Abhishek Anil Deshmukh

M.Sc. Physics

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○ Github Profile

in LinkedIn Profile

Test Scores ————

GATE PH	33.33/100
› Score	385/1000
› Rank	2006/18517
GATE CS	36.33/100
› Score	393/1000
› Rank	7366/75680
TOEFL Total	109/120
› Reading	30/30
› Listening	27/30
› Speaking	25/30
› Writing	27/30
General GRE Total	315/340
› Quantitative	167/170
› Verbal	148/170

Scholarship ————

Disha scholarship from Department of Atomic Energy, Government of India (2017-2022)

Education

August, 2018 – May, 2023

Integrated B.Sc. M.Sc.   HBNI

Major in physics and minor in computer science from National Institute of Science Education and Research.
CGPA = 7.91/10

April 2016 – May 2018

Higher Secondary (12th Grade)   Maharashtra Board

Pace Jr. College
Percentage = 78.5%

April 2014 – April 2016

Senior Secondary (10th Grade)   ICSE Board

Abhinav Vidyalay
Percentage = 80.0%

Projects

August 2022 – present

Neural Networks for understanding $f_0(980)$ production in pp collision at $\sqrt{s} = 5.02 TeV$

Prof. Bedangadas Mohanty, National Institute of Science Education and Research.

Master's thesis project with two parts. I started with studying the production of the $f_0(980)$ resonance using the data from the ALICE collaboration at CERN using traditional analysis techniques. In the second part I used machine learning for increasing efficiency of signal extraction. Link to report 1 report 2

April 2022 – Present

Chemical Freeze-out study in Heavy-ion Collisions at AGS, SPS, RHIC, and LHC energies

Dr. Lokesh Kumar, Panjab University

Studying chemical freeze-out parameters as a functio of collision energy by fitting thermal models to yield data. Link to report

Jan – May 2022

Pileup corrections on Higher-order Cumulants

Prof. Bedangadas Mohanty, Dr. Subhashish Basak, National Institute of Science Education and Research.

Studied methods of correcting the higher-order cumulants for the effect of pileup in Heavy-ion collisions. Link to report

May – Dec 2021

Background Simulations for MINER

Prof. Bedangadas Mohanty, National Institute of Science Education and Research.

Simulated differnet aspects of background and shielding against detectors to estimate background rate via Monte-Carlo. Link to repo

Jan – May 2021

Background Simulations for veto detector

Prof. Bedangadas Mohanty, National Institute of Science Education and Research.

Simulated differnet aspects of background and shielding against detectors to estimate its efficiency at rejecting backgrounds. Link to report

Theory Physics Courses Taken ———

- Classical Mechanics I and II
- Mathematical Methods I and II
- Electronics
- Quantum Mechanics I and II
- Electromagnetism I and II
- Statistical Mechanics
- Special & General Theory of Relativity
- Non-Linear Physics, Chaos and Turbulence
- Nuclei and Particles
- Condensed matter physics
- Atoms, molecules and radiation
- Introduction to Cosmology
- Astronomy and AstroPhysics
- Quantum computation and information

Lab Physics Courses Taken ———

- Basic physics laboratory I and II
- General physics laboratory
- Basic electronics laboratory
- Modern physics laboratory I and II
- Advanced electronics laboratory
- Computational physics laboratory
- Nuclear physics and instrumentation lab
- Solid state physics laboratory I and II
- Open ended lab: Laser Doppler Anemometry
- Open ended lab: He-Ne Laser

CS Courses Taken ———

- Machine Learning
- Computational Geometry
- Theory of Computation
- Data Structures
- Discrete structure and computation
- Design and Analysis of Algorithms
- Modern Cryptology

2020-2021   **Genomic Data analysis with GUi**

Prof. Palok Aich, National Institute of Science Education and Research.

Developing a GUI software for genomic calculation. Going to expression values to pathways.

Apr - Jul 2019   **Bio-chemical properties of DRP-6 in tetrahymena**

Dr. Abdur Rahaman, National Institute of Science Education and Research.

During this internship I got familiar with procedures and methods in biochemistry. Link to report

Tools I use

Scientific Packages	GNUplot, Matplotlib, Geant4, Plotly, Bokeh, cern-root, Numpy, Pandas, Numba, PyMol, Sympy, SciKit-Learn, tensorflow
Other Packages, Programs, and Technologies	Docker, Git, Github, Gitlab, Django, Flask, Vue, Celery, tmux, byobu, ssh, Blender (primarily for video-editing), Audacity, GIMP, Microsoft Office Suite, Libre Office Suite, Inkscape, pandoc, Jupyter, tauri, electron, React, selenium, beautifulsoup, twint, networkx. I've managed websites manually via ssh/sshfs and vim using HTML/CSS/Python and a few netlify sites and I have experience with database systems like Postgres, Redis, MySQL, and DGraph. I've used Windows, MacOS and GNU/Linux systems (Debian-based, Arch-based, Fedora, cent-os)

Extra-Curricular Activities

- Member of the election commitee for NISER Student Gymkhana 2021
- Ex-President of Coding Club NISER, organised multiple events, talks, and a workshop.
- Ex-Cultural Secretary of Kaveri Hostel
- Co-ordinator at the Student Placement Cell niser
- Won the first prize in groups category "Step wars", a dance competition at NISER's college fest 2020.
- One of the developers of the science magazine website "Inventa".
- I train for 5km and 10km running competitions
- Swimming
- Earned the Black belt in Enshin Karate
- Can solve the Rubik's cube within a minute (best time 22 s)
- Getting better at playing the Ukulele