

The Pre-image Problem from a Topological Perspective

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This talk will be a review of the efforts of the Topological Data Analysis (TDA) community to tackle the preimage problem. After a general introduction on TDA, the main focus will be on recent attempts to invert the TDA operator. While this line of work is still in its infancy, the hope on the long run is to use such inverses for feature interpretation. The mathematical tools involved in the analysis come mainly from metric geometry, spectral theory, and the theory of constructible functions—specific pointers will be given in the course of the exposition.

Orateur: Prof. OUDOT, Steve (INRIA)