Image Generation using VICReg

Aniket Nath, Diptarko Choudhury

School of Physical Sciences

National Institute of Science Education and Research, Bhubaneswar

Homi Bhaba National Institute

August 27, 2023

Generative AI with VICReg

- **Dataset**: ImageNet - 1K
- **Idea**: Training encoder of VICReg, and generating new data from embedding space

- **Relevant Papers**:
    - MAGE: MAsked Generative Encoder to Unify Representation Learning and Image Synthesis (Li. et. al, 2023)
    - Understanding Diffusion Models: A Unified Perspective (Luo, 2022)
    - VICReg: Variance-Invariance-Covariance Regularization for Self-Supervised Learning (LeCun et. al., 2022)

- **Work Division**:
    - *Diptarko*: Architecture modelling, and linking, Literature Survey
    - *Aniket*: Testing Algorithms, analysising performance, Literature Survey
- **Midway Target**: To develop an architecture, and get the pipeline ready.
- **Baselines**: Using VICReg for Representation Learning, Finding a suitable architecture for Generative part, Checking the viability of VICReg embedding space.
- **Expectations**: To develop an analogous way to connect the VICReg with a Generative algorithm and generalize the ways of building a connection.