Preliminary Results

We received two segmented images (Weka, HiRes) from the same source, and computed three topological invariants from them.

1. Euler Characteristic

2. Persistent Homology

3. Euler Curve

The Euler Characteristic of a space X is defined as

$$\chi(X) = \beta_0 - \beta_1 + \beta_2.$$

Where β_0 counts the number of connected components. β_1 counts the number of loops. β_2 counts the number of voids. To count them, we used a python sublibrary of Scikit-learn. Our results are summarized in the following table:

We computed Persistence Homology with respect to the Signed Euclidean Distance Transform.