Rohit Prodhan

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Examination	University	Institute	Year	CPI
PhD	IIT Bombay	IIT Bombay	2024-27	9.67
Post Graduation	IIT Bombay	IIT Bombay	2022-24	9.14
Graduation	Presidency University	Presidency University	2019-22	8.11

EXPERIENCE

- **PhD Researcher : Data-Driven approach for Learning Hydrodynamic equations**
  July 2024 – Present *IIT Bombay*
  - Developed coarse-graining techniques to extract hydrodynamic fields from microscopic simulation data.
  - Applied basis expansion methods to smooth data and improve field variable representation.
  - Implemented sparse regression to derive partial differential equations governing macroscopic dynamics.

PROJECTS

- **Time Series Analysis and analysis of Central Bank of India's stock price**(python),
  Mentor: ***Biswajit Pani*** *(April'24-May'24)*
  - Analyzed historical financial data to identify and predict market trends.
  - Employed ARIMA and GARCH models to forecast future market movements.
  - Conducted back-testing to validate model accuracy and robustness.
  - Visualized data and results using Python libraries such as Matplotlib and Pandas.
- **Monte Carlo Simulation of Nematic Phase Transitions on 2D Lattices**,
  Guide: ***Prof. Amitabha Nandi****)* *(Aug'23-Nov'23)*
  - Investigated phase transitions in systems with rigid rods of length $k \geq 7$ on a square lattice using Monte Carlo simulations.
  - Discovered an ordered phase within a specific density range, establishing the presence of a nematic phase.
  - Demonstrated how local order expanded to cover the lattice, with the order parameter peaking at nearly 1 after approximately **2800 Monte Carlo Steps**.

TECHNICAL SKILLS & Interest

- **Programming Languages**: Python, R, SQL
- **Libraries & Tools**: MATLAB, Matplotlib, NumPy, SciPy, Pandas, LTSpice, LaTeX.
- **Machine Learning & Deep Learning**: Scikit-learn, TensorFlow, PyTorch; experience with supervised and unsupervised learning, neural networks, and model optimization.
- **Risk Modelling**: Credit and Market Risk Modelling, Model Validation, and Stress Testing

SCHOLASTIC ACHIEVEMENT

- Qualified CSIR NET JRF and LS with **AIR 221** out of **44835**. *(June' 23)*
- Secured **AIR 69** out of **6226** Test takers in JEST Physics I-PhD Examination. *(2022)*
- Secured **AIR 288** out of **12740** candidates in IIT JAM Physics. *(2022)*

OTHERS

- **Work Experience:** Subject Matter Expert – Advanced Physics, Chegg India (Sep'21–Present)
- **Relevant Courses:** Artificial Intelligence and Data Science (PH227, IITB)
- **Position of Responsibility:** Student Companion (Institute Student Companion Programme, IIT Bombay)
- **Activity:** Football (Played in Mumbai Football Association 3rd Division League)