Project Development:
The Overview Study

Digging into Image Data to Answer Authorship Related Questions

Type of Project:
Algorithmic Development

Five Parts of the Project:

Scholarly provocation: Can computational image analyses algorithms be used across differing visual arts collections with a high degree of accuracy?

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Scholarly Question: Can computational image analyses algorithms be used across differing visual arts collections with a high degree of accuracy?

Provocation: No studies of image analyses targeting the problem of authorship have been applied to very large collections of images and evaluated in terms of accuracy over diverse datasets.

Project Collaboration Sites

University of Sheffield, UK
- Humanities Research Institute
- Department of French, School of Modern Languages and Linguistics

University of Illinois at Urbana-Champaign, USA
- National Center for Supercomputing Applications
- Institute for Computing in Humanities, Arts, and Social Science (I-CHASS)
- Department of French
- Department of English
- Art History, School of Art and Design

Michigan State University, USA
- MATRIX: Center for Humane Arts, Letters, and Social Sciences
- Department of Computer Science and Engineering
- MSU Museum and Department of Art and Art History

Alliance of American Quilts, North Carolina, USA

Project Team Members

Peter Ainsworth (HS)
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Karen Fresco (HS)
Jennifer Guiliano (DH)
Anne D. Hedeman (HS)
Rob Kooper (CS)
Bob Markley (HS)
Tenzing Shaw (CS)
Michael Simeone (HS/DH)

Collaboration Mechanism:

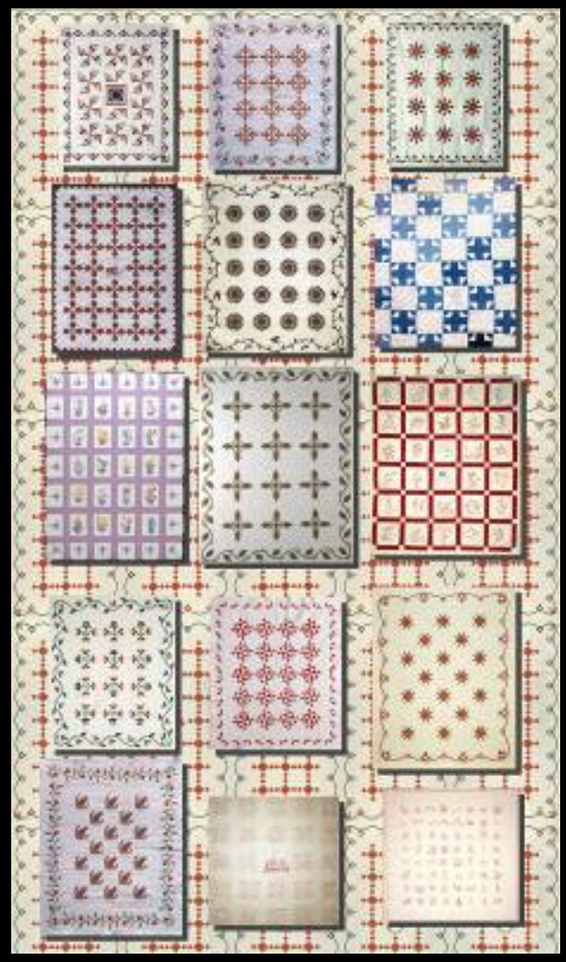
listserv
oovoo (skype)
email
subversion (version control/cs)

Five Parts of the Project:

Sources:

