

## Project Cornelia

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### Introduction

#### *Brief abstract of the project*

Project Cornelia is a hybrid research engine bridging art history and computer science (<https://projectcornelia.be>). We study 17th-century Flemish tapestry and painting by using and developing datasets, data retrieval tools and data visualization tools. In so doing, we also try to understand and facilitate the dialog between the humanities scholar and the computer.

Jos' PhD research aims to provide an inclusive view of Brussels' seventeenth-century art worlds (with a focus on tapestry designers and court and landscape painters) by combining qualitative archival research with quantitative analysis, including network analysis. For her PhD, Inez studies the interplay between social dynamics and pictorial evolutions in Antwerp's seventeenth-century art worlds, in particular those of tenebrist—think Caravaggio—painters. Houda's PhD research bridges two worlds, as it focuses on the usage and perception of information visualization (including network visualization) for art history and humanities research.

#### *Updated timetable*

**Jos** – Unfortunately, the completion of my PhD dissertation has been delayed by several months. Because of the lockdown, archives and libraries were less or completely inaccessible. While I originally intended to defend my dissertation at the end of September, I now aim to submit it around that time.

**Inez** – Fortunately, right before the lockdown, I had collected most of the primary and secondary sources I need for the two chapters I had planned to work on this spring and summer. This means I should be able to complete the chapters by September. Koen and I will then strategize on ways to deal with possibly limited access to source materials.

**Houda** – My work and timeline are not impacted too much. In the coming year, I plan to work on developing more prototypes of infovis for art history, and through them, conduct user studies that will allow me to explore theoretical questions about infovis for art historical research and for the wider field of the digital humanities.

**Koen** – Fortunately, together with colleagues from the Computer Science and Design Informatics Departments, I managed to submit a grant proposal right before covid-19 hit Belgium. The project would allow Project Cornelia to further the field of DAH (and NA). Covid-19 forced me (as chairperson of the department) to focus on managing the department and coordinating efforts to rethink classes, exams and the next academic year. Because of this, I had to postpone writing a research proposal. Meanwhile, however, a related COST application I had scheduled for 2021 (*Art Markets in Digital and Global Dimensions*) has suddenly picked up speed, and I hope we can submit the application by the end of October.

## Research Investigation

### *Research questions*

**Jos** – From the outset, I wanted to examine the ways in which shared characteristics of painters' social lives in early modern Brussels influenced their artistic activities and strategies, and vice versa. My research still revolves around this question, but I developed more granular questions. For instance, right now I study the relationships of a select group of landscape painters active around 1650 to gain more insight into the dynamics of their artistic collaborations.

**Inez** – I still pursue my original research questions, namely (1) what were the underlying motivations supporting and shaping the stylistic choices of tenebrist artists, and (2) what kind of visual and social strategies did they use to develop this stylistic idiom? While my first approach was analog rather than digital, it now oscillates between close (human) and distant (computer) reading.

**Houda** – Several current information visualization techniques do not adequately support the type of materials and questions in art historical research. The field of information visualization comes from a strong statistical and technical heritage. It consists of a wide breadth of visualization and interaction techniques well-suited to quantitative datasets. The field itself posits *truthfulness* and *neutrality* of data as central elements of its scholarship. Researchers have only recently started tackling aspects such as nuance, contradiction, missingness, uncertainty and qualitiveness that are crucial to art historical material.

On the other hand, art historians have access to growing databases and infrastructures, which means there is access to an unprecedentedly wide breadth of material, increasing the complexity of analysis for each individual researcher. Moreover, art historical tradition gives an importance to visual analysis (i.e. to examine paintings or tapestries). Combined, these two aspects mean that infovis has the potential to fit into art history practice, and support researchers to explore their materials in novel ways. My research question evolved to take into account elements of *meaning, connection and intimacy* based on user research and discussions with experts in humanistic fields. The discussions we had in Pittsburgh last year contributed greatly in shedding light over these concepts. How can we use tacit elements of art historical material to support meaning in digital tools for users? How does the physicality of materials support user experience of connection and intimacy? How can we support this user experience via digital tools?

