

GAURAV MISHRA

BACHELOR OF TECHNOLOGY – ELECTRONICS AND COMMUNICATION ENGINEERING

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ABOUT ME

Technical Skills	Python, Shell Scripting, MATLAB, C, Java, \LaTeX
Frameworks	Scikit-Learn, SciPy, Keras, Tensorflow
Languages	Conversational and Written Proficiency in English, Hindi and Bhojpuri
Research Interests	Machine Learning, Statistical Learning, Applied and Computational Mathematics
Interests	Classical Music, Photography, Cooking
Profiles	github , ResearchGate , LinkedIN

ACADEMIC WORK EXPERIENCE

Under Prof. G.P.S. Raghava, Deptt. of Computational Biology, IIIT, Delhi

Long Term Research Intern

New Delhi (Dec 2018-May 2019)

- Worked in Computational Biology Lab with Prof. Raghava and his PhD scholars
- Independent research work on multiple projects related to ML
- Assisted the researchers on mainly the Machine Learning part of their work, *two papers in communication*

Under Prof. RN Biswas¹, Embedded Systems Lab, Shiv Nadar University

UG Teaching and Research Assistant for course Embedded Systems

Greater Noida, UP (Aug 2018 - Dec 2018)

- Responsible for creating new experiments for a 3rd year course 'Embedded Systems Hardware'
- Mainly working on protocols such as SPI, I2C, etc. and peripherals such as RFID on ARM based STM32
- Assisting Prof. R.N. Biswas in lab

Office of Dean of Undergraduate Studies, Shiv Nadar University

UG Teaching Assistant under Prof. Amber Habib²

Greater Noida (July 2018)

- Responsible for tutoring newly admitted students the coursework which helps them bridge the gap between school and university coursework
- Tutor for Physics and Mathematics, taught Set Theory, Calculus and Mechanics

Department of Mathematics, Shiv Nadar University

UG Teaching Assistant for course Mathematical Methods

Greater Noida, UP (Feb 2018 - May 2018)

- Was responsible for tutoring UG freshmen the course MAT104 (Mathematical Methods) and assisted course instructor [Dr. Ajit Kumar](#)³ with the coursework
- Topics taught: Graduate Calculus, LA, Differential Equations, Numerical Methods for Optimisation

Department of Physics, Shiv Nadar University

UG Teaching Assistant for course Introduction to Physics

Greater Noida, UP (Aug 2016 - Dec 2016)

- Was responsible for tutoring UG freshmen the course PHY101 (Introduction to Physics)
- Topics taught: Kinematics, Thermodynamics, Oscillations

ACADEMIC PROJECTS

In-Silico Drug Discovery using Protein-Small Molecule Interaction

(Under Prof. Raghava)

- The aim of this independent project is to predict binding sites for a ligand in a protein or peptide chain
- Involves feature extraction, feature reduction and then applying advanced Machine Learning techniques to get predictions which will aid a better drug design
- The ligand is Uridine 5'-diphosphate which is responsible for many metabolic functions in the body

Feature Generation using Protein and Peptide Sequences

(Guide: [Prof. Raghava's Group](#))

- Aim of the project is to extract features from protein and peptide sequences which can later be used in predictive analyses
- Launched a web server [Pfeature](#), standalone, and executables which take sequences from users and then generate desired features (around 50,000)

¹Ph.D., University of California, Berkeley — Ex-Professor and Head, Department of Electrical Engineering, IIT Kanpur

²Ph.D., University of California, Berkeley — Head, Department of Mathematics and Dean UG Studies, Shiv Nadar University

³Ph.D., University of Houston, Houston, USA — Assistant Professor, Department of Mathematics, Shiv Nadar University

Ensemble Learning for Regression Analyses

(Guide: Prof. M Gopal ⁴, Monsoon 2018)

