Prabin Baral

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Objectives

To take up a challenging job in R & D position and contribute through my hard work, perseverance, sincerity and dedication for the growth of organization as well as myself as a promising professional.

Education and Affiliation

Postdoctoral Scholar *School of Pharmacy, University of Maryland, Baltimore*
MacKerell Lab *May 2022 - Present*
Force Field development of the CHARMM additive and Drude Polarizable force fields for biologically relevant compounds including DNA/RNA;

Postdoctoral Scholar/NIH-T32 Trainee *August 2023 - Present*
Simulation and investigations of biological systems (proteins, nucleic acids, etc) at different physiological setup using additive as well as drude FF
PI: Alexander D. MacKerell Jr.

Ph.D. in Physics *Florida International University*
Computational Biophysics Program *August 2016 - May 2022*
Dissertation Title: In-Silico Identification of Vaccine Candidates Against Viral Infections
Advisors: Bernard S. Gerstman, Prem P. Chapagain

M.Sc. in Physics *Tribhuvan University*
Major: Solid State Physics *2012-2015*
Courses Taken: Mathematical Physics, Classical and Statistical Mechanics, Quantum Mechanics, Electrodynamics, Solid State Physics
Dissertation: First-Principles Studies of Adsorption of F2 and I2 Molecules on MoS2 Monolayer
Advisors: Narayan P. Adhikari, Nurapati Pantha

Skills & Expertise

CHARMM, NAMD, OpenMM, VMD, PyMOL, TCL, awk, BASH, Linux and UNIX OS, HPC/GPU and XSEDE-clusters, PYTHON, Perl, Quantum Espresso

Research/Teaching Experiences

Computer Aided Drug Design Center (CADD) *May 2022 - Present*
Postdoctoral Scholar/NIH-T32 Trainee *Baltimore, US*

- Applied machine learning techniques to optimize the existing drude polarizable force field for nucleic acids
- Optimization of Force Field parameters and investigations of DNA and RNA systems under different physiological conditions
- Exploring Temperature Dependent Conformational Changes in MAP Kinases

Florida International University *August 2016 - May 2022*
Graduate Teaching/Research Assistant *Miami, Florida*

- Menterod and Taught Undergraduate Physics (2048L/2049L) Labs
- Menterod and Taught Astronomy Labs: Both Descriptive (AST1002L) as well as Solar System Astronomy (AST2003L)

- System setup and simulations of various biological systems (proteins, lipids, membranes, nucleic acids, etc) and studies of protein-protein, protein-lipid-membrane interactions and structure function relationship
- Virtual screening of library of small molecules against the therapeutic targets
- Collaborated with several cross departmental research subgroups, experimental laboratories as well as industrial partners with successful project coordination that resulted in several publications
- Won the Prestegious Dissertation Year Fellowship (DYF) award for demonstration of excellence in the research projects
- Travel allowances for conference presentations for four consecutive years (2018-2022): Awarded by College of Arts, Sciences and Education (CASE) as well as Graduate and Professional Student Committee (GPSC), FIU

Tribhuvan University *July 2012 - August 2016*
MS student *Kathmandu, Nepal*

- Worked as an editor of departmental annual magazine ”Symmetry”
- Study the adsorption of different halogens on MoS2 monolayer by using density functional theory to investigate their bands, DOS, structural stability, etc.

Rising Rays Secondary School *December 2015 - March 2016*
Instructor *Kathmandu, Nepal*

- Competencies: Developing the assignments, exam and quizzes, conducting exams, grading, interaction with the parents about the progress in class

Publications & Presentations

Manuscripts Published: 16
International Conferences Participated and Presented: 6

Extracurricular activities

Treasurer *January 2018-January 2019*
Nepalese Students Association, FIU (NSA@FIU) *Miami, Florida*
Represented Nepal in the University and conducted several cultural activities and organized the national festival, blood drive programs together with the red cross society, etc.

Language proficiencies

English	Read, Write, Speak
Nepali	Read, Write, Speak
Hindi	Read, Write, Speak

Memberships

Biophysical Society (BPS)
American Physical Society (APS)
American Chemical Society (ACS)