15th-century Froissart manuscripts

17th- and 18th-century maps



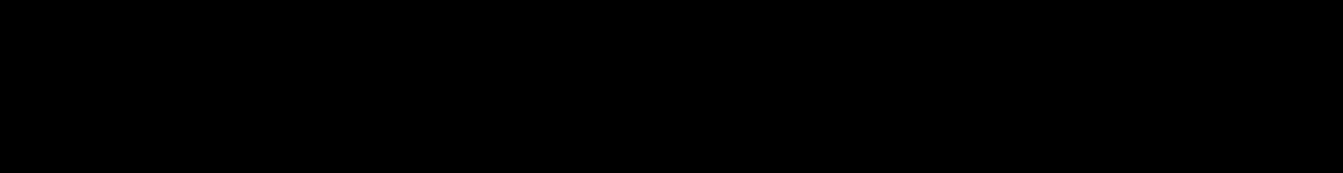
19th- and 20th-century quilts

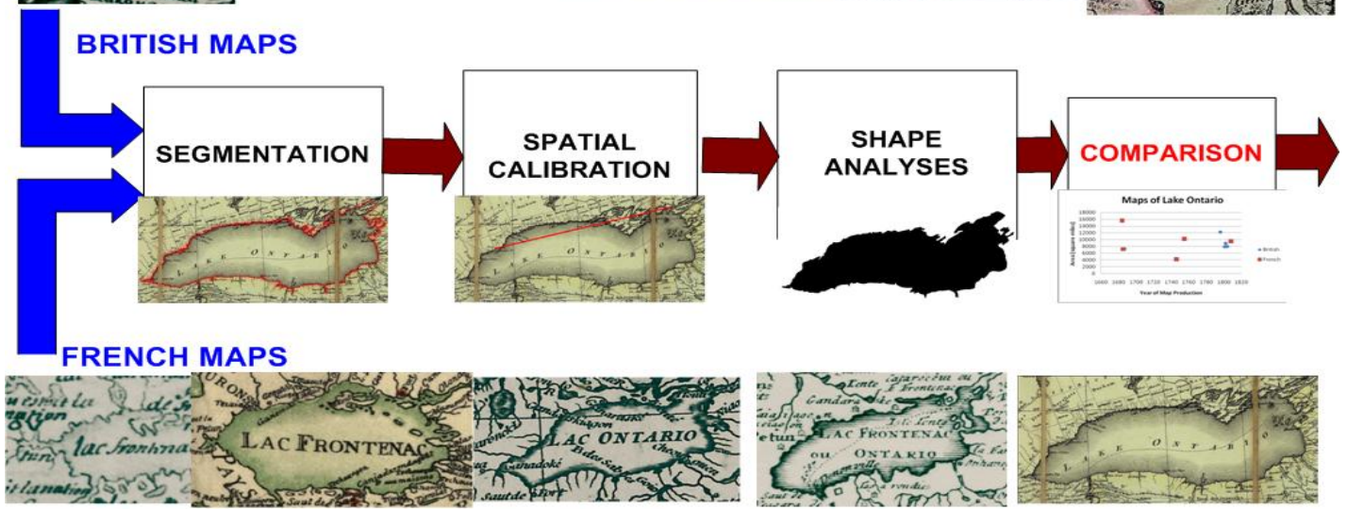
Five Parts of the Project:

Analytical Activities

Historical Maps

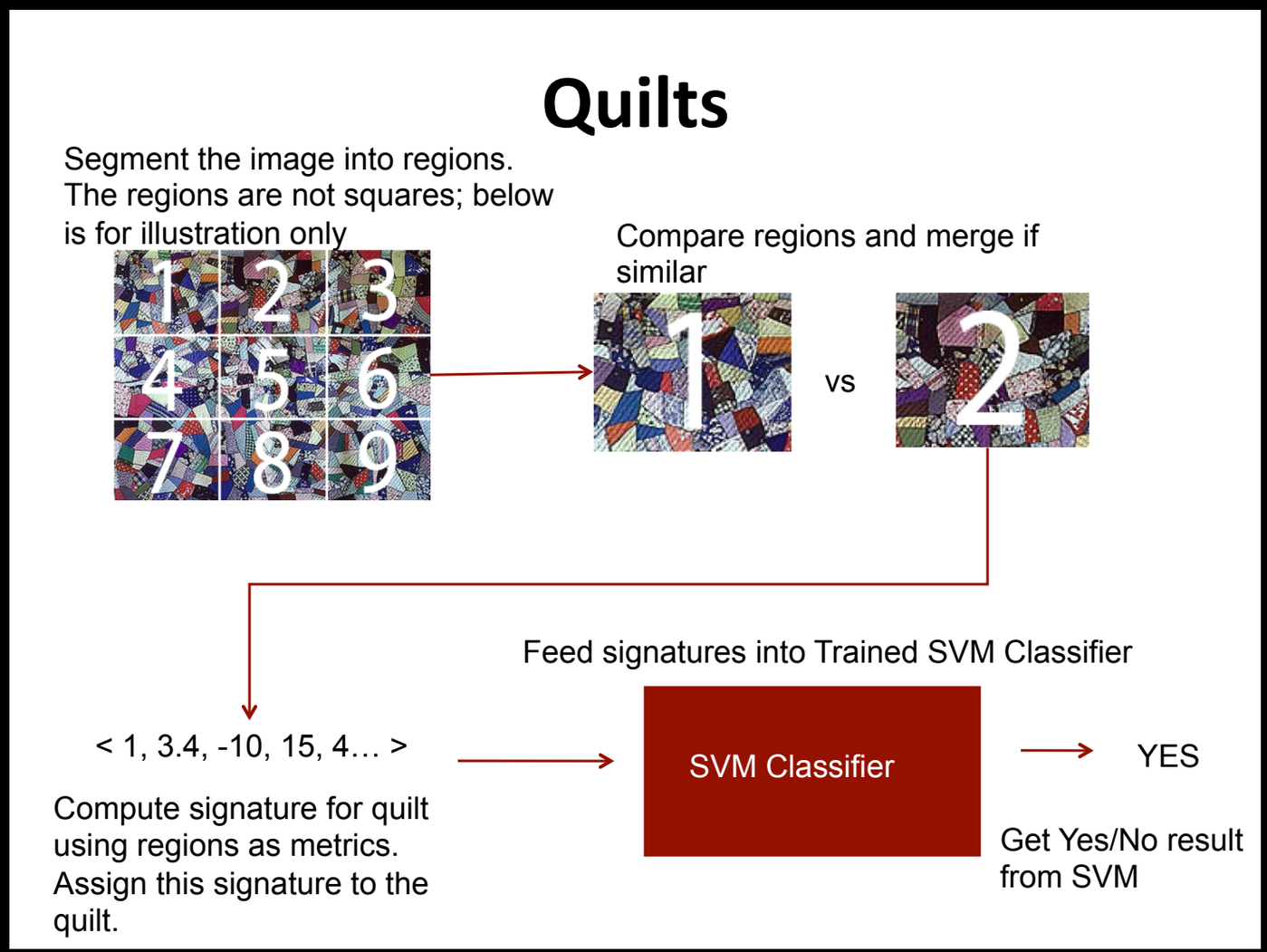
- Selection of common objects in maps (currently, the five Great Lakes)
- Segmentation of these objects from map images
- Calibration to identify scale
- Shape comparison metric (currently, area)





