

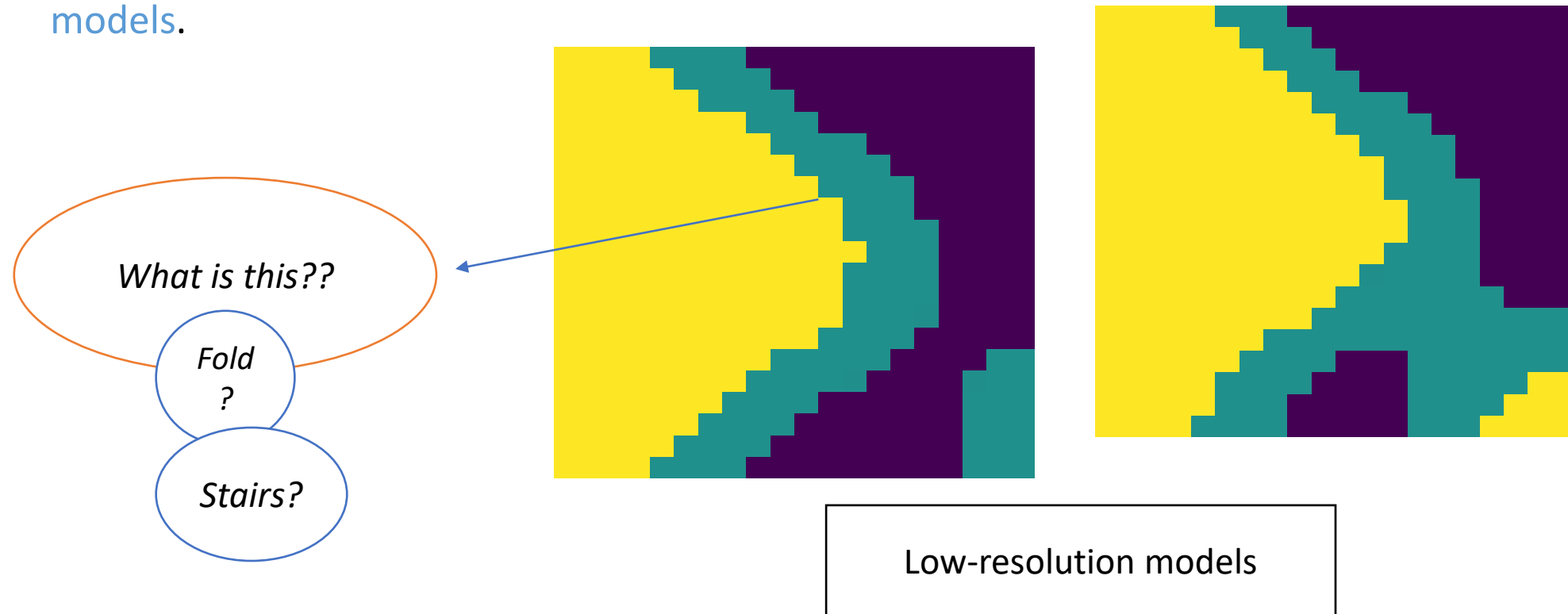
Super Resolution in Structural Geological models

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The need for Super-resolution!

- High resolution models are computationally expensive
- Less data available for computation of a model.
- missing data points cause the interpolators to compute unrealistic models.



How can AI help?

- Deep learning algorithms have the ability to learn vast amounts of data.
- GANs have shown the ability to learn as well as generate data.
- SRGANs are GANs for the specific purpose of super-resolution.
- SRGANs Generate samples which resemble high-resolution data distribution.

