

Self-supervised learning for sky surveys

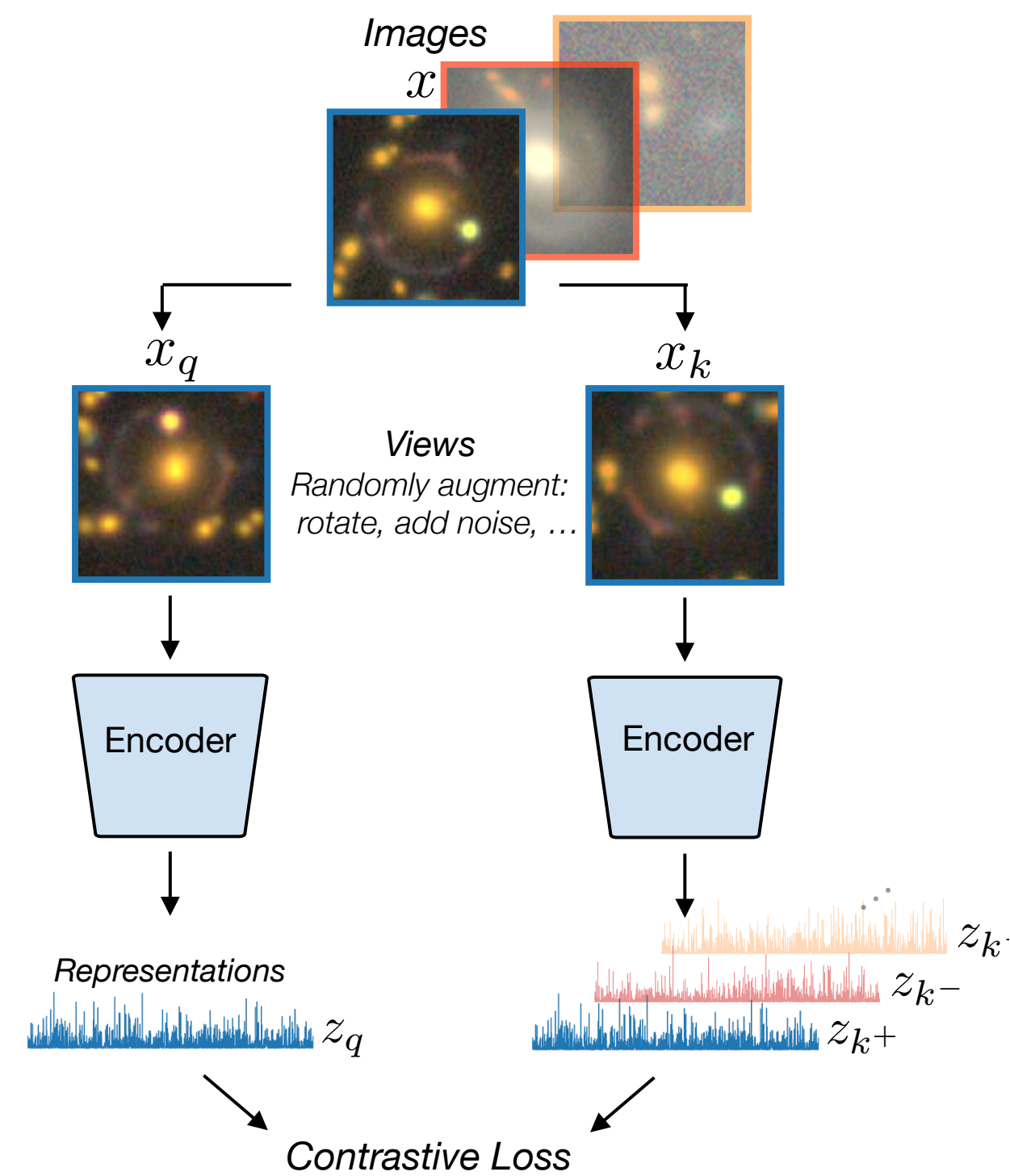
Hundreds of millions of objects, yet minimal labels.. so how can we learn?..



