SAKSHAM CHECKER

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EDUCATION			
Masters of Science - Advanced Computing	2024 - Present	King's College of London, UK	-
Bachelor of Technology	2020-2024	Delhi Technological University, IN	8.77 (CGPA)

TECHNICAL SKILLS												
C, C++, Python, SQL	Machine Learning,	Learning, Continual I	Deep Learnin	Learning,	Federated	Git, Linu	Tensorflow, x	PyTorch,	Keras,			

EXPERIENCE

EDUCATION

Graduate Data Science Developer, Penta Group

- Recently started working as a Graduate Data Scientist, part time, during my postgraduate studies.
- Working on application of Large Language models (LLMs) for stakeholder analysis enabling more personalized and efficient communication strategies.

Visiting Student, University of Cambridge

- Prepared a Federated Continual Learning solution for Socially Aware Robots under the guidance of Professor Hatice Gunes and Dr. Nikhil Churamani at the Department of Computer Science and Technology, University of Cambridge
- Proposed an End-to-End solution for Federated Learning (FedRoot) and Federated Continual Learning (FedLGR) to overcome the problem of forgetting among different robots while reducing the computation power

Researcher, Big Data and Web Analytics Lab, Delhi Technological University December 2020- June 2024

- Developed a novel architecture for identifying the type of malware using executable binary files using Machine Learning under the guidance of Professor Dr. Rahul Katarya. The project is currently unpublished, along with a study with a dataset collected on a bilingual dataset for detecting personalities based on handwritten text
- Persuaded studies including a survey on intrusion detection system, fake news detection using feature based classification and fish classification

Research Intern, Indian Institute of Technology, Dharwad

- I trained a federated machine learning setup under the guidance of Dr. Bharath B N to optimize edge caching in 5G mobile networks using machine learning algorithms.
- Gained knowledge about flower architecture and federated learning in detail. January 2022- March 2022

ML/AI Intern, HearUS (https://hearus.me/)

Developed machine learning-based algorithms from scratch to identify different patients' emotions from their chats, which were further integrated with their chatbot.

PEER REVIEWED JOURNAL PUBLICATIONS

Fake News Detection System Using Featured-Based Optimized MSVM Classification - Institute of Electrical and Electronics Engineers (IEEE) Access) | Digital Object Identifier - 10.1109/ACCESS.2022.3216892

- Developed a fake news detection system using feature selection algorithms on ten famous datasets, including Politifact, and GossipCop and contributed to the experimental setup, results analysis, and drafting of the paper.
- The study proposes a better-automated method to prevent the spread of fake news over social media with getting a good accuracy of over 90% in almost every dataset
- SCI Indexed ; Impact Factor 3.9 ; Citations: 18; Full Text Views on IEEE xplore: 2921.

Convolutional Network-based Face Mask Detection - World Journal of Advanced Research and Reviews (WJARR) Digital Object Identifier - 10.30574/wjarr.2022.13.2.0142

- To monitor public places during COVID-19, this paper proposed an ensemble-based convolutional neural network with an accuracy of 99.5%, which can be used to detect from their images whether a person is wearing a face mask
- **Citations: 1**

Solar Panels Crack Detection using Overhead Images - International Journal for Research in Applied Science and Engineering Technology (IJRASET) | Digital Object Identifier - <u>10.22214/ijraset.2021.38532</u>

- Developed a Machine Learning model to detect cracks on solar panels using overhead images with 95.34% accuracy. This can help automate fault detection in specific panels and replace them in time.
- The project was submitted as a mandatory project for the subject of Engineering Mechanics.
- Citations: 1

March 2023- February 2024

October 2024–Present

May 2022- July 2022

CONFERENCE AND WORKSHOP PAPERS

Federated Learning of Socially Appropriate Agent Behaviors in Simulated Home Environments -Lifelong Learning and Personalization in Long-Term Human-Robot Interaction (HRI 2024), Preprint - <u>arXiv:2403.07586</u>

- Proposed the Federated Continual Learning for Socially Appropriate Robots article, highlighting the Federated Learning and Federated Continual Learning benchmark on the MANNERS-DB dataset.
- Citations : 2

A Survey on Intrusion Detection System for IoT Networks Based on Artificial Intelligence IEEE ELEXCOM 2024

Digital Object Identifier - <u>10.1109/ELEXCOM58812.2023.10370067</u>

- Conducted an extensive survey on AI-driven intrusion detection systems for IoT networks, analyzing state-of-the-art techniques and their applications.
- Findings provided insights into future research opportunities in IoT security.
- Citations : 2 | Full Text Views on IEEE xplore: 125

Exploring the Classification of Crystal Structure of Perovskite Oxide Using Machine Learning and Deep Learning IEEE IC3SE 2024 | Greater Noida, India|

Digital Object Identifier - 10.1109/IC3SE62002.2024.10593259

- Developed machine learning and deep learning models to classify the crystal structure of perovskite oxides, improving material property predictions.
- The experimentations expand the application of state-of-the-art techniques in material sciences.
- Full Text Views on IEEE xplore: 32

OTHER RESEARCH PROJECTS

Federated Learning of Socially Appropriate Agent Behaviours in Simulated Home Environments

Preprint - arXiv:2403.07586

- Federated Learning and Federated Continual Learning benchmark for multi-label regression objectives, where each client learns to predict the social appropriateness of different robot actions while sharing their learning with others.
- Introduced a novel FedRoot benchmark to evaluate and predict social appropriateness of robotic actions in diverse home settings.
- Citations : 2

DIMC: DenseNet and InceptionV3-based Malware Classification -

- The manuscript of the novel architecture for identifying **25 different malware**. The study aims to provide a better and faster model for classifying malware using executable binary images.
- The research concludes a novel pipeline with **98.20%** accuracy in classifying Malware using the MaleVis dataset and **99.14%** in the Mallmg dataset,
- Study enhances cybersecurity by enabling faster, accurate malware detection, protecting critical systems, reducing cyber threats, and safeguarding sensitive data.

HiEnWrite: A Hindi-English Bilingual Dataset for Big Five Personality Detection -

- Detecting personalities is vital in fields like healthcare and education, with AI now playing a pivotal role by analyzing writing styles and other factors.
- This study introduces the HiEnWrite dataset, featuring texts from over 400 authors in Hindi and English, and correlates these with Big Five personality traits, achieving a maximum correlation of **0.411** using VGG10.

ACADEMIC AWARDS

Vice Chancellor's Award King's College London 2024

- Awarded a **£10,000 scholarship** for postgraduate studies at King's College London.
- Selected as one of 30 recipients for academic excellence and potential societal impact.
- Recognized for commitment to leveraging education for meaningful contributions to society.

POSITION OF RESPONSIBILITIES

President and Machine Learning Mentor, Round Table, Delhi Technological University

July 2022- July 2023

- Led a technical society of over 300 members during the academic year of 2022-23.
- Under my leadership, the society completed various projects and organized national-level events with a total of more than 800 participants throughout the year.
- As a senior mentor, I guided around 100 students in machine learning and artificial intelligence.

| Colorado, USA|

| Roorkee, India|