

Module 3: Portfolio Milestone

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Portfolio Milestone

After evaluating different machine learning approaches, I have chosen to use Convolutional Neural Networks (CNNs) for my recycling classification project (Coursera Staff, 2024, April 23). CNNs are a powerful class of neural networks specifically designed for image processing and object recognition, making them ideal for this use case. Their ability to automatically detect spatial hierarchies of features allows them to distinguish between different shapes and patterns in images (IBM, 2025), which is crucial for accurately classifying recyclable materials.

In this project, the CNN model will analyze images of various waste items and categorize them into materials such as plastic, glass, cardboard, and more. This classification can play a key role in improving recycling efficiency by enabling automated waste sorting. By training the model on a dataset of labeled waste images, I aim to develop a robust system capable of generalizing across different lighting conditions, angles, and object variations.

References

Coursera Staff (2024, April 23) *8 Common Types of Neural Networks*. Coursera.

<https://www.coursera.org/in/articles/types-of-neural-networks>

IBM (2025) *What are convolutional neural networks?*

<https://www.ibm.com/think/topics/convolutional-neural-networks>