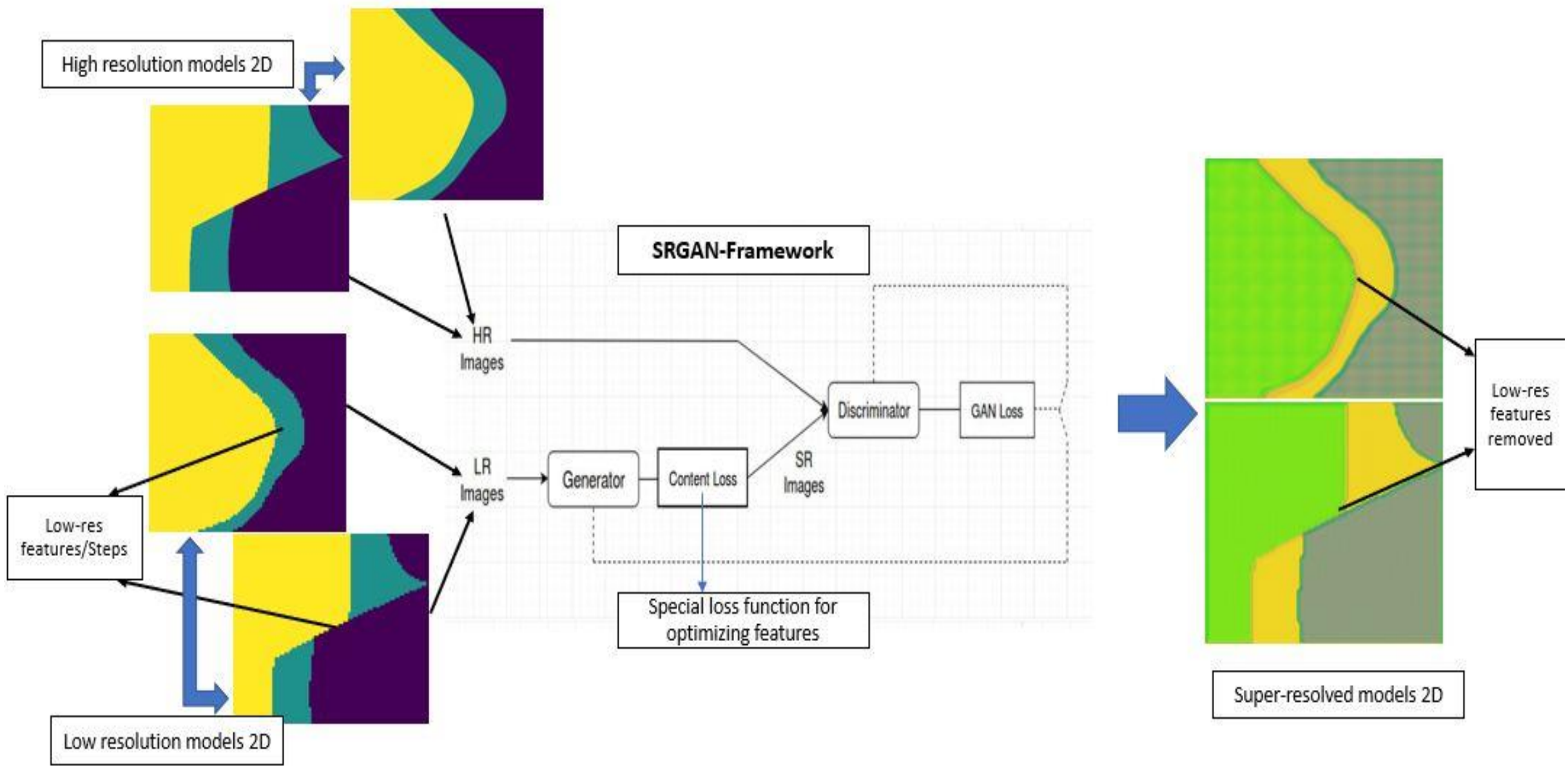
SRGANs learn the high resolution features from the high resolution data



Generates samples resembling high-res data



High-resolution models



Discussion and conclusion:

- SRGAN has performed well in producing high-resolution models from their low-res counterparts although with some artifacts e.g thin shadow layer.
- Further work is needed to improve the loss functions and overall network architecture to get more realistic results.
- The work can be extended to 3D and would be very helpful in generating high resolution computationally inexpensive Geological models.