The error

```

AttributeError: 'KernelExplainer' object has no attribute 'shap\_interaction\_values'

```

occurs because **\*\*SHAP KernelExplainer does not support `.shap\_interaction\_values`\*\***. This feature is only available for certain explainers, primarily `TreeExplainer` (for tree-based models like XGBoost, LightGBM, etc.)[2][3][6][7]. Currently, neither `KernelExplainer` nor `DeepExplainer` supports direct computation of SHAP interaction values for deep learning models such as MobileViTv2[2][5].

---

## \*\*What does this mean for your MobileViTv2 workflow?\*\*

- **\*\*You cannot use `shap\_interaction\_values` with KernelExplainer or DeepExplainer.\*\***

- The type of plot you showed (SHAP interaction value summary plot) is only natively supported for tree models using `TreeExplainer`.

- For deep learning models (like MobileViTv2), only standard SHAP values (main effects) are supported out-of-the-box with `KernelExplainer` and `DeepExplainer`.

---

## \*\*What can you do instead?\*\*

### 1. \*\*Standard SHAP Value Analysis\*\*

You can still compute and visualize standard SHAP values (feature attributions) for your images using `explainer.shap\_values` and plots like `shap.summary\_plot` or `shap.image\_plot`.

### 2. \*\*Manual Approximation (Advanced)\*\*

If you truly need interaction values for a deep model, you would have to implement a custom approximation, which is non-trivial and not supported by the SHAP API[4][5]. There is no official workaround in the SHAP library as of now.

### 3. \*\*Alternative Libraries\*\*

Some research libraries (e.g., [shapiq](https://christophm.github.io/interpretable-ml-book/shap.html)) are exploring more general interaction value estimation, but these are not yet mainstream or as plug-and-play as SHAP for tree models[4].

---

## \*\*Summary Table\*\*

| SHAP Explainer         | SHAP Values Supported | SHAP Interaction Values Supported |

|------------------------|----------------------|-----------------------------------|

| TreeExplainer          | Yes                  | Yes                               |

| KernelExplainer        | Yes                  | **\*\*No\*\***                            |

| DeepExplainer          | Yes                  | **\*\*No\*\***                            |

---

## \*\*References\*\*

- [2] GitHub Issue: KernelExplainer does not support shap\_interaction\_values

- [3] SHAP documentation: Interaction values for tree models

- [4] Interpretable ML Book: SHAP interactions

- [5] GitHub Issue: DeepExplainer does not support shap\_interaction\_values

- [6][7] SHAP documentation, TreeExplainer

---

**\*\*In summary:\*\***

You cannot generate SHAP interaction value plots for MobileViTv2 using KernelExplainer or DeepExplainer. You can only use standard SHAP value plots for deep learning models. Interaction value plots are only supported for tree-based models with TreeExplainer.

[1] https://pplx-res.cloudinary.com/image/private/user\_uploads/31737542/22867266-f893-48c7-89e3-511fd79a66a2/shap\_interaction\_values.jpg

[2] https://github.com/slundberg/shap/issues/2579

[3] https://github.com/shap/shap

[4] https://christophm.github.io/interpretable-ml-book/shap.html

[5] https://github.com/slundberg/shap/issues/272

[6] https://shap.readthedocs.io/en/latest/example\_notebooks/tabular\_examples/tree\_based\_models/Basic%20SHAP%20Interaction%20Value%20Example%20in%20XGBoost.html

[7] https://shap.readthedocs.io/en/latest/generated/shap.TreeExplainer.html

[8] https://github.com/slundberg/shap/issues/136

[9] https://pypi.org/project/shap/

[10] https://www.kaggle.com/code/bextuychiev/model-explainability-with-shap-only-guide-u-need

[11] https://shap.readthedocs.io/en/latest/example\_notebooks/overviews/An%20introduction%20to%20explainable%20AI%20with%20Shapley%20values.html

[12] https://stackoverflow.com/questions/71861157/shap-kernelexplainer-attributeerror-numpy-ndarray

[13] https://shap.readthedocs.io/en/latest/generated/shap.GPUTreeExplainer.html

[14] https://towardsdatascience.com/kernelshap-can-be-misleading-with-correlated-predictors-9f64108f7cfb/

[15] https://docs.seldon.io/projects/alibi/en/latest/api/alibi.explainers.shap\_wrappers.html

[16] https://shap.readthedocs.io/en/latest/generated/shap.KernelExplainer.html

[17] https://www.datacamp.com/tutorial/introduction-to-shap-values-machine-learning-interpretability

[18] https://stackoverflow.com/questions/75275838/r-how-to-calculate-and-plot-shap-interaction-values

[19] https://huggingface.co/docs/transformers/main/model\_doc/mobilevitv2