Weather Classification with MONAI (Deep Learning)

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Project Goal

Initiative: Many industries need to identify current and past weather conditions to help them plan, organize and optimize their operations.

Goal: Accurately categorize input (weather images) into 11 categories.

How we achieved our goal?

- MONAI (open-source AI framework)
  - PyTorch-based framework for deep learning

- Steps:

  - Create a MONAI Dataset for training and testing

  - Use MONAI transforms to pre-process data

  - Use the DenseNet from MONAI for the classification task

  - Train & Evaluate the model

What went well? V.s. What not well well?

- Expensive to train locally – switch to Kaggle/colab instead
- Hyperparameter tuning is time-consuming
- Metric Score is not as high as expected

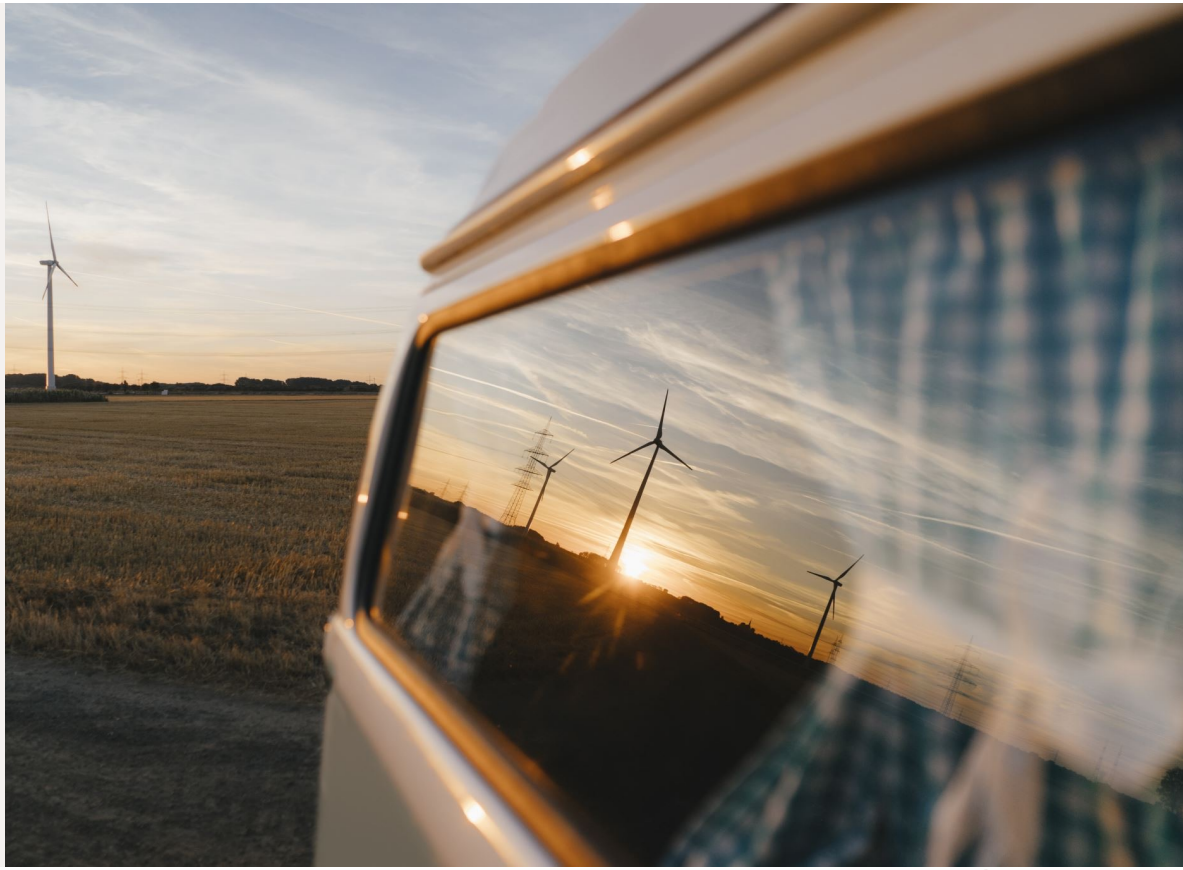
- Detailed tutorial of MONAI online – easy to follow
- MONAI has its own pipeline to pre-process the data

Performance Metric

precision	recall	f1-score
0.6529	0.6410	0.6436

Further applications

- Our model is applicable in many fields:
  - Farming
  - Self-driving cars
  - Smart transportation systems
  - Outdoor vision systems



Thank you