Five Parts of the Project:

Analytical Activities



Five Parts of the Project:

Analytical Activities

Medieval Manuscripts

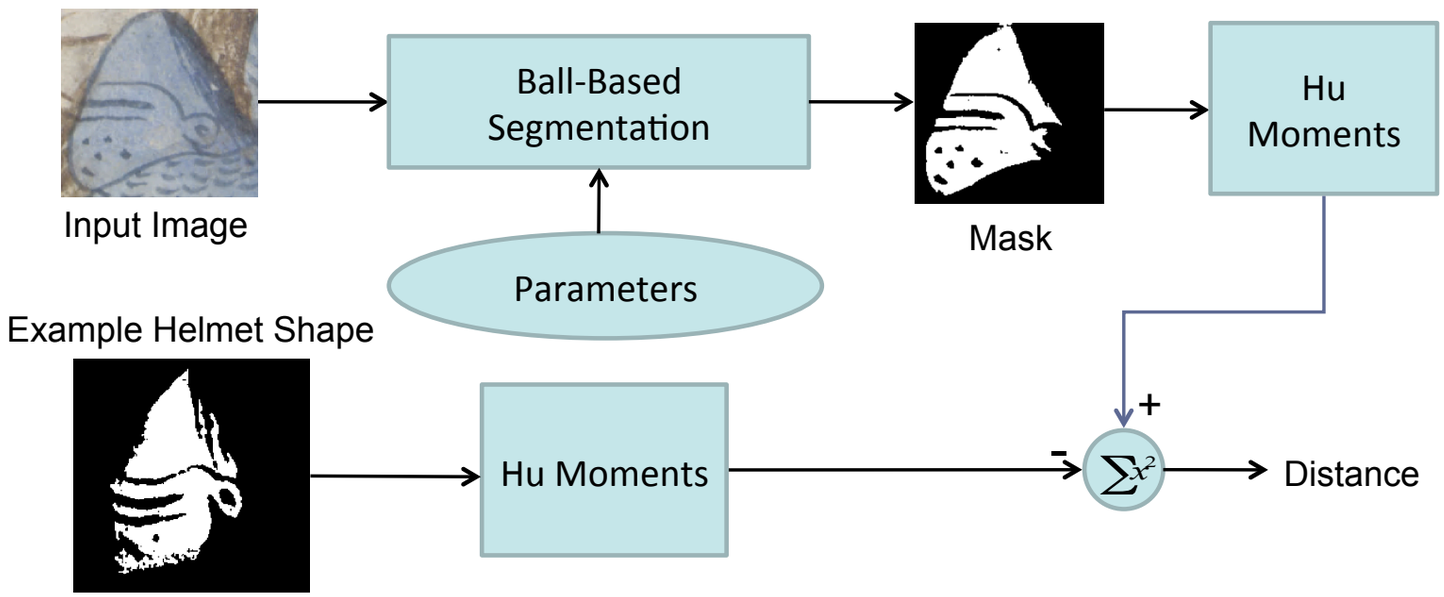
Apply shape recognition algorithms to polygonal models to identify similar letters, words, symbols and patterns

Five Parts of the Project:

Analytical Activities

Manuscript Illuminations

- **Segmentation approach:** Template shape-based segmentation using 7 Hu Moments
- **Goal:** Minimize the distance between mask and example shape in space of Hu Moments over a set of parameters
- **Parameters:** seed-location, ball size, and threshold



Five Parts of the Project:

Audience

Subject Scholars

Art Historians
Cartographers
Quilt Scholars

Public

Archives
Museums
Libraries

Methodological Researchers

Image Analysis
Authorship
Authenticity

Five Parts of the Project:

Products

Digging into Image Data Grant (DID1)
Memorandum of Understanding
3 websites (UIUC, MSU, Sheffield)
3 repositories (Froissart, Quilt Index, Medici)
4 algorithms
3 papers
4 conference posters
7 conference presentation
4 presentations
Digging into Image Data Grant (DID2)
90+ hours of video conference footage
listserv logs
email chains