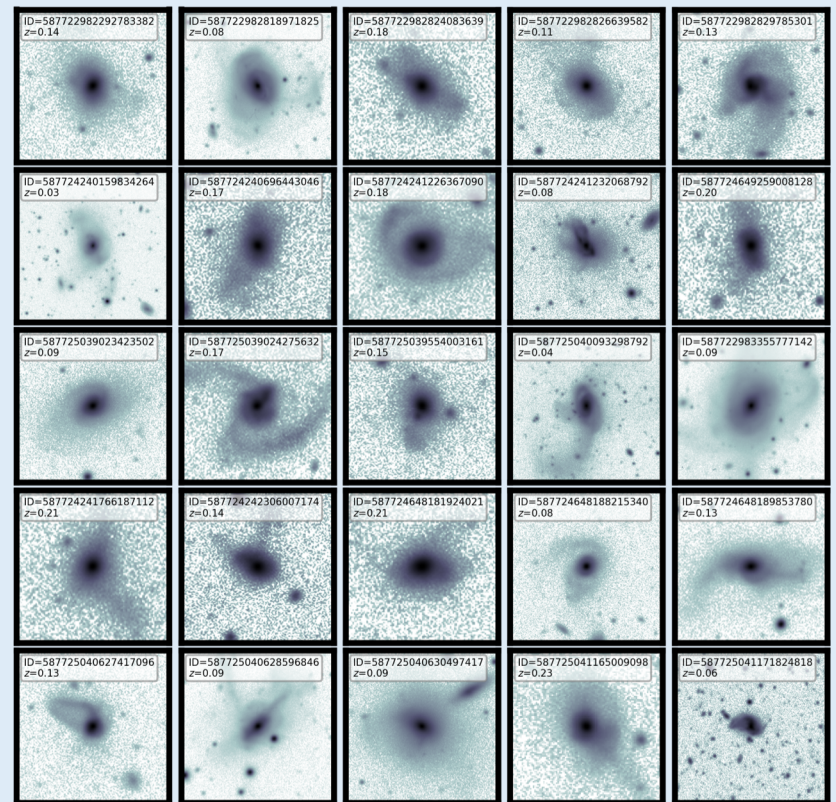


Deconstructing the galaxy merger sequence with machine vision

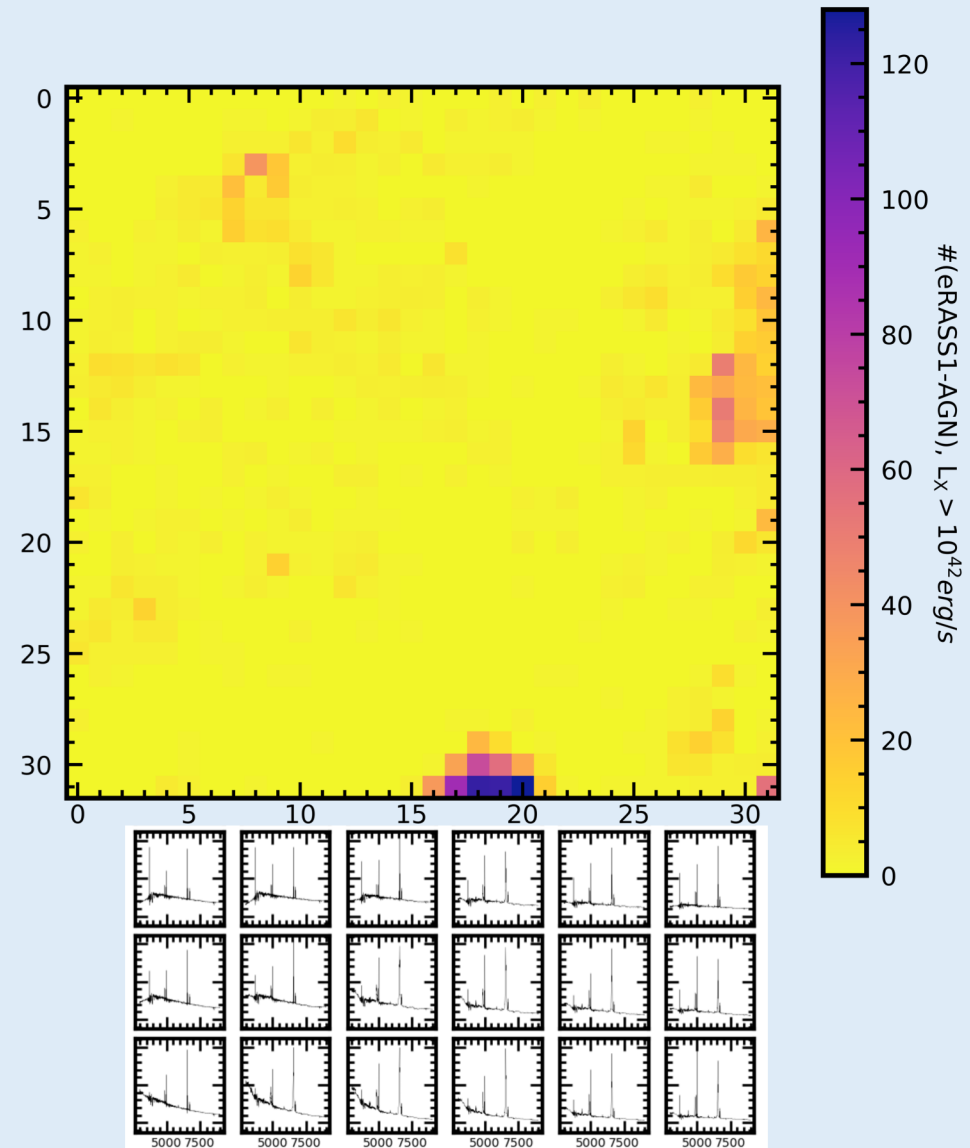
Bobby Bickley, U. of Victoria Ph.D. candidate

