

A R Bathri Narayanan

Student in Integrated M.Sc,Physics

UM-DAE Centre for Excellence in Basic Sciences, Mumbai

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[GitHub](#)

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Work Experience/Projects

Master Thesis Project

Indian Institute of Science

- **Guide:** Prof. Vibhor Singh
- **Skills learnt:** Quantum hardware, COMSOL, Sympy
- Working on Blackbox and EPR quantization of superconducting qubits

Bengaluru, KA , India

June 2025 - Present

Internship

Tata Institute of Fundamental Research

- **Guide:** Prof. Rudrajyoti Palit
- **Skills learnt:** Graph theory, Level spectra, Nuclear physics
- Currently working on an analytical formula that relates nuclear level schemes to experimental data, done by Gregory A Demand

Mumbai, MH, India

December 2024-Present

Semester Reading Project

UM-DAE Centre for Excellence in Basic Sciences

- **Guide:** Prof. Sudhir Ranjan Jain
- **Skills learnt:** Quantum Information, Relativity
- We went through Prof. Miles Blencowe's paper on Analogue gravity with Superconducting qubits. We had also explored Current mirror qubits and modifications to the original paper were done

Mumbai, MH, India

August 2024-June 2024

Summer Intern

The Institute of Mathematical Sciences

- **Guide:** Dr. M. Padmanath
- **Skills learnt:** Complex analysis, Python (Numpy, Scipy, Matplotlib, PyROOT)
- Tried to write a code for finding the best fit Padé approximation. Also wrote code for modifying the square root of a complex number by shifting the branch cut to the positive real axis. My work will be useful for scattering data and ensuring analytic continuity
- Certificate: [Click here](#) ; Report: [Click here](#)

Chennai, TN, India

May 2024-July 2024

Remote Intern

Indian Institute of Technology, Guwahati

Guwahati, AS, India

June 2024-July 2024

- **Guide:** Prof. Amarendra Kumar Sarma
- **Skills learnt:** Quantum entanglement, Quantum computing
- Did a course with Prof. Sarma in NPTEL on Quantum Entanglement, and this project is an extension of the same. Read the works of Rasmussen et.al about superconducting qubits.

Intern

UM-DAE Centre for excellence in Basic Sciences

Mumbai, MH, India

December 2023-April 2024

- **Guide:** Prof. Ameeya Bhagwat
- **Skills learnt:** Quantum Field Theory, Mathematical physics, Special Relativity

- Did a mini reading project about introduction to Quantum Field Theory. Basics of quantum mechanics and special relativity was touched upon. Primary reference was Lancaster and Blundell's "Quantum Field Theory for the Gifted Amateur"

- IASc SRFP Intern**

- Harish-Chandra Research Institute*

Prayagraj, UP , India

June 2023-August 2023

- **Guide:** Prof. Ujjwal Sen

- **Skills learnt:** Quantum Information, Quantum Computing, Quantum Mechanics

- Was selected under the Indian Academies of Sciences, Summer Research Fellowship Program 2023. Read about the basics of Quantum Mechanics (Ket notations), Classical and Quantum Information theory. Also applied the lessons of Quantum Information onto a simple classical problem of a Carnot engine and found out striking resemblances to its classical counterpart.

- Certificate: [Click here](#)

Education

- University of Mumbai-Department of Atomic Energy Centre for Excellence in Basic Sciences**

Integrated Masters in Physics

- CGPA-8.06

Mumbai,MH,India

2021-2026(Present)

- Dayananda Anglo Vedic School**

High School

Chennai,TN,India

2007-2021

- 10th Grade-96.4%, 12th Grade(Graduation)-96.2%

Personal Statement

I am a Quantum Information, Computing and Particle physics enthusiast and have undergone training and projects in India's premier institutes (UM DAE CEBS, IISc, HRI and IMSc) and also with IBM and NPTEL. I am currently in my fifth year of Integrated M.Sc at UM DAE Centre for Excellence in Basic Sciences.

Certifications and Conferences

- Developer, Qniverse**

Centre for Development of Advanced Computing
Certificate yet to be provided

On-line

November 2025

- REYES Mentorship program**

University of Berkeley
Certificate yet to be provided

On-line

September 2025

- Python4Physics**

University of Berkeley
Certificate to be provided

On-line

September 2025

- Presenter, Aavishkar Inter-Collegiate Research Convention**

University of Mumbai
Presented a poster on using Superconducting qubits as a toy model with examples.