### *Technical/computational tasks*

**Jos & Inez** – The archival data fueling our questions and answers has fluctuating levels of completeness. Some sources offer serial data on all artists for almost a century, while others only provide details about a single event in the life of one single actor. Be that as it may, thanks to our solid MySQL infrastructure, the archival data is well organized and easily accessible. We use the sources to compute various (prosopographical) queries in both MySQL and R. We also use Tableau, Gephi and QGIS.

**Houda** – I am developing prototypes of network visualizations showing people and/ or art works. For this purpose I use the Cornelia database and existing APIs to connect to museum and collection databases. The preliminary conclusions I draw are that when designing infovis tools, we need to think broader than features and efficiency to provide an experience to the users as they focus on the (re)creation of meaning and connection.

#### *Art historical methodologies*

**Jos & Inez** – We still follow the traditional ‘Leuven approach’, i.e., we combine empirical (archival) research with connoisseurship, and contextualize and discuss our findings in a conceptual/ theoretical framework shaped by Howard Becker et al.

#### *Network-analytic approaches*

**Jos & Inez** – As our research centers around social dynamics in art worlds, network research is part and parcel of our method. In addition to the tool developed by Houda (which is excellent to visualize ego networks emerging from our archival data), we rely on Gephi and igraph (mostly to visualize and analyze professional networks), and QGIS (used to explore neighborhood ties). The latter is a new tool in our toolbox.

#### *Interesting results*

**Koen & Inez** – We believe that our essay ‘Producing the Baroque. A qualitative and quantitative analysis of the Antwerp guild of Saint Luke, 1629–1719’ (which forms a diptych with ‘The Brussels Guild of Painters, Goldbeaters, and Stained-Glass Makers, 1599–1706: A Multi-Faceted Analysis’ that Jos and Koen published in 2019), demonstrates that there is great value in a combination of qualitative and quantitative reading of various sources to analyze complex phenomena or systems, such as artistic communities, and how they evolved through time. In so doing, it illustrates the potential of a slow digital/ computational art history approach that maximizes the potential of analysis and exploration of complex data and data visualizations while at the same time respecting data (re)contextualization and the usual data issues. Our quantitative analysis shows that, contrary to accepted wisdom, the guild remained quite robust, and that Antwerp remained the prime production center of Flemish painting until 1700, despite the economic crisis that hit Antwerp after 1650 and despite manifest changes in consumer preferences that occurred in the 1680s. The statistics show that the robustness did not appear out of thin air, but was engineered by the board and established masters. They machinated the number and careers of apprentice painters and founded an Academy in a successful attempt to recruit aspiring artists.

We also came to understand that our pointillist painting of the guild and the community of painters can support two strands of research. First, it can be instrumental in the debate on the productivity of early modern artists that still awaits fine tuning. By expanding the evidentiary bases and including, for example, similar data from other cities, future art market studies can bring more depth and width to the discussion.

Second, the essay can also help art historians to better understand entrepreneurial behavior of individual and communities of art producers in seventeenth-century Antwerp, and, consequently, artistic developments. Indeed, while we have the wisdom of hindsight fueled by statistics, both aspiring and established masters had different lenses through which they saw market reality, and these lenses largely defined their artistic strategy.

**Houda** – In a study I conducted in the past few months, I examined the user perception of social structure graphs in regular force-directed networks, and compared them to graphs laid out in a ‘family tree’-like format. In order to compare the two, we ran a user study with 15 participants from mostly AH background. We examined such dimensions as recall, levels of insight, cognitive load and preference. We found that using family-tree style graphs resulted in more frequent and deeper levels of insights and lower cognitive load. We also found that users perceived family-tree structures to be smaller than they actually were, and thought they revealed simpler social structures. These results reveal the importance of layout in conveying meaning, and the criticality of supporting users’ existing mental maps to represent information. We derive the need for existing visualization tools to support elements such as hierarchy within social structure, to avoid stripping graphs from important characteristics. These results are currently under review for publication in an information visualization conference.

