The genealogy of forms from the perspective of Deep Learning (Liège, 7-8 Nov 19)

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The genealogy of forms from the perspective of Deep Learning
International Symposium

The main contribution of the computational instruments used today in Digital Art History and, more generally, in the Digital Humanities devoted to heritage issues, is to reconnect with the project of a genealogy of forms that goes back to the mathematician and biologist D'Arcy Thompson (1917) and art historians Heinrich Wölfflin (1915) and Henri Focillon (1934) – and of course the notion of the migration of motifs in the work of Aby Warburg (1924-29). Yet the project of a genealogy of forms, despite various revisions and inclusions that are now taken into consideration, especially in the work of Didi-Huberman (2013), has remained unfinished because of the difficulty of detecting patterns in very large corpora obtained from museums and collections that are both dispersed and disparate (in terms of periods and media).

The increasing digitization of works of art, the availability of databases online and the computer processing of big corpora of images make this project technically feasible. Several studies in the United States and Europe involved in Deep Learning approaches using Convolutional Neural Networks (CNN) have demonstrated their effectiveness in visually recognizing series within large collections of visual documents by building signatures of objects of interest or of images as a whole (Feature Vector Signature). Deep Learning (Le Cun 2015) has thus demonstrated its unparalleled performance compared to visual word methods or more generally to methods based on extraction of local image characteristics.

We can also mention the work of Lev Manovich (Manovich, Douglass, Zepel 2011) who analysed large collections of images through visualizations, thus making it possible to highlight the diachronic trajectories of the careers of several painters and to compare them (Manovich, 2015, 2017; Dondero 2017). Another example is the Replica project of the EPFL Digital Humanities Lab, which aims to reconnect with Focillon's project (di Lenardo, Seguin, Kaplan 2016) by using deep learning tools and, in particular, by expressing algebraic requests combining positive and negative examples to define the characteristics of the images sought. The objective is to reveal similar patterns and forms in groups of images that have not yet been linked by classical art history methods, and to update the mapping of cross influences.

While most of this research aims to answer the questions raised by Focillon in the 1930s, some studies focus on the survival of Warburg patterns and forms (Hristova 2016).
A new project, involving Belgium, France and Luxembourg, is being launched with the aim of tak-

ing up the theoretical and methodological aspects of the research programme on the genealogy of forms. The objective is to combine research in the field of advanced data-visualization technologies with semiotics research that has focused on the transmigration of forms (Basso Fossali 2013; Basso Fossali 2014; Dondero & Klinkenberg 2018-2019), and with the profound renewal of art history studies that embrace the formalism of their founders while reconnecting it to the study of meaning and opening it to a better understanding of the power of images.

The aim of this two-day conference is to foster dialogue between art historians, semioticians and computer scientists on the classification of large image databases, based on comparison between the objectives and instruments of each disciplinary perspective.

Bibliography

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PROGRAMME

Salle de l'Horloge, le 7 novembre 2019

9h30-9h45
Accueil par les organisateurs

9h45-10h00
Allocution d'ouverture de M. le Prof. Jean Winand, Premier Vice-Recteur de l'université de Liège

10h00-10h30
Maria Giulia Dondero (FNRS/ULiège)
Introduction

10h30-11h15
Lev Manovich (CUNY / Graduate Center)
Is Genealogy of Forms Possible? (Yes and No)

11h45-12h30
Harald Klinke (LMU)
Similarity, Difference and Gaps in the Visual Arts

Président de séance : Ralph Dekoninck

14h30-15h15
Michela Passini (CNRS)
Plasticité de la vision et généalogie des formes. Les catégories optiques chez Wölfflin, Berenson et Focillon

15h15-16h00
Benoit Seguin (EPFL)
Learning to Track Patterns by Operationalizing Visual Similarity

16h30-17h15
Véronique Adam (Université de Grenoble)
La reconnaissance automatique des images scientifiques médiévales et classiques : le Deep Learning à l'épreuve des formes symboliques

17h15-18h00
Pierre Geurts, Raphael Marée, Mattia Sabatelli (ULiège/ SystMod)
Cytomine, un logiciel libre et générique pour l'analyse collaborative d'images: de la reconnaissance de cellules et de tissus aux œuvres d'art

Salle de l'Horloge, le 8 novembre 2019
Présidente de séance : Maria Giulia Dondero

9h30-10h15
Pierluigi Basso Fossali (Lyon 2 / ICAR)
Systèmes d'exclusion et classes de "synonymie" visuelle

10h15-11h00
Serge Miguet (Lyon 2 / LIRIS)
Visual Recognition : from shape signatures to Deep Learning

11h30-12h15
Gérald Régimbeau (Montpellier 3/ LERASS-CERIC)
Mots et images clés dans la documentation des formes : repères pour une indexologie

Président de séance : Pierluigi Basso Fossali

14h30-15h15
Pierre Leclercq et Vincent Delfosse (ULiège/LUCID)
Le graphe à la croisée des sens
15h15-16h00
David Strivay (ULiège)
Titre à venir

16h00-16h15
Conclusions

Reference:
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