Shubham Sharma

+91-7988020138 | sharma.36@iitj.ac.in | B-5/169 IIT Jodhpur, Rajasthan, India

Education

Indian Institute of Technology Jodhpur — Jodhpur, India
Master of Science in Physics — *Jun 2019 – Present*

- GPA: 8.25/10.00 (Till 2nd Semester)
- Relevant Coursework: Machine Learning, Computational Material Science, Statistical Mechanics, Quantum Mechanics, Condensed Matter Physics

Ramjas College, University of Delhi — Delhi, India
Bachelor of Science (Hons.) in Physics — *May 2016 – Jun 2019*

- GPA: 7.05/10.00 (First Division)
- Minor in Mathematics

Research Interests

Physics Based Machine Learning: applying deep learning techniques in the field of computational physics and chemistry
Multiscale Modelling of Soft Matter Physics: development of modeling approaches including the first principle DFT calculations, *ab-initio* to classical level MD simulations and coarsegrained methods

Research Projects

Study of the effect of Plasticizers on Ion Transport for Li-ion Batteries — *Dec 2020 – Present*

- Currently working under **Prof. Santosh Mogurampelly**, as part of MSc. thesis on MD Simulation study of the effect of Lithium Aluminate (LAO) on Ion Transport in Polyethylene Oxide (PEO)-LiTFSI electrolytes for Li-Ion batteries

Solutions to many–electron Schrödinger equation with deep neural networks — *Oct 2020 – Nov 2020*

- Used **FermiNet**- a neural network architecture developed by DeepMind® on DGX-2 (GPU) to calculate ground state energy of LiH, NH_3 and C_2H_4

Molecular Dynamic (MD) Simulation of Argon | *LAMMPS* — *Aug 2020 – Oct 2020*

- Reproduced the equation of state for argon gas
- Compared the result with real gas behaviour of argon gas

MD Simulation of Real Water | *LAMMPS* — *Nov 2019 – Mar 2020*

- Worked with **Prof. Santosh Mogurampelly** to plot the Radial distribution function and mean square displacement of oxygen-oxygen atom
- Calculated the diffusion coefficient of water in the 2fs using Density Functional Theorey (DFT)

Scholastic Achievments

- Secured **All India Rank 487** among 14000 applicants in IIT JAM 2019
- Scored **95 %** in Physics, Chemistry and Mathematics in Senior Secondary Examination, 2016

Additional Information

Programming Skills : Python, MATLAB, C++, JAVA, HTML, MySQL
Technical Skills : Molecular Dynamics and Monte Carlo Simulations
Software Packages : GROMACS, LAMMPS, VMD

MOOCs – Online Certifications

- Completed a Specialization course on *Python for Everybody* offered by University of Michigan on Coursera
- Completed a course on *Understanding Einstein: Principle of Special Relativity* by Dr. Larry Randles of Stanford University on Coursera

Interests : Football, Music, Fitness