

# Can These Two Drugs Be the Same?

A deep learning approach to identify drugs from their chemical fingerprints

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## Introduction

- Forensic drug detection
- Mass spectrometry
- Limitation of traditional methods
- Challenge: new & similar compounds
- Need: fast, scalable, accurate approach
- Solution: Siamese Neural Network (SNN)
- Task: Compare spectra

## Method

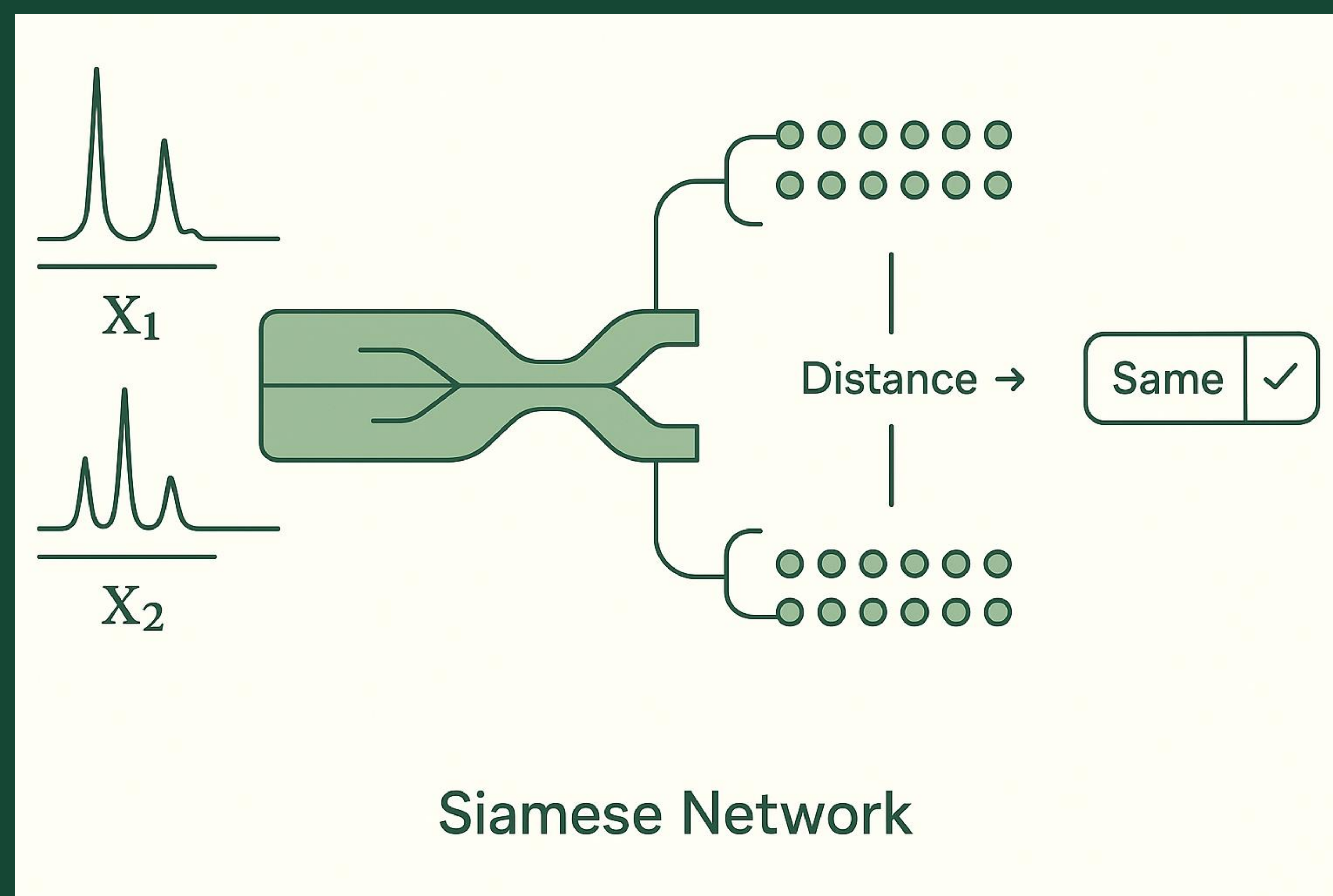
- Input data: 136 spectra (3 drug families)
- Neural Network: CNN + LSTM
- Siamese model
- Training: Balanced same/different pairs
- Prediction: Same or Different

