TUMPA JALUA || GitHub|| LinkedIn

M.Tech. || Industrial Mathematics and Scientific Computing

Indian Institute of Technology Madras || Chennai, India

tumpajalua97@gmail.com || +91 8145295933

EDUCATION

Program	Institute	% / CGPA	Year
M.Tech. (IMSC)	Indian Institute of Technology, Madras	8.31	2024
B.Ed. (W.B.U.T.T.E.P.A)	Vivekananda College of Education	8.80	2021
M.Sc. (Applied Mathematics)	Vidyasagar University	73.33	2019
B.Sc. (Vidyasagar University)	Raja Narendra Lal Khan Women's College	68.12	2017
Class XII (W.B.C.H.S.E)	Dakshin Moyna High School (H.S)	77.20	2014
Class X (W.B.B.S.E)	Dakshin Moyna High School (H.S)	69.57	2012

SCHOLASTIC ACHIEVEMENTS

- Recipient of the **bronze medal** for obtaining first class in **B. Sc. Mathematics** Honours 2016.
- Recipient of the **bronze medal** for obtaining first class in **B. Sc. Mathematics** Honours 2017.
- Qualified **GATE 2022** Examination in **Mathematics.**

M.TECH THESIS

Identification of strategies in multiplayer games using Reinforcement Learning (RL) | Internship: - Tiger Analytics (July '23 - May '24)

Guide- Prof. Sivaram Ambikasaran, IIT Madras **Co-Guide:** - Dr. Srivallabha Deevi, Tiger Analytics

Motivation	• Reinforcement learning is a machine learning model to train agents to play multistep games.
Work	• Exploring the application of **Reinforcement Learning** in **two-player games** like **Tic-Tac-Toe** and **Othello.** • Created an **RL** agent that learns to play **two-player games** by trial and error, taking actions and receiving rewards or penalties depending on whether the action led to a win, loss, or draw, using algorithms such as **Q-learning** and **Deep Q-Networks (DQN)**. • Demonstrated training by comparing win rates between trained and random players. • Trained agent used to identify strategies for humans to follow, during the game.

PROJECTS

Course Project (MA5770)	**Time Series Forecasting using the SARIMA model, Guide:** - Dr. Priyanka Shukla (Jan '23 – May '23) • Performed prediction of future stock price using historical data, for **Apple stocks**. • Used Python for **data preprocessing**, **feature selection**, and **hyperparameter tuning**. • Applying a statistical model (**SARIMA**) to the training data and evaluating model performance on the test data using the **Symmetric Mean Absolute Percentage Error (SMAPE**) metric.
Course Project (MA5755)	**Diabetes Prediction Using Machine Learning** (Jun '23 – Aug '23) • Used the **Pima Indian diabetes dataset** to accurately predict whether a patient has diabetes or not. • Performed **exploratory data analysis** and **visualization**. • Implemented several Machine learning techniques like **Logistic Regression**, **K-Nearest Neighbors**, **Support Vector Machine**, **Random Forest**, **Decision Tree**, and **Naive Bayes** for the classification. • Obtained the highest accuracy of 78.76% with the **Support Vector Machine**.
Course Project (MA5013)	**Handwritten Digit Recognition using the neural network from scratch** (Aug '23 – Oct '23) • Used the **MNIST dataset** from Kaggle to correctly identify digits from a dataset of tens of thousands of handwritten images. • Built a simple Two-Layer **neural network** from **scratch** using Python. • Achieved a **92.45%** accuracy in predicting handwritten digits.

SKILLS

Programming	Python, C++, R, SQL
Library	Pandas, Numpy, Matplotlib, Scikit Learn, TensorFlow, Keras
Software Skills	Jupyter Notebook, R Studio, MS Word, MS PowerPoint, MS Excel

RELEVANT COURSES

Courses	Applied Statistics	Object Oriented Programming	Data Analysis and Visualization R/Python/SQL
	Applied Regression	Stochastic Methods in Industry	Data Science: Theory and Practice
	Operations Research	Modelling Workshop	Introduction to Machine Learning

ONLINE COURSES

AI Club Summer School, IITM 2023	Introduction to Machine Learning, Deep Learning, and Computer Vision
Coursera 2023	Machine Learning Specialization, Neural Networks and Deep Learning, Natural Language Processing

EXTRACURRICULAR ACTIVITY

Alumni Relations Cell (IIT Madras)	Parents' Day Volunteer 2023 - IBC (Institute Branding Cell)
Hobbies	Drawing, Running, Solving Puzzles