

CHAKRADHAR RANGI

CONTACT

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Date of Birth: April 18th, 1997

EDUCATION

BS-MS Dual Degree, Major in Physics

Indian Institute of Science Education and Research(IISER)
Bhopal, Madhya Pradesh, India

Expected May 2020

Grade Point: 8.36/10

12th Grade

Kendriya Vidyalaya RWF, Bangalore, India
Central Board of Secondary Education

May 2015

Percentage: 95.6

Physics: 95/100

10th Grade

Kendriya Vidyalaya RWF, Bangalore, India
Central Board of Secondary Education

May 2013

CGPA: 10.0/10.0

Physics: 10.0/10.0

INTERNSHIPS AND PROJECTS

MS Thesis

Indian Institute of Science Education and Research Bhopal, India

Title: Modelling Non Adiabatic Dynamics-Trajectory Surface Hopping

Supervisor: Dr. Varadharajan Srinivasan, Associate Professor, IISER Bhopal

August 2019 - Present

- The project aims at developing a highly efficient parallel python wrapper for Time-Dependent Density Functional theory based Trajectory Surface Hopping algorithm on top of an electronic structure calculation package 'NWCHEM' to simulate Non-Adiabatic Dynamics for large molecular and periodic systems.

Skills achieved: Many advanced concepts in Electronic Structure theory, atomic & molecular physics, time-dependent quantum mechanics and parallel programming.

Summer Internship

Jawaharlal Nehru Centre for Advanced Scientific Research(JNCASR),
Bangalore, India

Title: Time evolution of Kitaev-Chain under piece-wise noise using Transfer Matrix Method.

Supervisor: Dr. Vidhyadhiraja N.S., Associate Professor, JNCASR

May 2019 - July 2019

- The project aimed at understanding the decoherence/revival of Majorana zero modes(MZMs) in a Kitaev Chain subjected to a piecewise noise with amplitude that retains in the same topological/trivial phase by calculating the Loschmidt Echo using Transfer Matrix Method.

Skills achieved: Got introduced to topics including graduate quantum mechanics, Topological phases and Dynamical quantum phase transitions.

Summer Internship

Indian Institute of Science Education and Research Bhopal, India

Title: Machine Learning for applications in Physics

Supervisor: Dr. Nirmal Ganguli, Assistant Professor, IISER Bhopal

May 2018 - July 2018

- The project aimed at theoretical understanding of Machine learning algorithms such as Neural Networks and its practical implementations using popular libraries such as Keras and PyTorch. To realise its application in physics, I attempted to reproduce the work of Self-Learning Monte Carlo on 2D Ising Model system.

Skills achieved: Basics of Machine Learning, Various algorithms in Machine learning including Multivariate Regression, Classification and Neural Networks, Self-Learning Monte Carlo method.

TEACHING EXPERIENCE

Teaching Assistant, Introduction to Programming, EECS102 Jan 2018 - April 2018
IISER Bhopal

- Worked as a Teaching assistant for an introductory course on programming in C offered by the department of Electrical engineering & Computer Science (EECS) for the freshman at IISER Bhopal.

Teacher, Early Bird Physics Program March 2018 - August 2018
Cheenta Ganit Kendra (Online Platform)

- Was part of the teaching community at Cheenta Ganit Kendra, an online platform for young and motivated high-school students.

EXTRA CURRICULAR ACTIVITIES

Secretary, Sports Council March 2018 - March 2019
Student Activity Council, IISER Bhopal

Captain, IISER Bhopal Sports Team December 2018
Inter IISER Sports Competition (IISM) 2018, Bhubhaneswar, India

Cricket Coordinator, Sports Council January 2016-December 2017
Sports Council, IISER Bhopal

Member, Organising Committee January 2018
Enthuzia 18, Cultural Festival of IISER Bhopal

Member, Organising Committee Jan 2017 - Dec 2017
Student Astronomy Club, IISER Bhopal

SKILLS

Computing	Python, C, C++, Git, LaTeX, HTML
Libraries & Tool	QuTiP, Numpy, Matplotlib, PyTorch, Keras, VPython, Astropy
Operating System	Linux, Windows
Interpersonal Skills	Leadership, Event Management, Knowledge sharing, Mentoring

AWARDS AND ACHIEVEMENTS

Silver Medal, Cricket December 2018
Inter IISER Sports
Meet held at Bhubhaneswar, India.

IISM Championship Trophy December 2018
Led the IISER Bhopal Sports team to victory at Inter IISER Sports
Meet held at Bhubhaneswar, India.

Certificate of Appreciation

2016 & 2017

from the Student Senate for my contribution as Cricket Coordinator,
Sports Council, IISER Bhopal

Innovation in Science Pursuit for Inspired Research (INSPIRE) Fellowship

August 2015

Department of Science and Technology, Government of India

Certificate of Merit

August 2015

Top 1.5% of Kendriya Vidyalaya Sangathan(1225 Schools across India)
Students in the 12th grade examination conducted by Central Board
of Secondary Education, India.

CONFERENCES ATTENDED

QMAT, 2nd Annual Conference on Quantum Condensed Matter

July 2019

Indian Institute of Science, Bangalore, India