Explainable AI: Scene Classification and GradCam Visualization

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Abstract: *Explainable AI: Scene Classification and GradCam Visualization focuses on developing deep learning models to predict landscape types in images, particularly satellite images, for real-world applications such as landscape recognition. Through this initiative, participants will probe into the basic theory of Stacked Neural Networks, CNNs, and residual nets to gain a comprehensive understanding of their operation and applications. Using Python libraries, participants will learn image import, pre-processing, and visualization techniques, along with data augmentation techniques to improve model generalization.*

The core of the project is to use Keras and TensorFlow 2.0 to form a CNN-based model with residual blocks, and then compile and train the model. Evaluation metrics such as precision, precision, and recall are used to calculate model performance and generalization capabilities. Additionally, participants will explore Grad-CAM, a technology from Explainable AI that visualizes the activation maps used by CNNs for predictions. In the conclusion of the project, participants will hone their skills in stacked learning, image processing, and interpretability techniques, and gain concrete insights into how AI models work in landscape classification.

Keywords: Explainable AI, GradCam, CNNs, Keras, TensorFlow

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