

# KIRTI SHARMA

## PH.D. SCHOLAR

BITs Mesra, Ranchi, India

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## OBJECTIVE

Contributing organizations as a Data Scientist where I can leverage my machine learning and Physics knowledge in the various streams such as data analytics, predictive modelling, and pattern recognition.

## TECHNICAL EXPERTISE

- Languages: Python, MATLAB
- Libraries/Toolkit: Scikit-learn, SciPy, TensorFlow, NumPy, Pandas, Matplotlib, Seaborn, Keras, and SHAP
- Techniques: Regression, Classification, Deep Learning, Generative AI Models, Data Visualization, Synthetic Data Generation
- Tools: Jupyter Notebook, Git, VS Code

## RESEARCH EXPERIENCE

Application of machine learning algorithms, including *Random Forest, XGBoost, Light GBM, and Artificial Neural Networks (ANNs), Linear Regression, Support Vector Regressor, Decision Tree*. Utilized Python toolkits such as *Scikit-learn, SciPy, TensorFlow, NumPy, Pandas, Keras, and SHAP* for data analysis, data visualization, model implementation, and feature contributions.

### 1. Hematocrit Volume Prediction by utilizing Gluco-Signals

Developed a novel approach to estimate hematocrit volume by analysing blood glucose concentration through amperometric signal processing, [GitHub](#).

### 2. Blood Viscosity Model Implementation

By analysing the amperometric signals, developed a blood viscosity predictive model, integrating via machine learning algorithms and mathematical models, [GitHub](#).

### 3. Hemoglobin Predictive Modeling and Synthetic Data Generation via Machine Learning Implementation on Gluco-Signals

Worked on haemoglobin predictive model via machine learning. Generated synthetic data using generative and discriminative models, and leveraging GaussianCopula (multivariate normal distribution) to ensure data falls within a feasible range while preserving inter-instance correlations, [GitHub](#).

## VIRTUAL INTERNSHIP

***Data Science Virtual Internship from "Bharat Intern" - May 2024***

- Completed a text analysis project which is a SMS spam/ham classification from support vector classifier, [GitHub](#).
- Completed a cats and dogs image classification project with convolution neural network, [GitHub](#).

## EDUCATION

### Doctor of Philosophy

Birla Institute of Technology,  
Mesra, Ranchi  
2022- In progress

### Master of Science

Mahatma Gandhi Kashi Vidyapith,  
Varanasi  
2017 - 2019

### Bachelor of Science

Mahatma Gandhi Kashi Vidyapith,  
Varanasi  
2014 – 2017

## ACHIEVEMENTS & AWARDS

- Best Research Paper Writing Award in India (2024).
- Peer-reviewed publications with B.P. International (Medical & Physical Sciences)
- 3rd Rank holder in University in M.Sc. Physics, 12 Nov 2019.
- Amul Vidya Shree Award (CBSE, 2012)

## PUBLICATIONS

### Manuscripts

- "Estimation of Hematocrit Volume using Blood Glucose Concentration through Extreme Gradient Boosting Regressor Machine Learning Model", Kirti Sharma, Pawan K. Tiwari, and Sanjay Kumar Sinha, Journal of Chemical Information and Modeling, [Link](#).
- "Support Vector and Linear Regression Machine Learning Model on Amperometric Signals to Predict Glucose Concentration and Hematocrit Volume", Kirti Sharma, Pawan K. Tiwari, and Sanjay Kumar Sinha, Majlesi Journal of Electrical Engineering (2023), [Link](#).
- "Implementation of Krieger-Dougherty and Carreau-Yasuda Model in Random Forest Regression Algorithm to Predict Whole Blood Viscosity", Scientific Report (Under Review).
- "Fusion of Generative AI Techniques and Machine Learning Models to Generate and Investigate Bio-Signals for Glucose Sensor", IEEE journal of Biomedical and Health informatics (Under Review).

### Book Chapter

- "Machine Learning: A Quantum Leap in Data Mining Modalities for Healthcare Upliftment", Machine Learning in Biomedical and Health Informatics: Current Applications and Challenges, In process of Publication, [Link](#).

## CERTIFICATIONS

- QC101 Quantum Computing ML – Udemy (2023).
- Python 101 For Data Science – IBM (Cognitive Class.ai, 2022).
- Programming With Python – upGrad (2022).
- Hyperspectral Data Analytics – BITs Mesra (2022).
- Machine Learning in Speech and Audio Processing – BITs Mesra (2022).
- SAR Data Processing – ISRO (2021).