## Results

- Confirms strong model accuracy
- Very few misclassifications
- Balanced, unbiased results
- Supported by perfect family classification

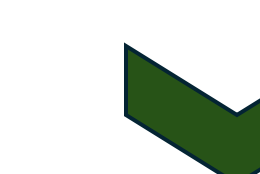
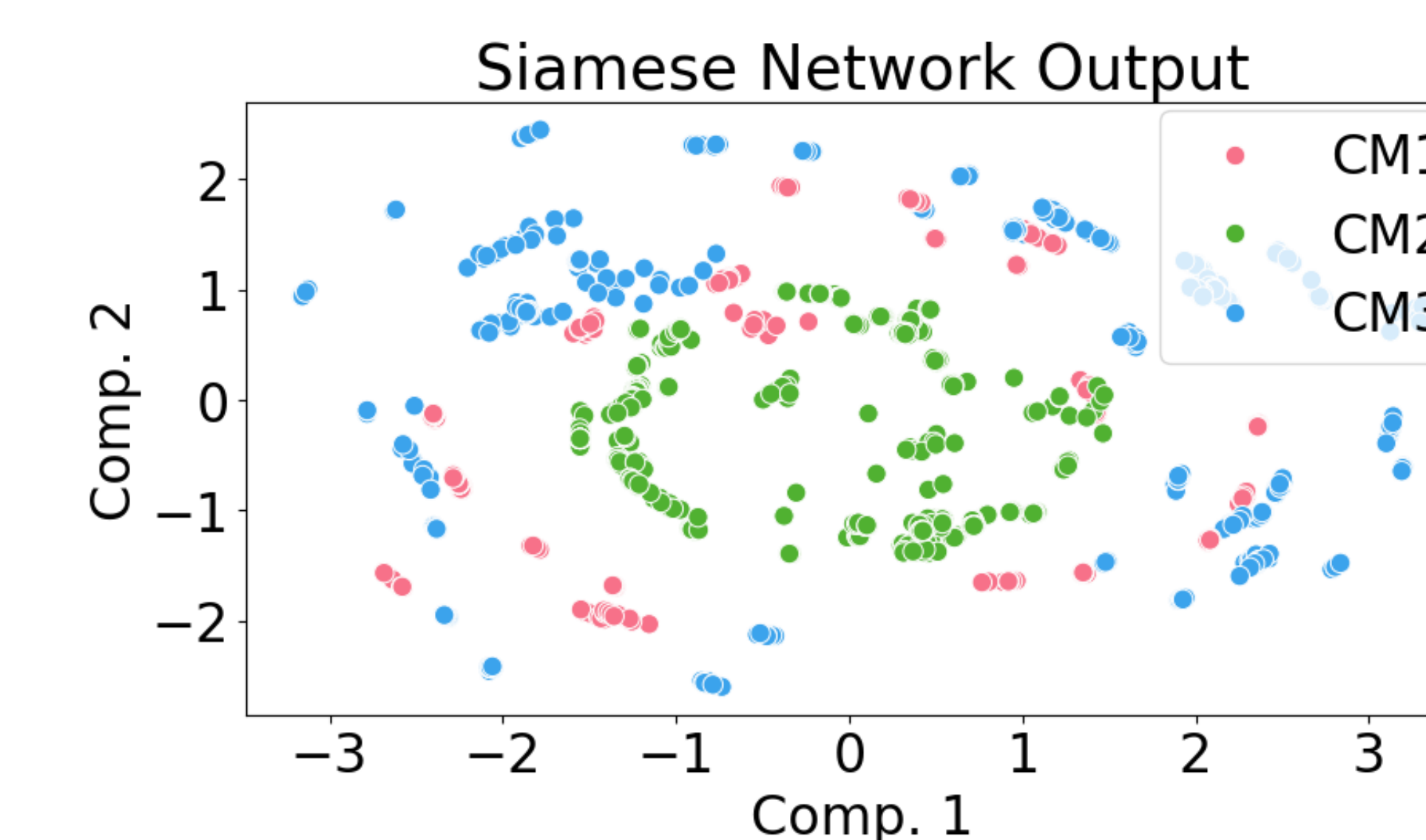
