

---

## VisColl: Modeling and visualizing the physical structure of medieval manuscripts, a poster and demonstration

### Dot Porter

dot.porter@gmail.com  
University of Pennsylvania Libraries  
United States of America

### Alexandra Gillespie

alexandra.gillespie@utoronto.ca  
University of Toronto, Canada

### Alberto Campagnolo

alberto.campagnolo@gmail.com  
Library of Congress, United States of America

### Laura Mitchell

laura.mitchell@utoronto.ca  
University of Toronto, Canada

### Rachel Di Cresce

rachel.dicresce@utoronto.ca  
University of Toronto, Canada

---

VisColl is a data model and associated tools that are designed to help scholars to visualize the physical collation of medieval manuscripts. In manuscript descriptions and library catalogs, a collation is normally given in the form of a formula, which describes each quire in terms of the position of that quire in the manuscript, how many leaves the quire contains, and if any leaves have been added or removed. A diagram may also be used to illustrate the same information, with the added benefit of clearly showing which leaves are conjoined (conjoined leaves are also known as bifolia). VisColl enables scholars to model the collation of manuscripts and then to present that information in various ways, including diagrams and formulas, but also in novel ways distinct from collating a manuscript by hand. For instance, in addition to visualizing the physical structure of a manuscript, the Beta Version of the VisColl data model currently under development enables users to create

taxonomies describing the content of the manuscript, and other elements, which will enable tools to link those taxonomies to the physical structure, producing a more robust and descriptive visualization than is possible in the current system.

VisColl was conceived in the mid-2000s by Dot Porter during her work at the Collaboratory for Research in Computing for Humanities at the University of Kentucky (UKY). Porter developed the tool in order to address issues she encountered in effectively visualizing standard descriptions of manuscripts in scholarly works. For instance, in *Beowulf and the Beowulf Manuscript* Kevin Kiernan uses the physical construction of the manuscript to make arguments about the dating of the text (separate from the dating of the manuscript itself). In addition, Ben Withers (of UKY), in *The Illustrated Old English Hexateuch, Cotton MS. Claudius B.IV: the Frontier of Seeing and Reading in Anglo-Saxon England*, similarly used a detailed collation statement of the manuscript as the backbone for his investigation of the construction of the manuscript. There are numerous examples of scholarly works that build an argument about the dating and construction of manuscripts based on the collation of the physical object. In consulting such works, Porter saw an opportunity to enable readers to better visualize the structure of the object beyond the limitations of traditional formulas, diagrams, and collation statements.

Digitized medieval manuscripts are typically viewed through page-turning interfaces, which give the impression of page openings, but lack the physical cues present in a physical book, i.e., the size of the book, its thickness, details of the parchment or paper, etc. Indeed, page-turning interfaces do not usually show a picture of book openings at all, but rather they are composites made with two images: one of the left-side page and another of the right-side page. These images would have been taken at different times. Typically all images of one side pages are taken first, e.g. all the rectos, then of the other side, and then file names or structural metadata are used to order the files correctly in post processing. Most digital libraries provide some information on the pages depicted, and views other than single pages: all provide information on the folio number and the side (recto or verso) shown; some indicate the quire number, and some offer a variety of viewing modes, such as single pages, double pages, pages of thumbnails or thumbnails presented filmstrip-style across the bottom of a page. However, again, for the most part, the focus of these resources is on the page, rather than on the physical

object. Even the Turning the Pages™ software, conceived by the British Library in 1996 (and developed by Amarillo Systems since 2001), which, since version 2.0 (2006), has produced realistic three-dimensional books (including the ability to mimic the different movement of paper and parchment pages as these are turned), lacks any modelling of the gathering structure. To present knowledge, there is no institutional digital library that describes the physicality of manuscripts outside of the standard Physical Description section of the manuscript records and collation formulas.

The Alpha Version of the VisColl data model is implemented in the Collation Modeler and the Collation Visualizer hosted at the University of Pennsylvania, but the data model was envisioned as agnostic and was designed to be easily used by other collation tools. The University of Toronto, through a Mellon-funded project entitled Digital Tools for Manuscript Study, is developing a robust VisColl web application which implements the Beta Version of the data model, and allows users to visually manipulate and present diagrams and metadata in real time, while also making use of the International Image Interoperability Framework (IIIF) to integrate digital manuscript images alongside scholarly work.

This poster will document the stages of the development of VisColl, from its conception to its current instantiation, highlighting the steps taken and the reasoning behind each new actualization of the project, and will also serve as a demonstration of the current version of the tool developed by the University of Toronto Libraries. Documentation and code of this version can be found and downloaded from the University of Toronto Libraries' GitHub page. The current state of development can be found at VisColl's GitHub page, which documents each new build, and from which the project's code can be downloaded.

## Bibliography

**Kiernan, K. S., and Prescott, A.** (1996). *Beowulf and the Beowulf Manuscript*. London: British Library, Print.

**Withers, B. C.** (2007) *The Illustrated Old English Hexateuch, Cotton Claudius B.iv: The Frontier of Seeing and Reading in Anglo-Saxon England*. London: British Library. Print.

**Armadillo Systems** (n.d) Turning the Pages™. "Turning the Pages." Web. 01 Nov. 2016. <<http://ttp.online-culture.co.uk/>>.

**Porter, D.** (2016). VisColl. University of Pennsylvania, 23 Oct. 2016. Web. 07 Apr. 2017. <<https://github.com/leoba/VisColl>>.

**University of Toronto Libraries.** (n.d.) University of Toronto. <<https://github.com/utlib>>