Collaboration in Digital Art History, In Theory and In Practice

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Christopher Nygren University of Pittsburgh

Art in Context: Collaborating Around the Collection Philadelphia Museum of Art

"A Role-Based Model for Successful Collaboration in Digital Art History"

Tracey Berg-Fulton, Alison Langmead, Thomas Lombardi, David Newbury, and Christopher Nygren

International Journal for Digital Art History (2018)

Case Study

Morelli and Algorithmic Approaches to Art History

Alan Craig (U Illinois), Alison Langmead (Pitt), Christopher Nygren (Pitt), and Paul Rordriguez (UCSD)

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With the collaboration of the Kress Foundation

Die Galerie Borghese.

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gegen jeder selbständige Maler seine eigene Art, die Landschaft und, was noch mehr sagen will, die Form



der Hand 1 und des Ohres aufzufassen und darzustellen.

¹ Aussee dem Autlitz ist wol kein anderer Körperheil so charakteristisch, so individuell, so geistig belebt und syrechend wie genade die Hand. Auch ist es für der Kinstler eine der schwierigsten Aufgaben, dieselbe befriedigend darzustellen, und war es zu allen Zeiten nur den Hercon der Kunst vorlehalten, diese schwierige Aufgabe vollkommen zu fören, woron uns sowol die Werke der Maler als die der Bildhauer genätgende Beweise liefern. Es mögen hier einige Beispiele charakteristischer Hände meinen verchrlichten Lessen vorgestellt werden, damb eie sich von dieser Wahrheit überzugen.



Einleitung. 99 Jeder bedeutende Maler hat, sozusagen, seinen ihm eigenthümlichen Typus von Hand und Ohr.1 Man Signorelli. Bramantino Fra Filippo. Mantegna. Giambellino Bonifazio. Botticelli. ¹ Einige meiner erbittertsten Gegner behaupten, dass auf ein und demselben Bilde eines Meisters gar oft verschiedene Formen von Ohren und Händen vorkommen. Ich kann dies durchaus nicht zugeben. "In der Dämmerung", sagt Goethe irgendwo, "wird auch die deutlichste Schrift unsichtbar." Jene Herren müssen wahrscheinlich irgendein Atelierbild oder gar eine

durchaus nicht zugeben. "In der Dämmerung", sagt Goethe irgendwo, "wird auch die deutlichste Schrift unsichthar" Jene Herren mässen wahrscheinlich irgendein Atelierbild oder gar eine schwache Gopie für ein Originabild angeschen haben. Ich erlaube mir bei dieset Gelegenheit sogar zu bemerken, dass die den grossen Meistern eigenthümliche Grund form der Haud und des Ohres nicht nur auf ihren Bildern, sondern selbst auf den von ihnen nach dem Leben gemalten Porträts sich vorfindet. Zum Beweise davon mögen folgende Beispiele dienen: 1) Fra Filippo's Selbstporträt auf dessen Bilde in der florentinsichen Atadenein (Hand und Obr).

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Because the scope and complexity of this project outstips the skillset or capacity of any single art historian, the project is *necessarily collaborative in nature*.

We believe that the best Digital Humanities projects will emerge from conversations about how the work can be rewarding for both humanists and technologists.

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« Previous 1 - 20 of 6056 Next » 20 per page • Sort by relevance •				
1. Epaminondas				
Author:	Nepos, Cornelius	Series		
Editor:	Gardner, Francis		Subjects	
Year Published:	1872			
Language:	Latin			

2. Poems

- URN: urn:cts:latinLit:stoa0121c.stoa001.opp-lat1
- Author: Fabricius, Georg 1516-1571
- Editor: Harrington, Karl Pomeroy

Perseus Digital Library Tufs University Medford, MA,USA

This is not collaboration.



Computers are necessary, but not not sufficient.

What's a way around that?

Dimensionality reduction as a core skill.





Technology enables humanists to ask interesting, but not essential questions.

Working with "Art" is a way for technologists to find tinker on interesting problems of computation while also accruing some cultural cache https://www.nextrembrandt.com/

ING PRESENTS

THE NEXT REMBRANDT

CAN THE GREAT MASTER BE BROUGHT BACK TO CREATE ONE MORE PAINTING?

ING

MICROSOFT

"One of Rembrandt's great achievements was to portray human emotions in a much more convincing way than artists had before, and in many ways for all time."



DAVID DE WITT CHIEF CURATOR, MUSEUM HET REMBRANDTHUIS

IT'S BEEN NEARLY FOUR CENTURIES SINCE THE WORLD LOST THE TALENT OF REMBRANDT VAN RIJN.

CAN THE GREAT MASTER BE BROUGHT BACK TO LIFE TO CREATE A NEW PAINTING?

"We're using a lot of data to improve business life, but we haven't been using data that much in a way that touches the human soul. You could say that we use technology and data like Rembrandt used his paints and his brushes to create something new..."