**Houda, Koen, Jos & Inez** – During the convening last summer, a couple of presentations and informal discussions taught us that the project’s website was not what it could or should be, i.e. a sustainable reflection of our ongoing individual and team research efforts and outputs. We redesigned the website, and feel that it is much better now.

## **Project management**

**Jos** – Working together and communicating in a multidisciplinary environment has been going well. When I started my research I did not have any experience with DAH or NA, and I must confess that at times this felt rather overwhelming. Luckily, I joined an established project with members from a wide array of academic disciplines ranging from art history to bio statistics and computer science. This allowed me to quickly become familiar with the lingo, while simultaneously learning me that DAH (in contrast to traditional art history) is very much a collaborative effort in which I do not have to master every skill myself. This process was further fostered by several courses and workshops that Koen encouraged me to follow.

While our team has not changed since our last meeting, our project’s day-to-day interactions surely did. Houda, Inez, and I share an office at the University, with Koen’s office only a few doors away. This allowed us to easily discuss our research or brainstorm. During the current lockdown this spontaneous part of our project has been limited to occasional online meetings which surely has hampered (but not disrupted) our project’s dynamic.

**Inez** – Inspired by the discussions we had during the first convening last summer, I drafted the introduction of my dissertation. I also finished inputting data extracted from the Antwerp guild ledgers into our database. This subset is a solid base for both an article that Koen and I co-wrote and that we will submit by the end of June, and for a chapter on how the guild dynamics structured the Antwerp art world.

Thanks to the project's interdisciplinary setting, I have learned a lot about digital methods and tools. Evidently, this has not always gone smoothly given my limited digital knowledge two and a half years ago. However, at this point in time, I do feel confident in my abilities to merge traditional art history with digital methods. Our team dynamic, both face-to-face as well as in a virtual environment, allows me to pick the brains of my fellow team members and link to their area of expertise.

**Houda** – My time management has been working well in the past few months. I have also had more free time to read and reflect after having finished and submitted two publication drafts. I had to adapt my user research protocols to virtual environments, which created an extra load of work, but was necessary to continue my research. It has however given good results and I was able to wrap up a study remotely. Since we all work on related but independent questions, it has been manageable to switch to virtual environments. We manage by reaching out when in need of help or to get a question answered.

**Koen** – In the old normal, I usually dropped by the lab three or four times a week—usually to shoot some bull, have a quick brainstorm, monitor how everybody was doing, and/ or simply be there for any questions and concerns Houda, Inez and Jos may have. The new normal forces me to *organize* this, and I must confess that I am still trying to wrap my head around this. Still, the lockdown also helps me to realize that, as Jos, Inez and Houda are progressing through the program, the team dynamics inevitably change: the endless process of writing and rewriting chapters and re-conceptualizing the nature and flow of arguments require at least some degree of isolation – rather than team meetings and impromptu brainstorm sessions.

## Looking Ahead

**Jos** – While the issue was raised a couple of times last year, I would love to further discuss the topic of missing data. I think it is a challenge that is at the center of all (art) historical research and it would be interesting to combine our experiences and ideas in an effort to find a way to work around this issue.

**Inez** – Last year's more conceptual discussion on what DAH+NA is/ could be/ should be for the field, as well as how we, as digital art historians, should position ourselves and our teams in that field was really inspiring for me. I would like to continue this kind of discussion.

**Houda** – As I am now starting new projects, still related to the theme of visualization for art historical research, I am looking forward to learning more about how art historians process and query data and infovis.

**Koen** – I am very much looking forward to learning more about the progress made by the other teams, about the issues and problems they have encountered or are still encountering, and about the answers and solutions they managed to come up with. I am particularly interested in discovering if and to what extent their research questions have changed because of a better understanding of the NA tools and framework.