and in optimally searching for misplaced sandals.

Solving a Rubik's Cube using 5 Faces (National Mathematics Conference, Bhopal)   *Dec 2015*
Motivated how the group of all move sequences on a Rubik's cube generated by six moves - R, L, F, B, U and D, can also be generated by just five of these moves.

MISCELLANEOUS

· **Guinness World Record** for the fastest time to solve a Rubik's cube in team of two in January 2019
· Reached the Top Rank (1 Kyu) in Codewars, a popular competitive coding platform
· Silver at 4x4x4 blindfolded and Bronze at 5x5x5 blindfolded speedcubing at **Indian Nationals 2018**
· Qualified for Inter-IISER Sports Meet for 4x400m relay (2018, 2019), 400m (2019) and long jump (2019)
· Created speedsolving methods for 3x3x3 (Mehta), One-handed 3x3x3 (YruRU), etc.
· Passed (1st class or better) 5 years of Tabla, 3 years of Harmonium and 3 years of Indian classical vocals