- Galaxy mergers:
 - Switch on SMBHs in galaxies
 - Fuel rapid SMBH accretion
 - Are a major channel for SMBH “blowout” events
- How often / how much?
 - Machine vision!
 - CNN, trained on simulated galaxies and used to identify post-mergers in observations →



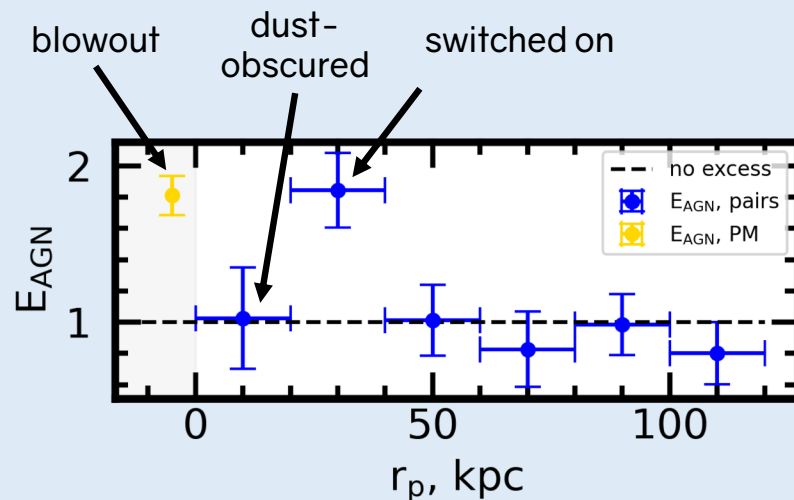
Optical characteristics of AGN

- New dataset: all-sky X-ray catalog from eROSITA
- Used machine vision (again!) to cluster optical spectra of eROSITA sources
- Deep self organized-map (conv. autoencoder plus SOM) → X-ray AGN often have quasar-like spectra

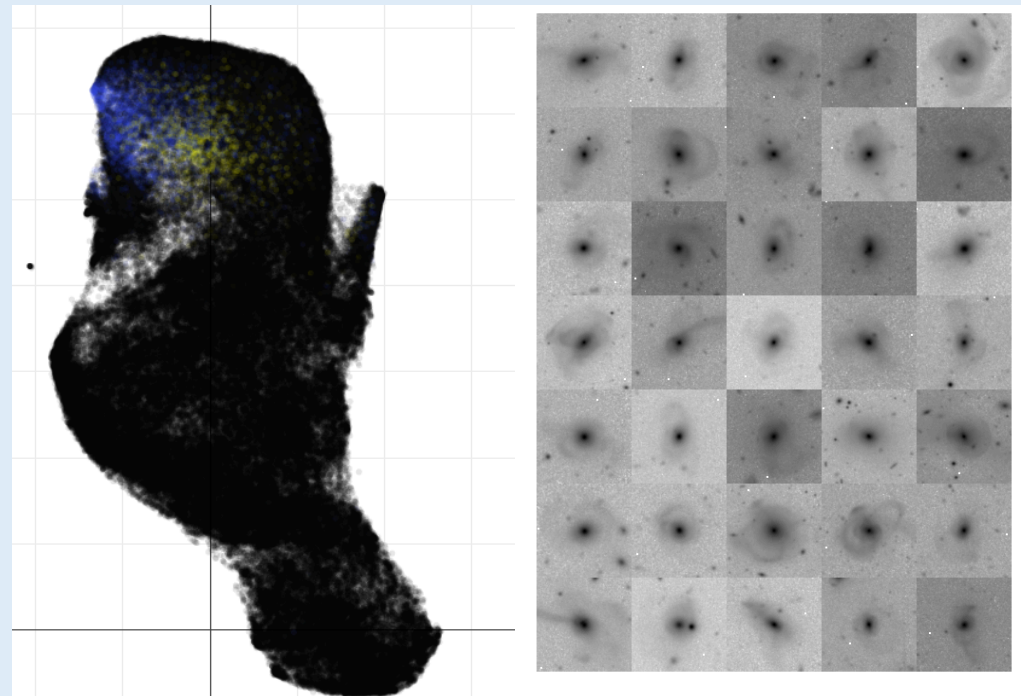


AGN in mergers

- We know to include “type 1 AGNs” in our study
- ~1.8x as common and ~1.4x as bright!



- Coming soon: temporal merger predictions
 - Same framework, more training data, ensemble model
- Predict when galaxies last merged & will merge! (Leo Ferreira+, in prep)



Get in touch!

- Here (CCA node)
- Email: rbickley@uvic.ca