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Step 1:

distill low-dimensional representations that are
robust to symmetries, uncertainties, and noise



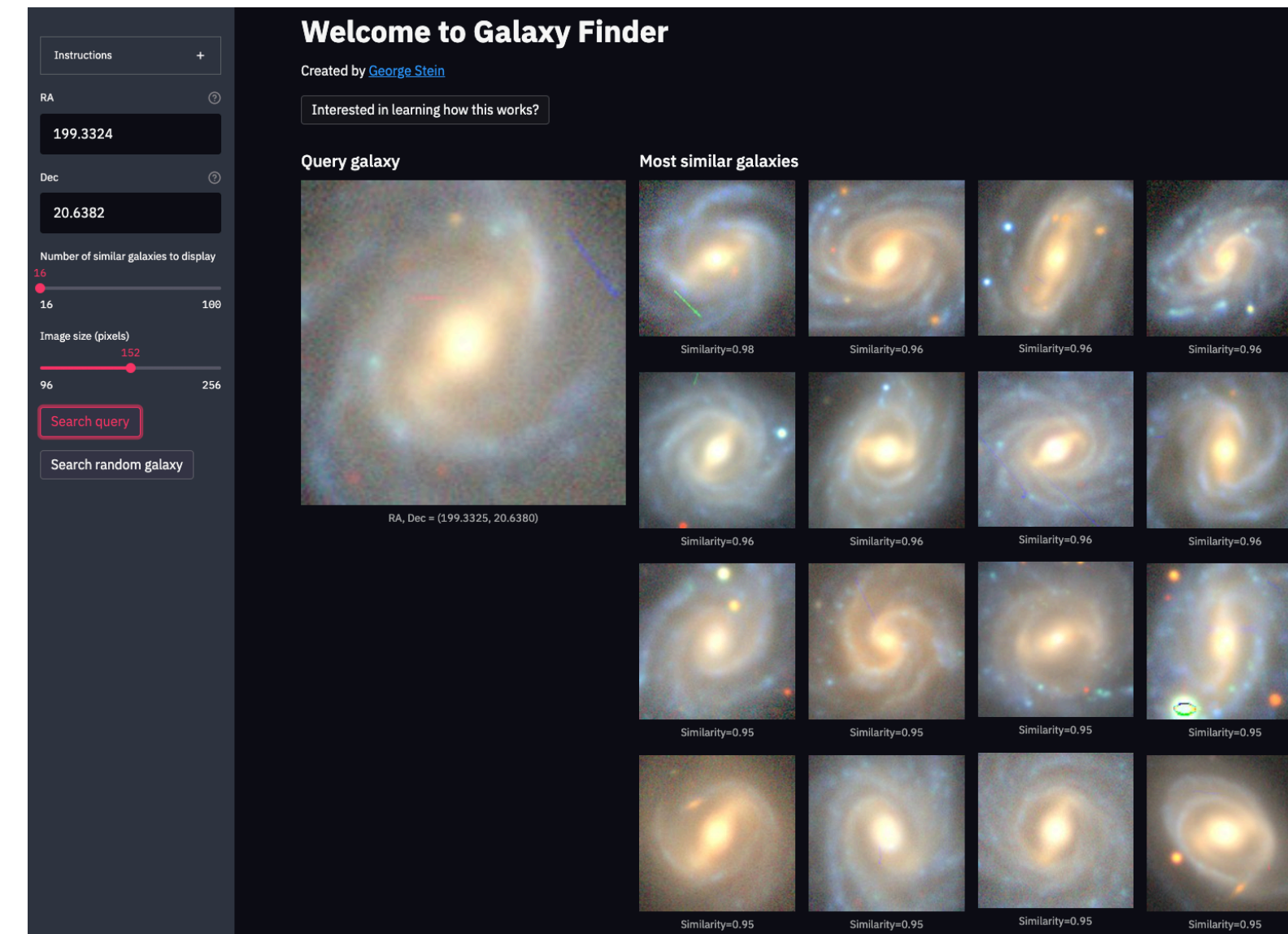
Self-Supervised Representation Learning for
Astronomical Images
2012.13083

Step 2:

Use representations for any survey task!

