YOGENDRA KUMAR

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RESEARCH EXPERIENCE

Master's thesis under the supervision of Dr. Satyajeet Jena
Machine Learning in R-Parity Conserving SUSY Searches at LHC

📅 Aug 2023 – present   📍 IISER Mohali

- Utilizing different softwares to generate simulated samples for SUSY particles and applying various machine learning algorithms to enhance SUSY search optimization.

Summer Research Internship 2022 with Dr. Satyajeet Jena
Particle Identification using Machine Learning techniques

📅 May 2022 – July 2022   📍 IISER Mohali

- Designed Particle Calorimeter with Geant4 simulator and implemented a Convolutional Neural Network to distinguish between π^0 and γ photons, achieving a 84% accuracy.

Summer Research Internship 2021 with Dr. Akhil Garg
Computing EIS of Battery at both Cell and Module level

📅 May 2021 – July 2021   📍 CART IIT Delhi

- Developed a 3D thermal model for a 24s2p cylindrical battery pack using COMSOL Multiphysics. Considered thermal conductivity, heat generation during charge/discharge, and convective cooling. Utilized the model to forecast temperature distribution.

PROJECTS

Optical fiber, Based on Atomic Force Microscopy principle
Dr. S. K. Biswas, IISER Mohali

📅 Nov 2019

Finding gender bias in the Hollywood film industry
Dr. Kuljeet Sandhu, IISER Mohali

📅 Sept 2022

Facial expression detection using machine learning
Dr. Kuljeet Sandhu, IISER Mohali

📅 Nov 2022

Past and Future changes of Warm nights over India in GCM
Dr. Raju Attada, IISER Mohali

📅 April 2023

EDUCATION

Integrated BS-MS in Physics with Data Science minor
IISER Mohali

📅 July 2019 – Present   CGPA:7.8

Class XII
S.V.M. Inter College Hamirpur (UP)

📅 June 2018   83.40%

TECHNICAL SKILLS

Python   C++   CSS/HTML   LaTeX   Machine Learning   Geant4   Proteus   MadGraph5   Raspberry pi   Git   COMSOL Multiphysics

COURSEWORK

- Advanced Quantum Physics
- Nuclear and Particle Physics
- Condensed Matter Physics
- Computational methods in physics
- Data Science and Machine Learning

ACCOUNTABILITIES

- Co-convener of Robotics Club IISER-Mohali.
- Volunteer at XXVth DAE-BRNS High Energy Physics Symposium 2022.
- Tutored CHM102 students at IISER Mohali, offering academic support and assessment assistance.

ACHIEVEMENTS

- Merit cum Means Scholarship Fellow.
- IIT JEE Advanced 2019 Qualifier.
- Cleared GATE Physics exam 2022 & 2023.
- Top 1 percentile in UP Board 12th Grade, 2018.
- 1st position in NATIONAL CHILDREN'S SCIENCE CONGRESS held in Hamirpur.
- Attended 25th National Children's Science Congress, recognized as 'State Child Scientist' by NCSC Uttar Pradesh-2017, at SPMIT Kaushambi (Allahabad).