On-line

December 2024

- **Attendee, Workshop on Superconducting Hardware** On-line
Womanium October 2024 - Present
 - Collaborators : Carin Samer, Pioneers International School, Alexandria, Egypt ; Dennis Wayo, Nazarbayev University, Kazakhstan
- **Speaker, International Young Quantum Scientists Meet** On-line
Jaypee Institute of Information Technology September 2024
 - Topic: Search on Superconducting Qubits (Given on September 18th, 2024)
 - Certificate : [Click here](#)
- **IBM Quantum Challenge** On-line
IBM Quantum June 2024
 - Certificate: [Click here](#)
- **Quantum Entanglement Fundamentals, Measures and Applications** On-line
NPTEL-IIT Guwahati March 2024-April 2024
 - Instructor: Prof. Amarendra Kumar Sarma
 - Certificate: [Click here](#)
- **Graph Theory** On-line
NPTEL-IISER Pune January 2024-March 2024
 - Instructor: Prof. Soumen Maity
 - Certificate: [Click here](#)
- **Problem solving and programming in C** On-line
NPTEL-IIT Kharagpur July 2023-October 2023
 - Instructor: Prof. Anupam Basu
 - Certificate: [Click here](#)
- **Basics of Quantum Information** On-line
IBM Quantum December 2023
 - Instructor: Prof. John Watrous
- **Fundamentals** On-line
Programming Hub December 2023

Awards, Grants & Honours

Selected for Science Undergraduate Research Conference	2025
Selected for International Young Quantum Meet	2024
Selected for IMSc SRP	2024
Completed the IBM Quantum Challenge	2024
Selected for Indian Academy of Sciences SRFP	2023
DAE-DISHA Scholarship	2021-Present
Best student award	2016
Bharat Vikas Parishad's Bharat Ko Jano	2016-2021

- National level 2nd place(2021)
- National level 4th place(2020)

- Regional level 2nd place(2018)
- National level 4th place (2017)
- State level 1st place (2016)

Experience and Position of responsibilities

- **Extended support team** Bengaluru,KA,India
Bengaluru Bookies 2025
 - Helped the team in planning reading events and fun activities around Bengaluru. Notable events include reading at the State Central Library, publishing of Bengaluru Bookies originals, coordinating with Cafés and park associations for events like the joy of letter writing and the one year anniversary of the club.
- **Designer and Co-Coordinator, Novellus magazine** Mumbai,MH,India
UM DAE CEBS 2023-Present
 - Designed a few articles for the Novellus magazine which is the annual college magazine of CEBS. Organised a quiz competition for Samawaya 2023(Annual college cultural fest). Assumed position of Coordinator from July 2024 to September 2024.
- **Coordinator, Dance Club** Mumbai,MH,India
UM DAE CEBS 2023
 - Was the coordinator of "Pravah" which is the Dance club of CEBS. In this position, I oversaw the dance club's performance in the Inter IISER Culture Meets, Samawaya and organised workshops. I also opened the Instagram page of the same, which has some good social media presence
- **Member: Art Club, Science Club, CEBS Lifestyle** Mumbai,MH,India
UM DAE CEBS 2022-Present
 - For the art club, I helped organise treasure hunt, decorations and arrange souvenirs. For CEBS Lifestyle, I helped posting content, clearing doubts for to-be CEBScientists. For Science club, I helped organise events like Open Mic, Rendezvous etc.
- **Quizzing**
Independent
 - I have won many quiz competitions, and have lead the team for the same. I have also organised quiz selections for IICM and competitions for Samawaya.

Skills

- Programming, Markup Languages and Software
 - Python(Numpy, Matplotlib, Scipy, Qiskit, PyROOT), L^AT_EX, FORTRAN, C, ROOT (developed by CERN), GitHub, Adobe InDesign
- Spoken Languages
 - Tamil, English, Hindi (Completed all exams of DBHPS), German (A1)
- Other
 - Trekking, Photography, Dancing, Building connections, Quizzing