Tarush Tiwari

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Education

Integrated Dual Degree June 2020
Indian Institute of Technology(B.H.U), Varanasi (U.P.), India.
B.Tech (Hons.) in Biochemical Engineering
M.Tech in Biochemical Engineering and Biotechnology
Cumulative GPA: **8.53**

Class XII, Central Board of Secondary Education(CBSE) May 2014
Campion School, Bhopal(M.P.), India.
Percentage: **86.6**

Class X, Central Board of Secondary Education(CBSE) May 2012
Campion School, Bhopal(M.P.), India.
Cumulative GPA: **9.0**

Publication preprint

Tarush Tiwari, Dibyendu Roy and Rajeev Singh (2020), Interplay of coherence and interaction in light propagation through waveguide QED lattices.
Submitted to Physical Review A. Preprint url: http://arxiv.org/abs/2010.14935

Course Projects

Masters Thesis| Characterization of Thermophilic bacteria from Manikaran hot springs.
Project Duration: January 2019- May 2020
Advisor: Dr. Ashish Kumar Singh
School of Biochemical Engineering, IIT(BHU), Varanasi

- Determining the growth characteristics of the unknown bacteria sample.
- Determining the various bio-chemical characteristics of the bacteria.
- Isolating the genomic DNA of the bacteria and acquire its sequence for further characterization.

Stream Project| Modelling and study of Alkaline Protease enzyme for various bacteria.
Project Duration: May 2017- December 2018
Advisor: Dr. Ashish Kumar Singh
School of Biochemical Engineering, IIT(BHU), Varanasi

- Creating a database of various bacteria on the basis of it's thermophillicity and obtaining their sequence.
- Creating 3-D models of the obtained structures and analysing their structures.
- Conducting quantitative and qualitative study of all data acquired through various bio-informatics tools and algorithms.

Other Projects

Steady-state photon transport in QED lattices.
Project Duration: May 2019- May 2020
Advisor: Dr. Rajeev Singh
Department of Physics, IIT(BHU), Varanasi

- Theoretically analyzed tight binding and cavity QED lattices modelled as interacting bosonic qubits medium with photonic baths using the truncated Heisenberg-Langevin equations.
- Studied the steady-state photon transport through this model at various parameters.
- Built approximate models for the systems using the quasi-classical and the mean-field approximation methods.
- Suggested modifications in the approximate analyses to get better results.

Internships

Research Intern, The Genebox, Mumbai May'18-July'18

- Conducted research on the current state of literature related traits of interest in different databases.
- Understand and extract relevant medical terminologies and functionalities in human genetics information.
- Review, update, development and maintenance of the database.

Technology Skills

Programming Languages: C, C++, Julia, Python.
Softwares: MATLAB, LaTeX, Jupyter Notebook, Mathematica.
Other Libraries: Scikit learn, Pandas, Scipy, SymPy, SymEngine

Online Certifications

Machine Learning in Python
Coursera| Issued: August 2020
Credential ID: H2RG4KP9SHPX

Introduction to Data Science in Python
Coursera| Issued: July 2020
Credential ID: KTK7YMPUKTTR

Conferences Attended

Indo-US conference on bioengineering and regenerative medicine (ICBR)-February 2020

Positions of Responsibility

Joint Secretary, Astronomy Club, IIT(BHU) Session 2017-18

- Headed a team of 10 astronomy enthusiasts of IIT(BHU) to undertake various events, workshops and making magazines.
- Collaborated with other astronomy clubs of the country to further strengthen the astronomy community in the institute and country.
- Conducted various open events for the city like, open skygazing sessions and eclipse observation workshops.

Founder and Editor, Corona Magazine, IIT(BHU) Session 2017-18
Founded the magazine and served as it's editor, content writer and designer with an aim to share new findings, news and discussing various topics in Astronomy and Physics.

Scholastic Achievements

- Finalist among thousands of participants at the BRIC Idea exposition organized by the Govt. of India for the project "Using Blockchain Technology to prevent counterfeit medicines."
- Won silver medal at the 5th Inter-IIT Techmeet'17 held at IIT Kanpur in the event "Eyes on the sky".
- Secured 6882^{nd} rank among 15,00,000 students in the Joint Entrance Exam(JEE) 2015.
- Second Prize at the event Astrophotography in Technex'16.