

Master VICO – Lab on Video Coding

Lab : TSLVQ

Goal:

The goal is to study the TSLVQ algorithm.

Introduction:

A GNU/octave code is given. The main script is “Main_TSLVQ.m”, which:

- generates a 3D point cloud,
- quantizes it by using the TSLVQ algorithm with 3 quantization stages,
- displays the final 3D partition (and the points cloud).

To do:

- Launch the algorithm, display the results of quantization stage by stage, and explain how it works (in link with the TSLVQ course), and answer also to these questions (and explain) :
 - Why at the beginning the maximal energy of the source vector is needed?
 - Explain the computation of the normalization factors? (f and b)
 - Why the quantization is so “fast”? (explain the difference with the k-means case)
 - How the representants index are computed? (explain then the functions “indexTOrepres” and “represTOindex”).
 - How to proceed in order to add more quantization stages?
 - In a coding context, what criteria have to be taken into account in order to control the TSLVQ codebook size? How to compute these criteria? (give examples)