Pawan Chhipa (He/Him/His)

Address: Deoliya Kalan, Ajmer, Rajasthan **Contact:** (+91) 7410812750
Pincode:305629 (India). **Nationality:** Indian *Email Linkedin Github*

RESEARCH EXPERIENCE

CSIR – Central Leather Research Institute (CLRI) *Chennai, India*
Project Associate *Sept'23-Present*

- Developed and optimized a sequential workflow combining classification and regression models, integrating deep neural networks to enhance predictive accuracy for toxic chemical classification and property prediction.
- Optimized computational efficiency using high-performance computing systems and GPU clusters to process large-scale chemical datasets, achieving enhanced model accuracy through parallel processing.

Indian Institute of Technology Madras (IIT Madras) *Chennai, India*
Internship *May'23-Jun'23*

- Acquired proficiency in chemical data analysis, including SMILES notation and chemical descriptors, laying the groundwork for future application in machine learning.
- Reviewed literature on drug discovery and machine learning applications in chemical drug databases.

IIT Madras, NTU Singapour, Chula University *Chennai, India*
Master's Course Project *Jan'23-May'23*

- Researched PET depolymerization, identifying alkaline hydrolysis as the optimal method for sustainable plastic waste management, and presented findings on plastic waste as MOF precursors to an international audience.

SELF GUIDED PROJECTS

Project 1: Polymer Bandgap Property Prediction. ***Link***

- Developed a comprehensive machine learning pipeline for polymer property prediction, using Random Forest models, Morgan fingerprints, and molecular descriptors from RDKit. Applied RFECV for feature selection, cross-validation, and hyperparameter optimization to enhance model efficiency.

Project 2: Alloy Design using Machine Learning. ***Link***

- Developed an **end-to-end machine learning package** for alloy design, including data preprocessing, model development, and deployment, using k-fold cross-validation and gradient descent techniques.

Project 3: Predicting the Presence of Heart Disease. ***Link***

- Achieved **98.83%** accuracy in health dataset analysis by implementing logistic regression, random forest, and KNN models with optimized feature engineering techniques, including one-hot encoding and normalization.

Project 4: Machine Learning Model Analysis and Feature Selection ***Link***

- Developed and compared machine learning models (SVR and Random Forest), achieving R^2 scores of 0.79 and 0.85 with RMSE values of 2.26 and 1.92, respectively, through effective feature selection.

LEADERSHIP AND TEAMWORK

Theoretical Chemistry Symposium (TCS) | IIT Madras, Chennai *Chennai, India*
Conference Volunteer *7^{th}-10^{th}Dec'23*

- Managed abstract processing for TCS, categorizing 600 submissions into 4 thematic sets, showcasing strong organizational skills.
- Utilized strategic planning to streamline abstract formatting and collaborated with a team to produce a high-quality and visually appealing abstract book for the Theoretical Chemistry Symposium

Placement & Internship cell | Indian Institute of Technology Madras *Chennai, India*
Placement Coordinator *May'22-Jun'23*

- Selected in a core team of 250+ dedicated students to secure and efficiently manage placements for 1800+ students of IITM in 2023.
- Strategically pitched 15+ companies to open relevant job profiles for M.Sc and PhD candidates.

COURSES & CERTIFICATIONS

DeepLearning.AI and Stanford Online *Nov'23-Feb'24*

- Supervised Machine Learning: Regression and Classification
- Advanced Learning Algorithms

IBM Skills Network *July'22-Jan'23*

- Statistics for Data Science with Python
- Databases and SQL for Data Science with Python
- Python for Data Science, AI & Development
- Python Project for Data Science

Indian Institute of Technology Madras, Chennai *Aug'22-Nov'22*

- Data Science: Theory and Practice
- Introductory Computational Chemistry Laboratory
- Principles of Quantum Chemistry

TECHNICAL & SOFT SKILLS

Programming Language & Libraries: Python, ML(sklearn, Keras, tensorflow), Pandas, Numpy, Matplotlib, RDkit.
Software: MS Excel, MS Word, MS PowerPoint, Canva, Chem-Draw, Basics of Gaussian.
Tools: Anaconda, Jupyter Notebook, Google Collab, IBM Db2 cloud, Kaggle, Github, Knime Analytics.

- **Soft Skills:**
  - Effective Communication and presentation
  - Ability to Convert Data into a Story
  - Collaborative Approach
  - Time Management
  - Analytical and creative thinking
  - Art of Googling

SCHOLASTIC ACHIEVEMENTS/AWARDS

- Ranked in the **Top 2.6%** in IIT JAM 2021, a prestigious exam conducted by IISC Bangalore with more than 15K applicants across India.
- Cleared the highly prestigious **JEE Mains exam twice** in 2018 and 2019.
- Recipient of the **INSPIRE** Scholarship, an honor awarded to the **Top 1%** of graduating students nationwide by the Department of Science and Technology, Government of India.

ACADEMIC PROFILE

Degree	Institution	CGPA (scale of 10) / %	Year of Passing
Master of Science (Chemistry)	Indian Institute of Technology Madras, Chennai (Tamilnadu)	7.46	2023
Bachelor of Science (Mathematics, Chemistry, Physics)	Maharshi Dayanand Saraswati University, Ajmer (Rajasthan)	64.88	2021
Senior Secondary XII (PCM)	K P Sr Sec School Jobner, Jaipur (Rajasthan)	89.80	2018

CONFERENCES & WORKSHOPS

- Enhanced expertise in applying machine learning techniques to accurate property predictions and materials design at the '**Machine Learning and Artificial Intelligence in Materials Science**' workshop hosted by the Centre for Atomistic Modelling and Materials Design, IIT Madras.
- Actively Participated in the Theoretical Chemistry Symposium (TCS-2023), organized by the IIT Madras.
- Attended **Indo-German workshop** titled "Complex Chemical Systems (IGW-CCS-2022) at IIT Madras.
- Attended Chemistry In-House Symposium-2022 CiHS-2022, Indian Institute of Technology Madras.
- Attended a 4-day MedChem-2021 conference on '**Emerging infectious diseases and therapeutic strategies**' organized by IIT Madras–AstraZeneca Endowment Program from Dec 01-04, 2021.

INFORMATION OF REFERENCES

- **Dr. Balamurugan Kanagasabai,** Senior Scientist, Advanced Materials Laboratory, CSIR-CLRI.

  Email - balamurugan@clri.res.in, Contact No. - +91 9710120880

- **Dr. V. Subramanian,** Visiting Professor, Department of Chemistry, IIT Madras.

  Email - subramanianv@iitm.ac.in, Contact No. - +91 9840264151