

Semi-Supervised Active Learning Guided Detection System (SSALD)

Mid-way deliverables for CS-460

Aniket Nath¹² Diptarko Choudhury¹²

¹School of Physical Sciences

National Institute of Science Education and Research, HBNI

²School of Computer Sciences

National Institute of Science Education and Research, HBNI

March 10, 2023



Table of Contents

- 1 Introduction
- 2 Methodology
- 3 Related Works
- 4 Results
- 5 Conclusion



Introduction I

Problem Statement

In our low redshift universe, the main mechanism for growth of galaxies is through mergers of galaxies [7]. Galaxies usually have a Super Massive Black Hole (SMBH) , at it's center, which provides the gravitational potential for the substructures to form. When two galaxies merge, their nuclear bulge hosting the SMBH, come closer and interact with each other, forming dual or even in certain cases multiple nuclei galaxies. Often, merger process triggers accretion disk around the SMBHs, leading to the formation of an Active Galactic Nuclei (AGN) [5].



Introduction II

Problem Statement



Figure: Images of Galaxy Mergers taken from ESA Hubble Space Telescope [?]



We aim to use an Active Learning guided self-supervised algorithm to solve our problem. In the following sections, we discuss our strategy in a step-by-step fashion.

- Supervised Learning
- Unsupervised and Semi-Supervised Learning
- Self-Supervised Learning
- Active Learning



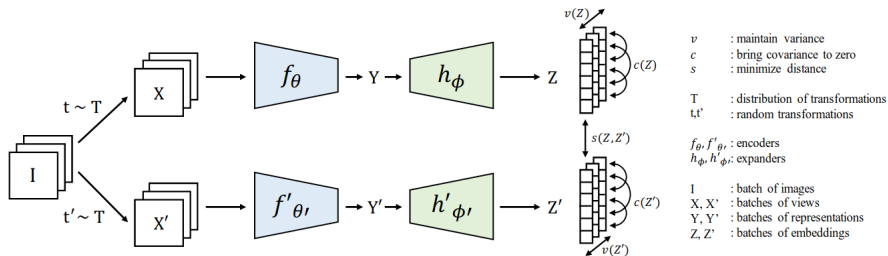


Figure: Schematics of VICReg Algorithm [6]

- GOTHIC
- Hayat et. al.



content...



Conclusion

content...



References

