Notes on Purpose & Directions of LS Workshop

# Overview

## **Examples** of things and events in time-space. Unit of analysis that can be quantified on various features, such as location, time, size, weight, color, and the like.

## **Sample** is a set of examples that are representative of the population of all examples.

## **Latent space** is an N-dimensional Euclidean space where examples with similar features are **points** that are positioned close together. Using neural autoencoder/GAN techniques, a model is trained to best encode the example features into a latent space. This training is semi-supervised by reproducing the original feature data as faithfully as possible. IOW the loss function is based on difference of the original data to its decoded output.

## A **Cluster Map** is an integer vector that map Examples into **cluster categories**. Each point is always

### Predefined cluster map

### Cluster volume: all points with an N-dim subspace. Can generate examples via decoding points into examples.

# Event Structure

The following table shows events that can occur among the LSpaceController and LSPointController. The delegate for the following events is declared in LSpaceController and subscribed in LSPointController, so when the user interface requests changes the latter controller initiates an event via the following delegates to change behaviors of the many points.

|  |  |  |
| --- | --- | --- |
| **Event** | **Purpose** | **Dependencies** |
| onModeChange() | Changes in render modes: Ball sphere in 3-dim and Pole mesh in N-dim. |  |
| onPlotChange() | Changes in LS values to convert to WorldSpace position and scale. | In LSpaceController, delegate PlotChange and event onPlotChange is declared. Used by LSPointController RefreshPoints() that was subscribed in Start(). |
| onDimensionChange() | Changes to Xbase, Zbase, Yvert, Ynew. Only Pole mode. | Functions: try-out Ynew, flip Ynew with Yvert |
| onClusterChange() | Changes to selected Cluster to alter appearance of Point |  |