Neoclassica – an open framework for research in Neoclassicism

Simon Donig
simon.donig@uni-passau.de
University of Passau, Germany

Maria Christoforaki
maria.christoforaki@uni-passau.de
University of Passau, Germany

Siegfried Handschuh
siegfried.handschuh@uni-passau.de
University of Passau, Germany

Bernhard Bermeitinger
bernhard.bermeitinger@uni-passau.de
University of Passau, Germany

In the History of Art, the shaping of aesthetic forms, the transfer of the stylistic languagem and the change of styles have always been at the heart of the discipline. The co-occurrence of aesthetic forms in multiple modi (such as architecture, applied arts, graphics and textual description) or in larger bodies of artefacts has been researched to a lesser degree. Instruments and methods from the field of the Digital Humanities are now opening up pathways for a new understanding of such issues by supporting hermeneutic understanding with quantitative means.

Such instruments are particularly valuable for researching far reaching aesthetic movements such as Neoclassicism (ca. 1760-1860). The Neoclassic movement was of almost global scale – affecting architecture and design from Sidney to New York, and from Athens to the outreach of the Russian Urals – while relating to a common reference in Classical Antiquity, therefore making it an almost ideal topic for studying processes of stylistic transformation.

Here, we present the Neoclassica research framework (The Neoclassica Project, 2017), aimed at providing historians and art historians with new instruments and methods for analysing and classifying material artefacts and aesthetic forms. Initially we are focusing on works of applied art (for instance furniture and furnishings) as well as architecture, following the preliminary hypotheses that these modi show aesthetic forms in close communication with one another due to constructional commonalities and their shared reference of the Classical. While these forms show a trove of similarities across a huge geographic range they also diverge due to local traditions, needs and limitations or political conditions supporting the use of particular vocabularies of aesthetic forms.

We consider it most promising to follow these trajectories in a fresh way, applying the instruments provided by the Neoclassica system, joining a top-down approach harnessing the domain expert knowledge and a data-driven bottom-up approach exploiting the powers of computationally processing large amounts of data.

Specifically, the top down approach comprises a formalized knowledge-representation based on a newly developed ontology for classical artefacts and the semantic annotation and curation of a specifically developed corpus of images and texts done by experts.

The Neoclassica ontology aims to establish a controlled vocabulary that will be both research oriented and multilingual, while at the same time taking into account the different shape of the represented concepts in different languages, specifically in English, French and German (Donig, Christoforaki & Handschuh, 2016). The concepts and terms used to describe artefacts and their structure are based on period sources such as such as for instance Charles Percier's and Pierre François Léonard Fontaine's or Thomas Sheraton's pattern-books or George Hepplewithe's treatise on interior decoration (Hepplewhite, 1794; Sheraton, 1802, 1803; Percier, 1812) reflecting the conceptual control over the production of artefacts.

Since January we started the development of a semantic annotation tool for image corpora. The initial corpus sources will be commercial providers like Auction Houses but we also strive to include coherent ensembles. For this we have for instance a partnership for digitizing the interiors and furnishings of the Dessau-Wörlitz UNESCO World Heritage Site. The digitization and annotation will be done in collaboration with the chair for Visual Studies and Art History of our University. We conceptualize the process of corpus annotation to be in a constant dialog with the ontology development, so that the findings of domain experts curating the data will enrich the perception for the overall domain.

The bottom-up approach, on the other hand, is data-driven in the sense that it employs Deep Learning and Distributed Semantics algorithms for knowledge

extraction and classification from images and text corpora (Bermeitinger, Donig, Christoforaki, et al., 2017). We apply a Deep Learning algorithm for classifying features in digital images of classical artefacts like furniture, works of applied art and architecture. We tested the algorithm in a trial image corpus with coarse label annotation for the image as a whole (The corpus and accompanying source code can be downloaded from The Neoclassica Project, 2017). Currently we are slowly progressing to a more refined feature annotation trained on a corpus annotated by experts using the ontology.

Knowledge discovery in text corpora is divided into Named Entity and Relationship extraction mechanisms, already robust in English and rapidly evolving in the German language. This is complemented with a schema agnostic natural language query interface. These modules are part of the in-house developed open source system StarGraph (Lambda3 Project, 2017) capable of processing both structured and unstructured data.

We aspire for the Neoclassica framework to become the centre of a sustainable, open community of scholars with a multitude of disciplinary backgrounds from both the humanities and computer sciences, making it an amalgam system that combines the best of two worlds.

Notes

The project team may be contacted at neoclassica@fim.uni-passau.de .

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