SWARAJ JAGADE

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SKILLS

Programming Languages	Python, C, C++, SQL, MySQL, HTML, CSS, JavaScript
Machine Learning	Scikit-learn, TensorFlow, Keras, XGBoost, Random Forest, LLM
Deep Learning	CNNs, Transformers, RNNs, MobileNet
Tools/Technologies	GitHub, Git, PowerBI, Flask, Excel, Wordpress
Mathematics	Linear Algebra, Probability, Statistics, Calculus
Soft Skills	Teamwork, Communication (English, Hindi, Marathi)

EXPERIENCE

Research Attachment Programme July 2024 - September 2024
Universiti Teknologi PETRONAS *Perak, Malaysia*

- Designed and executed a hybrid Voting Classifier and Regressor model integrating Random Forest, XGBoost, and Neural Networks; achieved peak junction temperature predictions for MOSFETs with an accuracy of 99.12%, validating advanced analytical capabilities.
- Achieved **99.12% accuracy for MOSFET** and **99% accuracy for IGBT** on a dataset of **35,000 instances**, showcasing exceptional model precision.

PROJECTS

Detect Chronic Kidney Disease (CKD):

- Engineered a predictive model for chronic kidney disease utilizing the Adam optimizer, fine-tuning algorithms with a dataset of 400 instances; reduced false positives by 15% and improved diagnostic reliability for healthcare providers.

Prediction of Peak Junction Temperature:

- Engineered a hybrid voting classifier and regressor model to predict peak junction temperatures in MOSFET and IGBT semiconductors, achieving an accuracy rate of 99% on a dataset comprised of over 35,000 instances.

Image-Based Entity Value Prediction Using MobileNet:

- For the Amazon ML Challenge, I developed a Random Forest Regressor model using MobileNet features and a hybrid voting approach to process **250,000 real-time images.** The system evaluates performance and exports predictions to a CSV file.

RESEARCH INTERESTS

AI-Driven Solar Panel Defect Detection with Explainable AI (XAI) for Enhanced Automation and Reliability:

- Exploring the application of AI techniques, particularly Explainable AI (XAI), to detect defects in solar panels, improving automation and reliability in solar energy systems.

Smart Machine Learning-Driven Framework for Optimizing Carbon Capture and Anomaly Detection in CO Storage Systems:

- Investigating the use of smart machine learning models to optimize carbon capture techniques and detect anomalies in CO storage systems, contributing to better climate change mitigation strategies.

Integrated Machine Learning Framework for Predictive Maintenance, Safety Optimization, and Real-Time Anomaly Detection in Oil and Gas Operations Using Sensor-Driven Data Analytics:

- Developing an integrated machine learning framework to enhance predictive maintenance, optimize safety, and enable real-time anomaly detection in the oil and gas industry, using sensor-driven data analytics for operational efficiency.

PUBLICATIONS

Blockchain-Optimized Deep Learning for CKD Detection and Organ Donation Management: A Novel Approach:

- During my undergraduate studies, I authored a research paper titled "Detection of CKD with Enhanced Blockchain-Based Organ Donation System," which has been accepted for presentation at an IEEE Conference. This research integrates CKD prediction using XGBoost and a deep learning model trained with the Adam optimizer, achieving 96% accuracy on a dataset of 400 instances. A blockchain-based decentralized application (dApp) was developed to enhance organ donation management with Ethereum smart contracts.

Hybrid Voting Classifier and Regressor Approach for Peak Junction Temperature Prediction in MOSFETs:

- During my Research Attachment Programme at Universiti Teknologi PETRONAS, I developed a machine learning model that achieved 99.12% accuracy in predicting the peak junction temperature of MOSFETs. This work leverages ensemble methods and advanced feature selection techniques to enhance thermal management in semiconductors. A research paper detailing this study has been submitted to IEEE Access under the **Manuscript ID Access-2024-48149.**

IGBT Semiconductor Peak Junction Temperature Prediction Using a Hybrid Voting-Based Classifier and Regressor Method:

- I was able to create a machine learning model during my Research Attachment Program at Universiti Teknologi PETRONAS that was 99% accurate in forecasting the peak junction temperature of IGBTs. To improve heat control in semiconductors, this study makes use of ensemble approaches and sophisticated feature selection algorithms. The article for this study is presently being prepared for submission to the **Scopus-indexed Engineering, Technology & Applied Science Research (ETASR) journal.**

EDUCATION

Bachelor of Technology in Computer Science & Engineering August 2020 - June 2024
Nutan College of Engineering & Research, Pune
University Name: Dr. Babasaheb Ambedkar Technological University
CGPA: 8.55

12th Std HSC June 2018 - March 2020
Chikitsak Samuha's S.S. & L.S. Patkar College of Arts & Science, and V.P. Varde College of Commerce & Economics
University Name: Mumbai University
Score: 70.92%

10th Std SSC March 2018
R. N. Raut Highschool, Shrivardhan
University Name: Mumbai University
Score: 91.60%

CERTIFICATIONS AND COURSES

Java Programming March 2021 - July 2021

- Introduction to Java Programming conducted by Skill Lync. Project-based learning with mentorship by Miss. Rafat Munshi. Programme Director: Sarangarjan V.

Arduino Programming 4th Oct 2021 - 14th Oct 2021

- Successfully completed a 10-day Project-based Learning workshop on "Arduino-Based Automation" with mentorship by Mr. Chittaranjan Mahajan, CEO of Dolphin Labs. Certificate No. 700192021.

Mastering AI-Powered Prompt Engineering with AI Models 30th Oct 2023

- Successfully completed the course on Udemy, taught by Ayush Kumar. Course duration: Total video hours of the course.

EXTRA-CURRICULAR ACTIVITIES

Trainer for the Elderly Caretaker Non-Clinical Role: March 2024 - June 2024

- As a Trainer for the Elderly Caretaker (Non-Clinical) program under Mr. Mangesh Daphale, CEO of Grameen Pragati Foundation, I trained **60 candidates** in essential caregiving skills, earning a government certification and contributing to the professional development of future caregivers.
- Certified Trainer under NSDC with Trainer ID: **TR351859**, graded **'B'**, for the qualification pack of Elderly Caretaker (Non-Clinical) (DWC/Q0801)-v3.0.

Data Analyst: February 2024 - April 2024

- Worked under GDCA-certified auditor Mr. Kunal Krishna Sawant (B.Com, B.Lib, L.L.B., G.D.C.A & CHM). Responsibilities included analyzing bank and society vouchers, identifying discrepancies, and organizing data in Excel sheets, contributing to improved analytical capabilities. Role involved remote work.

REFERENCES

Dr. Sanjeevkumar Angadi
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