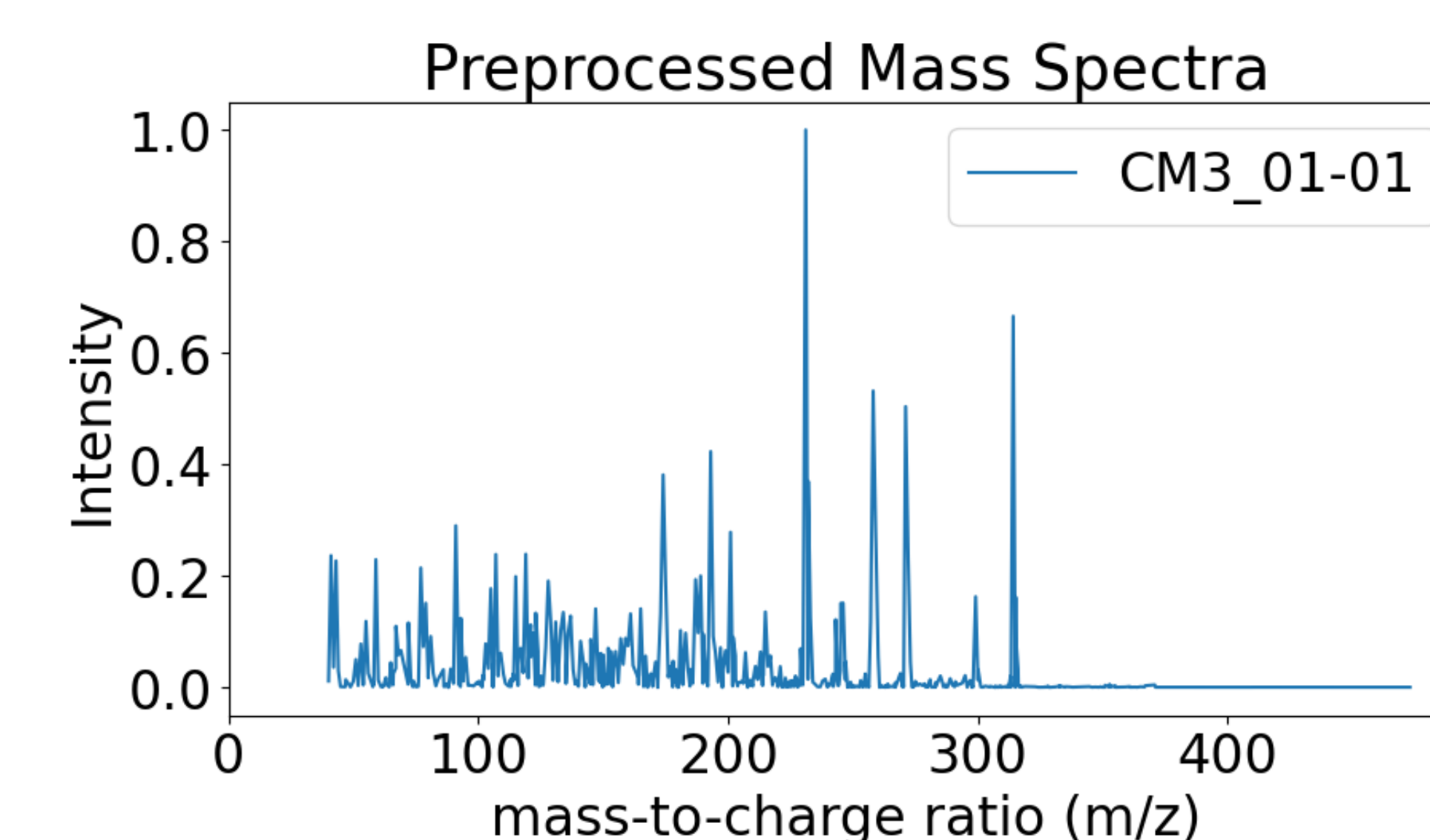
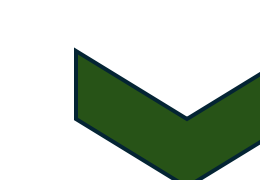
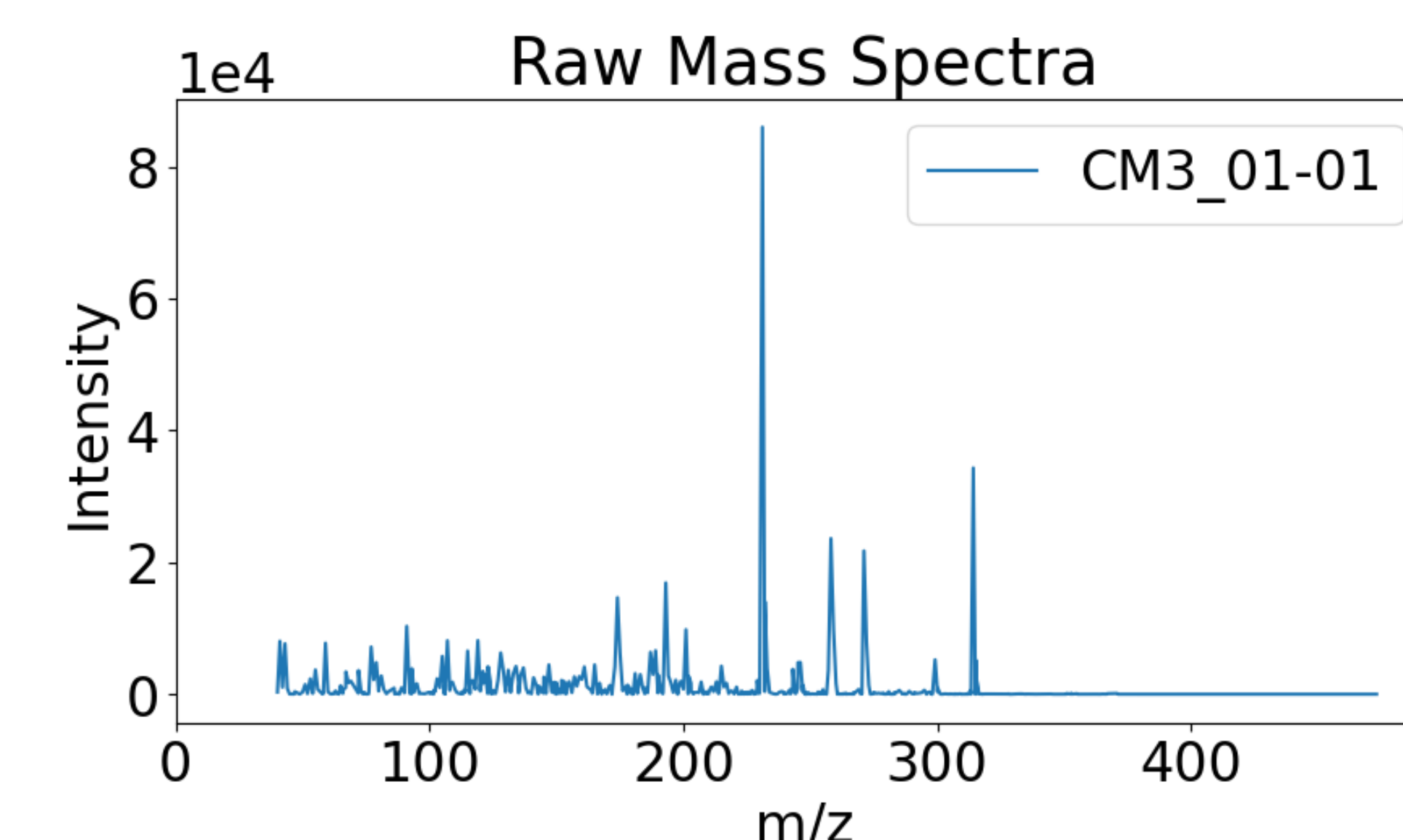
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Our model compares drug fingerprints to tell if they match, even when the data looks slightly different.



Scan the QR code to access:

- Application
- Full project paper
- Raw dataset



		Predicted	
		Same	Different
Actual	Same	1198	17
	Different	7	1208

Accuracy: 0.9901