




# Yash Agarwal


 [yash.agarwal.phy21@itbhu.ac.in](mailto:yash.agarwal.phy21@itbhu.ac.in)

 [yash-agarwal1708.github.io/academic-profile](https://github.com/yash-agarwal1708.github.io/academic-profile)


 [Yash Agarwal](#)


## Education


Dec 2021 – Present


 **Indian Institute of Technology (BHU), Varanasi**  
B.Tech + M.Tech in Engineering Physics.  
Thesis title: *Nano-materials for Theranostics and Water Remediation.*


## Skills And Interests

Languages English, Hindi, Bengali, German.

Skills Animal Handling, Anti-microbial Assays, Self Assembly, Hydrothermal Synthesis, Membrane Casting, UV-Vis Spectroscopy, Rheology, DLS, Zeta, d33 Piezometer.

Programming Python, MATLAB, C, C++, Java, UniProt, AMYLPRED 2, Machine Learning, Deep Learning.

Interest Areas Biosensing, Water Remediation, Nanotechnology, Biophysics, Computational Biology.

Relevant Coursework Biophysics, Biophysical Techniques, Computational Physics, Advanced Condensed Matter, Intrumental Methods of Chemical Analysis, Photonics and Optoelectronics, C Programming.





## Research Projects

Monte-Carlo Simulation of Transport by Motor Proteins.	Research Intern Supervisor: Prof. Ambarish Kunwar	1 Month (December 2024)
<div><div></div><div>· Learnt computational modeling of stochastic processes, like Monte Carlo simulations, Gillespie algorithm, and TASEP.</div><div>· Developing a 3D stochastic model to study cargo switching at microtubule intersections using Monte-Carlo.</div><div>· Contributed to build a low-cost tabletop optical tweezer with fluorescence imaging controlled using Arduino.</div></div>		
Bio-nanodots for Theranostic Applications.	Master's Thesis Project Supervisor: Prof. Avanish Singh Parmar	3 Semesters- Ongoing (Jan 2025 - May 2026)
<div><div></div><div>· Application of MIP coated bio-nanodots in fluorometric sensing of dopamine.</div><div>· Highly Cationic Lysozyme functionalized Chitosan Quantum Dots as Anti-microbial Agents.</div><div>· LZM-CSQD/Cellulose Acetate Membrane as Anti-fungal, Anti-microbial and Biodegradable food packaging.</div></div>		
Hybrid Nanocomposite Membrane for Multifunctional Water Remediation	Master's Thesis Project Supervisors: Prof. Avanish Singh Parmar, Prof. Rakesh Joshi (UNSW Sydney)	2 Semesters- Ongoing (July 2025 - May 2026)
<div><div></div><div>· Protein amyloids functionalised with Chlorophyll QD sensitized g-C<sub>3</sub>N<sub>4</sub> organic semiconductor for synergistic absorption and visible light photo-catalysis of dyes, PFAS, and heavy metals.</div><div>· rGO + MXene 2D sheet layer for increased surface area, tunable spacing and high mechanical strength.</div><div>· Review article on 'Emerging role of protein derived aerogels for environmental remediation of aqueous pollutants'.</div></div>		
ML Model for classification of diabetic wound images.	Undergraduate Project Supervisor: Prof. Avanish Singh Parmar	2 Semesters (Jan 2024 - Nov 2024)
<div><div></div><div>· Cleaning and processing of collected Diabetic wound data in collaboration with various hospitals and doctors.</div><div>· Creating an ML model to identify and classify diabetic wounds according to their severity stage.</div><div>· Developing a mobile application to classify the patient's stage of diabetic wound using my ML model.</div></div>		

## Positions of Responsibility

---








### Awards and Achievements

- 2023-24        **Joint Secretary**, IIT BHU Quiz Club.
- 2024            **Volunteer, organizing team**, TransMat 2K24: Translational Materials for Sustainable Technology, Department of Physics, IIT (BHU).
- 2023-24        **Head**, Game Development Group, Club of Programmers, IIT (BHU).
- 2024            **Head, Design Team**, Jigyasa'24 (Annual Fest of Physics Department, IIT BHU).

## Miscellaneous Experience

---

### Awards and Achievements

-     **Poster Presentation** on 'Piezoelectric Amyloidogenic Hydrogel for Diabetic Wound Healing', International Conference on Smart Materials for Sustainable Technology (SMST 2024), INST Mohali.
-     **1st Runner-Up**, Debug-It Hackathon by Club of Programmers, IIT (BHU).
-     **1st position**, Space-Time Showdown Game Jam of Jigyasa'24.
-     **Represented IIT BHU**, IGDC Gamedev Challenge, Inter IIT Tech Meet 2023, IIT Madras.
-     **Silver Medal**, Open International Karate-Do Competition, Kolkata.
-     **1st position**, Sci-Biz-Tech Quiz, Kashiyatra 2024 (Annual socio-cultural fest of IIT BHU).
-     **Badge of Quantum Excellence**. Awarded by Qiskit Global Summer School 2023 by IBM.