- Aim of the project was to employ Ensemble Learning methods to Regression Problems
- Comparison of existing methods (like Linear Regression, SVM, Neural Network) with Ensemble Methods
- Deducing feature importance using Ensemble Methods and comparing it with other methods such as Lasso, CART etc.
- Dataset used: Boston Housing Dataset

RFID based Object Identification and Navigation System (Guide: Prof. RN Biswas, Spring 2018)

- Designed a novel method to help Visually Impaired using RF and RFID
- Use of RF to create a Virtual Acoustic Space which helps the visually impaired to locate the desired object

Annual Household Income Prediction using Machine Learning (Guide: Prof. M Gopal, Spring 2018)

- Used Machine Learning to determine Annual Income of a household using various socio-economic attributes

PUBLICATIONS

SAMbinder: A web server for predicting SAM binding residues of a protein from its amino acid sequence

- Bioinformatics (IF 5.481) (paper in communication)
- Authors: Piyush Agrawal, **Gaurav Mishra**, Gajendra P.S. Raghava

Computing wide range of protein/peptide features from their sequence and structure

- Plos One (IF 2.766) (paper in communication)
- Authors: Akshara Pande, Sumeet Patiyal, Anjali Lathwal, Chakit Arora, Dilraj Kaur, Anjali Dhall, **Gaurav Mishra**, Harpreet Kaur, Neelam Sharma, Shipra Jain, Salman Sadullah Usmani, Piyush Agrawal, Rajesh Kumar, Vinod Kumar, Gajendra P.S. Raghava

RF and RFID based Object Identification and Navigation System for the Visually Impaired

- The 32nd International Conference on VLSI Design (**VLSID**)
- Authors: **Gaurav Mishra**, Urvi Ahluwalia, Karan Praharaj, Shreyangi Prasad

RELEVANT COURSEWORK

University Courses

- Applied Machine Learning[^], Computational PDE*, Mathematical Methods[^], Probability and Statistics*, Dynamical Systems[^], Data Structures[^], Digital Signal Processing* (* - **A-**, [^] - **B**)

Online Courses

- [Machine Learning](#) by Stanford University on Coursera, Instructor: Prof. Andrew Ng
- [Neural Networks and Deep Learning](#) by deeplearning.ai on Coursera, Certificate Number: **LESLBWYD83TD**
- [Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization](#) by deeplearning.ai on Coursera, Certificate Number: **66FSVSA2JK7S**
- [Mathematics for Machine Learning Specialisation](#) by Imperial College London on Coursera, Certificate Numbers: **5FTA53CZML87**, **JGH533XCZR4D**

LEADERSHIP OPPORTUNITIES

Food Committee, Dean of Student Welfare Office, Shiv Nadar University

Chairperson (Head)

Greater Noida, UP (May 2018 - May 2019)

- Responsible for heading food related jobs and problems throughout the campus with 2500 people
- Organised first **Food Fest** which raised around 1.8lacs INR (2600 USD) in one day
- Negotiated and helped in opening new food outlets at campus, tendering and framing contracts

Spic Macay SNU Chapter

Secretary (Head)

Greater Noida, UP (Mar 2018 - Mar 2019)

- Responsible for managing a chapter of 100+ members, organising events involving reputed Indian Classical exponents
- Head of Logistics, Finance, Hospitality and Publicity Team

Snuphoria-The Music Society

Head of Indian Music

Greater Noida, UP (Feb 2017 - Jan 2018)

⁴Ph.D., BITS Pilani — Ex-Professor and Head, Department of Electrical Engineering, IIT Delhi

- Head of Indian Wing of the Music Society, responsible for managing representations in Indian Music

EDUCATION

Shiv Nadar University

Greater Noida, UP (2015–2019)

- Bachelor of Technology(Electronics and Communication Engineering), **CGPA: 8.50/10.00**
- Distinction, 75% Tuition Fee waiver, In top 9% ile of the class

City Montessori School, Gomti Nagar

Lucknow, UP (2012–2014)

- Intermediate, 10+2 (Science), **Percentage: 90.0%**