RON AUGUSTUS DIRECTOR SMB MARKETS, MICROSOFT



```
vector<Face> face landmarks = getLandmarks(img);
         for (auto &face : face landmarks) {
             proportions.emplace back(frontalface);
  84 ]
  86-/* Compute the average face proportion of all faces in the given paintings.
 88 void FaceAnalyser::runFaceProportions(string path) {
         vector<string> image paths = listFiles(path);
         vector<Proportions> proportions;
         for (string path : image paths) {
             cout << "processing: " << path << endl;</pre>
             Mat img = imread(path);
             img = cv utils::fitBB(img, Size(1500,1500)); // Resize image when necessary.
             getFaceProportions(img, proportions);
                                                         // adds the new image proportions to the vector
         average /= (double)proportions.size();
104
         average.print();
                                                                                                         - x 🔆 k 5 0 0 0 0
🔛 Problems 🕘 Tasks 🖯 Console 😫 🗔 Properties 💷 Call Graph 🔤 Call Hierarchy
```

Rembrandt [C/C++ Application] /mnt/shared/morris/workspaces/workspaceRembrandt/Rembrandt/Release/Rembrandt (17/03/2016, 00:00)
processing: /mnt/shared/morris/IAMAI/Rembrandt/archive/Rembrandt_paintings/Marten_Soolmans.jpg
face detected, proceed with aligning...
processing: /mnt/shared/morris/IAMAI/Rembrandt/archive/Rembrandt_paintings/Rembrandt_259.jpg
face detected, proceed with aligning...
processing: /mnt/shared/morris/IAMAI/Rembrandt/archive/Rembrandt_paintings/Rembrandt_Harmensz._van_Rijn_(Dutch_- St._Bartholomew)_- Google
face detected, proceed with aligning...
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processing: /mnt/shared/morris/IAMAI/Rembrandt/archive/Rembrandt_paintings/Rembrandt_Harmensz._van_Rijn_007.jpg
face detected, proceed with aligning...



PORTRAIT

CAUCASIAN

MALE

FACIAL HAIR 30-40 YEARS OLD DARK CLOTHING

COLLAR

WEARING A HAT

FACING TO THE RIGHT

"We had to create a whole painting from *just* data. We used statistical features and various algorithms to extract the features that make a Rembrandt a Rembrandt."

MORRIS FRANKEN & BEN HAANSTRA

LEAD DEVELOPERS

"We took parts of the face and started to compare them. Based on this we were able to make a *typical* Rembrandt nose, mouth, eye or ear"

DATA PROGRESS EYES (L / R) NOSE MOUTH EARS

FRAMEWORK

31

13



HEIGHT MAP

"A painting is not a 2-D picture. It's 3-D. You can see the canvas. You can see the process"



347 YEARS AFTER HIS DEATH, THE NEXT REMBRANDT PAINTING IS UNVEILED.

"The next Rembrandt makes you think about where innovation can take us. What's next?"



We are all here to solve interesting problems.

Both "interesting" and "problems" can be variously defined.

The trick is to respect how people from different disciplinary backgrounds define those terms differently.

Brian Cantwell Smith, "The Limits of Correctness" (1985)



THE PROMISE OF ARTIFICIAL INTELLIGENCE

RECKONING AND JUDGMENT

Brian Cantwell Smith



Model of the World



В







The Project Pipeline

- 1. A question is identified as being potentially answerable through computation.
- 2. The required information from the specified field(s) is identified and gathered.
- 3. This information is transformed and regularized into structured digital information, or data.
- 4. This data is analyzed through a computational process, producing a set of results.
- 5. These results are synthesized into new domain knowledge.

What may be surprising to technologists is that, to a humanist, their results are actually the *beginning* of a conversation, both in terms of iterating the computational workflow, but also in the interpretation of the results.

Premises / Why This Matter / repeat: "you can't wait for the field" (Katie Reilly in am session)

Working with computers in art history can be a powerful, self-reflective practice that frequently yields fruitful avenues of investigation.

Digital images and their inherent, quantitative computability are a fundamental transformation of the way we have remediated our objects of study.

Art Historians are scholars trained in rigorous ways that push back on the drive to instrumentalize human existence.

It is culture-critical for such scholars to remain closely involved in conversations about the ways that digital computing shapes our collective understanding of our present and our past.

Four Roles (Responsibilities?)

...not necessarily four different people.

Humanist (Domain Specialist)









The Project Pipeline

- A question is identified as being potentially answerable through computation. (technologist and humanis, mostly)
- The required information from the specified field(s) is identified and gathered. (data steward)
- This information is transformed and regularized into structured digital information, or data. (data steward)
- 4. This data is analyzed through a computational process, producing a set of results. (technologist and humanis, mostly)
- 5. These results are synthesized into new domain knowledge.(technologist and humanis, mostly)

This role-based model makes visible the hidden work of collaboration.

This role-based model offers a blueprint for individual accountability and responsibility.

This role-based model can reduce the risk of project failure.

Having these roles clearly articulated at the outset of your project is not only good practice because we're humans... it will also help your project be more legible to funding bodies

Key terms and instincts that we want to resist: • "Work-for-hire" "Project Manager" model • "Data Entry" model

Thank You.