Training the Archive

A research project with the aim to structure information and data of museum collections and make them accessible to curators in an exploratory way.

Ludwig Forum for International Art Aachen, Germany in cooperation with the Hartware MedienKunstVerein (HMKV), Dortmund and the Visual Computing Institute of the RWTH Aachen University.

Dominik Bönisch
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The digitization in art museums promises extended access to the objects of the collection both for scientific purposes and for an interested public—and this online, independent of location and at any time. Here it is not enough to simply limit the search in databases to narrowly defined keywords. Rather, specific interfaces and visualizations should allow the user to explore the digital inventory as well as to ‘stroll’ through the online collection.

Artificial Intelligence can support the systematic and structured processing of the mass of data in the museum. Machine learning can reveal links between artworks, which previously became accessible to the curator only incompletely or with difficulty. “Training the Archive” intends to investigate the machine-aided, explorative (re)discovery of connections within the museum’s collection.

Object of research:
“Training the Archive“ (2020–2023) investigates the potential of Machine Learning methods to visualize patterns, connections and associations between objects within digital archives.
“Training the Archive” approaches the object of research by **iterative development of prototypes:**

**Prototype #1 (Repository)**

**ANN in Keras/Tensorflow**
- e.g. BiT/m-152x4,
- InceptionV3, VGG19

**Feature Extraction**

**Training of Features**

**Clustering and Visualization**

**Human in the Loop**

**Annotations from Curators**

**Triplet Loss**

**Expert Knowledge of which Artworks relate to each other**

**Successful Training**

**Open Data from the SMK – National Gallery of Denmark (API)**

**Feature Concatenation**
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Website/GitHub

• http://ludwigforum.de/en/museum/research/training-the-archive/
• https://github.com/DominikBoenisch/Training-the-Archive

Project partners

• Hartware MedienKunstVerein (HMKV), Dortmund
• Visual Computing Institute of the RWTH Aachen University

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