JAY AGRAWAL

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SUMMARY

AI/ML Engineer with hands-on experience in machine learning, deep learning, and computer vision. Completed a one-year research project on AI-assisted design in nanophotonics, where I used neural networks and optimization algorithms to solve an inverse design problem. Skilled in Python, TensorFlow, and data handling. Looking for a full-time role to apply my skills in solving real-world problems using AI.

EDUCATION

Master of Technology, Artificial Intelligence June 2025
Pandit Deendayal Energy University, Gandhinagar 8.32 CGPA
Relevant coursework: Neural Networks, Pattern Recognition & Machine learning, Essential Math in AI, Open CV, Time Series Data Analysis, AI in Finance

Bachelor of Engineering, Computer Engineering July 2023
Sal Engineering and Technical Institute, GTU 7.59 CGPA

TECHNICAL SKILLS

- **Languages/Tools:** Python, Jupyter Notebook, Git/GitHub
- **ML/DL Frameworks:** TensorFlow, Keras, Scikit-learn, XGBoost
- **Computer Vision:** OpenCV, Transfer Learning, InceptionV3
- **Data Handling:** Pandas, NumPy, Matplotlib, Seaborn
- **Optimization:** Differential Evolution, Model Evaluation (MSE, R^2, accuracy)

PROFESSIONAL EXPERIENCE

Maxgen Technologies Pvt. Ltd.: Machine learning Intern Feb 2023 – Apr 2023

- Gained proficiency with Python libraries and tools such as TensorFlow, Keras, Scikit-learn, and Pandas.
- *Internship Project: Skin Disease Detection*
- Technology used: Python, TensorFlow, Keras, OpenCV, NumPy, Pandas, Jupyter Notebook, Google Colab.

BrainyBeam Technologies Pvt. Ltd.: Internship in Data Science and Machine learning Jun 2022 – Jul 2022

- *Internship Project: Recommendation system using Sentiment Analysis*
- Technology used: Data preprocessing, NLP, Jupyter Notebook, Python, Kaggle

ACADEMIC PROJECTS

Fruit Classification (Fresh vs Rotten)

- Collected and preprocessed image dataset of fresh and rotten fruits
- Applied data augmentation techniques to increase training data variety
- Used InceptionV3 with transfer learning to build an image classifier
- Achieved 97% classification accuracy on validation data
- Technology Used: Python, TensorFlow, Keras, OpenCV, NumPy, Google Colab, Pandas

House Price Prediction

- Performed exploratory data analysis and cleaned raw housing data
- Engineered features and applied various regression models
- Used XGBoost for final model with optimized hyperparameters
- Achieved R^2 score of 0.82 on the test dataset
- Technology Used: Python, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Jupyter Notebook

OTHER WORK EXPERIENCE

Pandit Deendayal Energy University (Research and Teaching Assistant)

– Assisted lab sessions for AI/ML subjects

– Helped students with coding and project guidance

– Supported professors with grading and project mentoring

RESEARCH EXPERIENCE AND PUBLICATIONS

AI-Assisted Design Discovery in Nanophotonics – PDEU July 2024 – May 2025

– Solved an inverse design problem using Deep Neural Networks and Differential Evolution to optimize 8-layer DBR structures (Sb_2S_3/SiO_2)

– Replaced traditional simulation (15 minutes per run) with a DNN-based surrogate model that predicts spectral response in milliseconds.

– Reduced total optimization time from weeks to minutes, enabling faster and scalable nanophotonic device design.

– Output: 244-dimensional spectral response (reflectance/transmittance in amorphous and crystalline phases)

ETOT – I Conference, Andhra Pradesh January 2025

– Presented our work as a poster at the conference

Upcoming Conference Submission Expected November 2025

– Manuscript already written and will be submitted soon

Journal Paper Preparation Ongoing

– Manuscript under preparation for journal submission

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