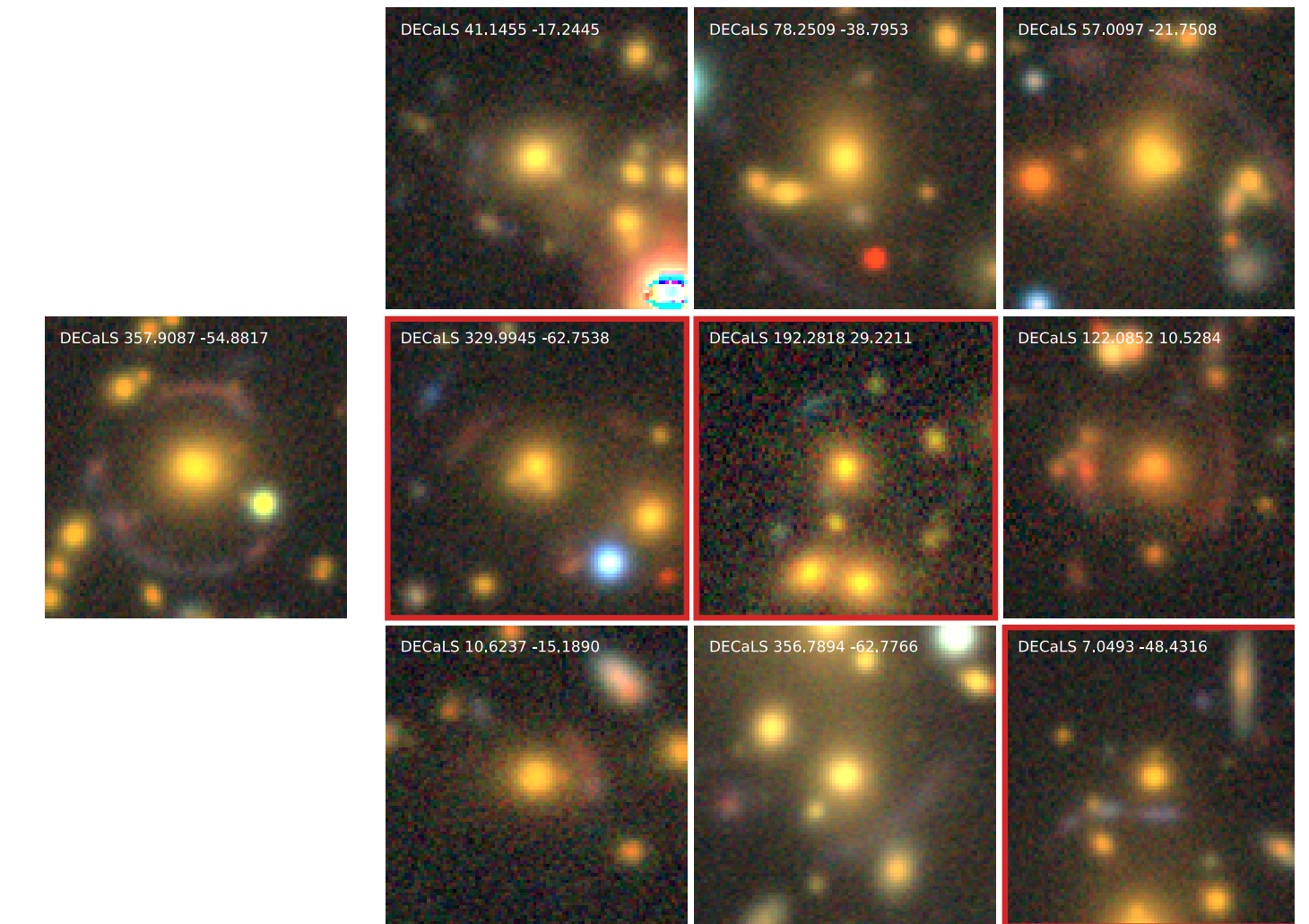


Data exploration through similarity search



Play with the interactive web app here!
share.streamlit.io/georgestein/galaxy_search

Discover rare objects and anomalies



Mining for strong gravitational lenses with self-supervised learning
2110.00023

Outperform supervised learning at
classification and regression tasks

e.g.
Galaxy morphology classification
& photometric redshift prediction
2012.13083

