



# Netflix Thumbnail Genre Prediction Dashboard



## Project Overview

This project aims to build a Convolutional Neural Network (CNN) model to classify Netflix thumbnail poster images into genres (e.g., Action, Drama, Comedy, Thriller, Romance) using deep learning.

A balanced dataset of 1,201 posters across 5 genres was created and used to train and evaluate the model.

The model was deployed as an interactive app on Streamlit ([Live App](#) ) , allowing users to test predictions in real time.

To bridge the gap between AI and business decision-makers, a Tableau dashboard was developed, showcasing model performance, misclassification patterns, and genre-specific insights.

The project is designed to enhance content metadata tagging, improve user recommendation engines, and reduce operational errors in content classification.



## Business Challenge

Global streaming platforms like Netflix, Amazon Prime, and Disney+ often rely on manual tagging or rule-based systems to categorize content posters into genres.

Misclassified or inconsistently tagged posters can mislead viewers, reduce click-through rates, and negatively affect content recommendations.

There's a pressing need for automated, accurate, and explainable genre classification models that can scale across thousands of titles without manual intervention.

Business stakeholders need clear, actionable insights into model behavior — not just raw predictions.

[Click Here to Go to: Model Performance Summary Dashboard](#)

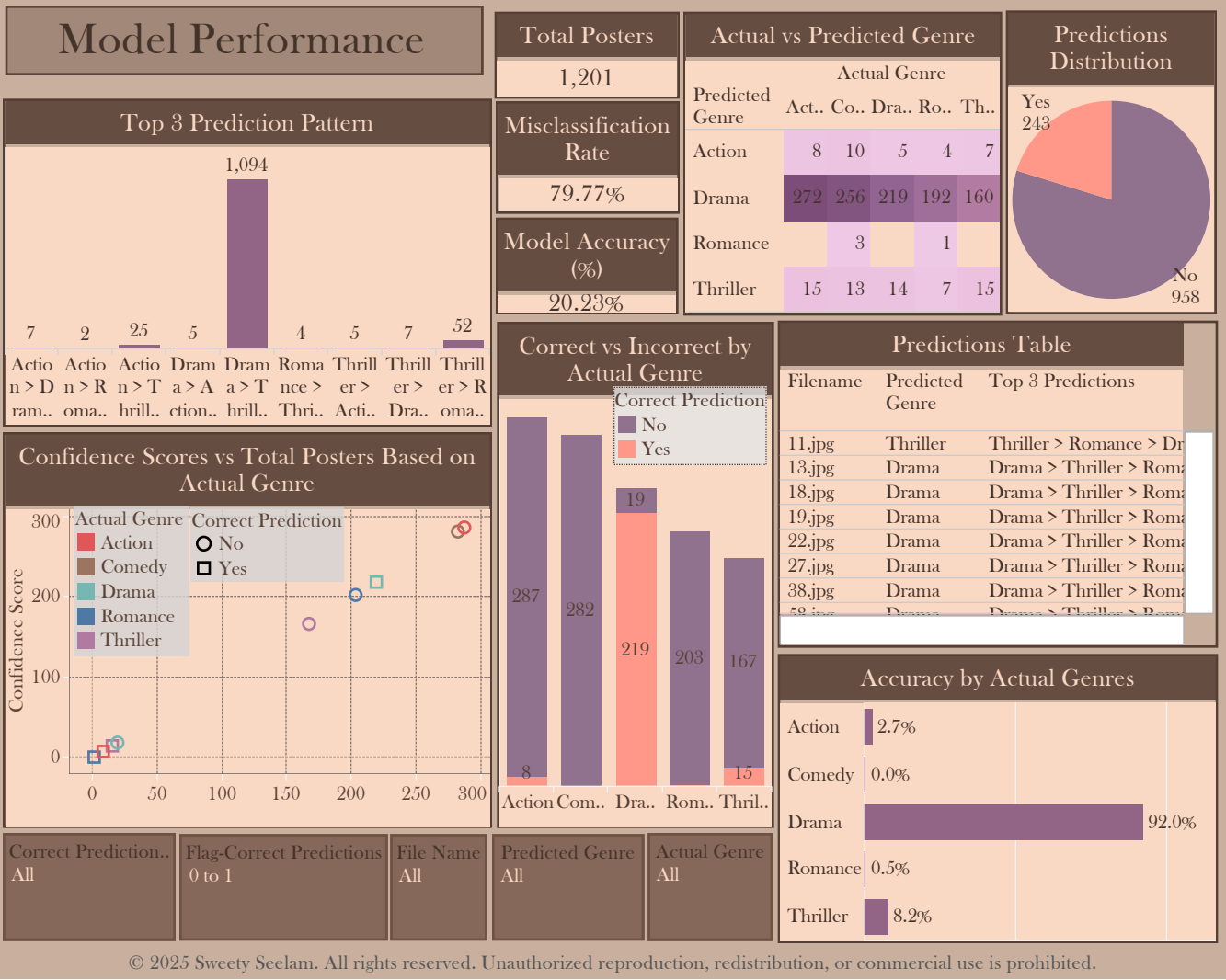


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# Netflix Thumbnail Genre Prediction Summary

## Conclusion

Total Posters Analyzed: 1,201

Overall Model Accuracy: 20.23% — Only 243 out of 1,201 posters were correctly classified by genre.

Misclassification Rate: 79.77%, indicating high confusion in genre prediction across most categories.

 Accuracy by Genre:

Drama: ☒ 92.0% — The model performs exceptionally well in identifying Drama posters.

Thriller: ☐ 8.2%

Action: ☐ 2.7%..

## Business Impact

Let's assume the model is deployed by Netflix or similar platforms to classify 100,000+ poster thumbnails annually.

The average manual tagging cost per poster is approximately \$1.25.

Therefore, total annual manual tagging cost =  $\$1.25 \times 100,000 = \$125,000$ .

 Without the model:

All poster genres would need to be manually tagged.

This process is labor-intensive, time-consuming, and adds to operational overhead...

## ☒ Business Recommendations

If adopted and enhanced by companies such as:

- Netflix
- Amazon Prime Video
- Disney+
- HBO Max
- Hulu

## Project Storytelling

In an era where visual appeal drives engagement, thumbnails serve as digital storefronts on platforms like Netflix.

This project tackled a real-world challenge: Can we accurately classify thumbnails by genre using a CNN-based model?

A large dataset of 1,201 Netflix posters was processed through a Deep learning model and analyzed using Tableau.

The Streamlit app provided real-time prediction access, while the Tableau dashboard translated model outputs into business-readable insights.

The dashboard revealed a critical flaw: the model over-predicts Drama with 91% of outputs falling into a single top-3 pattern — a major bias.

However, this discovery is itself a business advantage: it exposes genre imbalance and enables targeted retraining strategies.

If Netflix or its peers apply this feedback loop — combining AI prediction + business visualization — they can turn flawed AI into a powerful feedback-driven automation engine...