Ramanuj Raman

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Indian Institute of Science Education and Research, Mohali
Third year BS-MS student, Physics Major

Education

1. **Kendriya Vidyalaya Bangana—Secondary Education (10th)**

   - Percentage:93.6% and Rank:2nd

2. **Kendriya Vidyalaya Bangana—Higher Secondary Education (12th)**

   - Percentage:95.8% and Rank:2nd

3. **Ex-BTech(Electronics and Communication Engineering) student at National Institute of Technology, Hamirpur**

4. **Ex-MBBS student at RPGMS,Tanda (H.P.)**

5. **Indian Institute of Science Education and Research— BS-MS—Physics Major**

   - Current CPI:9.28

Experience

April,2022-May,2022

Reading Project on Fourier Optics under Dr Sandeep Kumar Goyal at IISER Mohali
We worked together to understand the interference and diffraction patterns formed by slits of different shapes and then get a general expression for any random shape. This project included learning scalar diffration theory and finally deriving Kirchoff-Fresnel diffraction formula.

December,2022-January,2023

Reading Project on Quantum Machine Learning and Quantum Deep Learning under Dr.Kuntal Roy at IISER Bhopal
We workded together to understand the basics of Quantum Computing starting off with learning basic algorithms such as quantum teleportation, Deutcsh-Jozsa algorithm, Bernstein-Vazirani algorithm, Simon's algorithm.Then we moved toward learning few of the more advanced algorithms such as HHL algorithm and tried to understand the foundations of quantum machine learning and quantum deep learning by studying the training of deep restricted quantum boltzmann's machine using quantum algorithms GEQS and GEQAE.

May,2023-July,2023

Second Quantisation, Ising Model, Kitaev Chain:A literature survey under Prof.NS Vidhyadhiraja at JNCASR Bangalore
Our objective during the project has been to simulate strongly correlated systems on a quantum computer and to understand the noise and find ways to eradicate it. Most of the work has been centered around creating a foundation .During the course of internship I also gave presentation on Qiskit covering a basic introduction and some basic algorithms. We also studied quantum harmonic oscillator, lattice vibrations, ising model and transverse field ising model.

Solving Quantum Hisenberg Chain Model using Quantum Computer under Prof.NS Vidhyadhiraja at JNCASR Banglore
Our objective during the project has been to try to solve Hisenberg Chain Model using Quantum Computer and try to find its eigenvalues. The work mainly use understanding of Quantum Fourier Transform, Quantum Phase Estimation and ability to impplement it through by building quantum circuits and running them using IBM runtime.

Skills

- Python (Intermediate level)

- Latex (Intermediate level)

- Shell scripting (Intermediate level)

- Qiskit (Intermediate level)

- Youtube Math and Physics content creator

- Web Development

- Video Editing

Achievement

- First Position at VVM state level camp 2019-20 and 2017-18

- Participated in VVM national camp 2017-18 at BARC,Anushaktinagar.

- Represented KVS Gurugram region at ONGC Chandkheda

- Leadership position at KV Bangana as head boy