

Updates to RODAN Gamera Interactive Classifier

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History

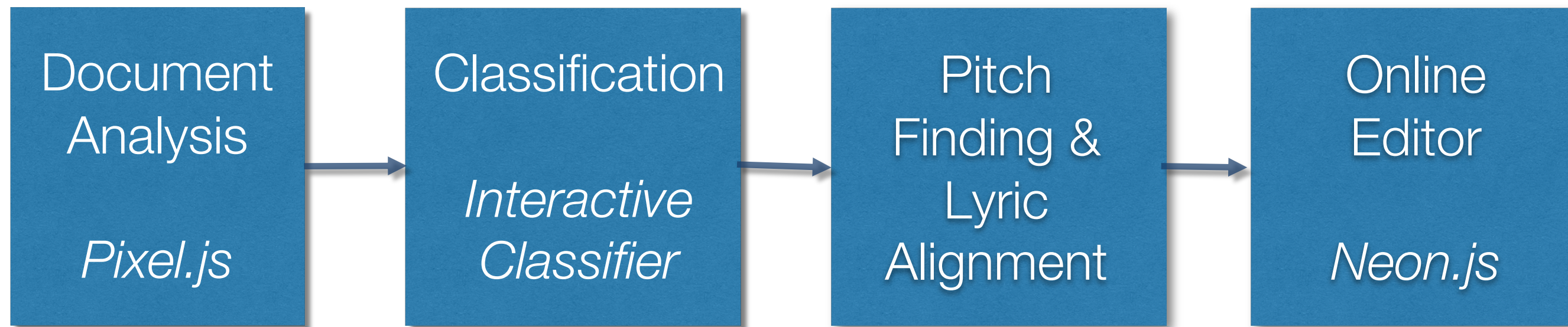
- Originally a part of Gamera, a framework for document analysis applications by Karl MacMillan, Michael Droettboom, and Ichiro Fujinaga in 2001
- Implemented as a RODAN job in 2014 by Andrew Fogarty and extended by Sacha Perry-Fagant and Alex Daigle in 2017

Michael Droettboom, Ichiro Fujinaga, Karl MacMillan, G. Sayeed Choudhury, Tim DiLauro, Mark Patton and Teal Anderson.
“Using the Gamera framework for the recognition of cultural heritage materials.” JCDL (2002)

Interactive Classifier

- A web-based tool for classifying symbols
- Two-part classification
 - Manual correction: user gives examples
 - Automatic correction: machine learns from examples

Interactive Classifier in OMR



Manual Correction











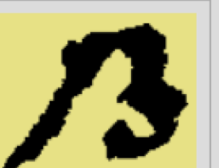



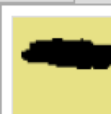







- Assign classes
- Delete classes
- Rename classes
- Group glyphs
- Split glyphs

The screenshot displays the 'Interactive Classifier' web application. The interface is divided into several sections:

- Top Navigation Bar:** Contains a hamburger menu icon, the title 'Interactive Classifier', and three action buttons: 'Submit Corrections and Re-Classify', 'Finalize Classification and Save GameraXML', and 'Group Glyphs and Re-Classify'.
- Left Panel:**
 - Classes:** A list showing 'UNCLASSIFIED' and 'neume' (with sub-items: 'clivis', 'podatus', 'punctum', 'torculus').
 - Edit:** A section for editing a selected glyph. It includes a 'Connected Components' preview, a 'Class' dropdown menu (currently set to 'neume.virga'), an 'Update' button, a 'Splitting' dropdown (set to 'Split x'), and a 'Split' button. Below these are fields for 'Manual ID' (false), 'Confidence' (-1), 'Position' ((1650, 1650)), and 'Dimensions' ((46, 66)).
- Main Area:**
 - Classifier Glyphs:** A grid showing individual glyphs classified by the system. Examples include 'neume.clivis', 'neume.podatus', and 'neume.punctum', each with a corresponding image. Some are highlighted in green.
 - UNCLASSIFIED:** A grid of glyphs that have not been classified, shown in yellow boxes. One glyph is highlighted with a red border.
 - Handwritten Text:** A large image of a handwritten manuscript page with the text 'Mra salut que'. A small red box highlights a specific glyph within the text.

Automatic Correction

- Uses the k-nearest neighbors algorithm
- Match each glyph to the model with the most similar features

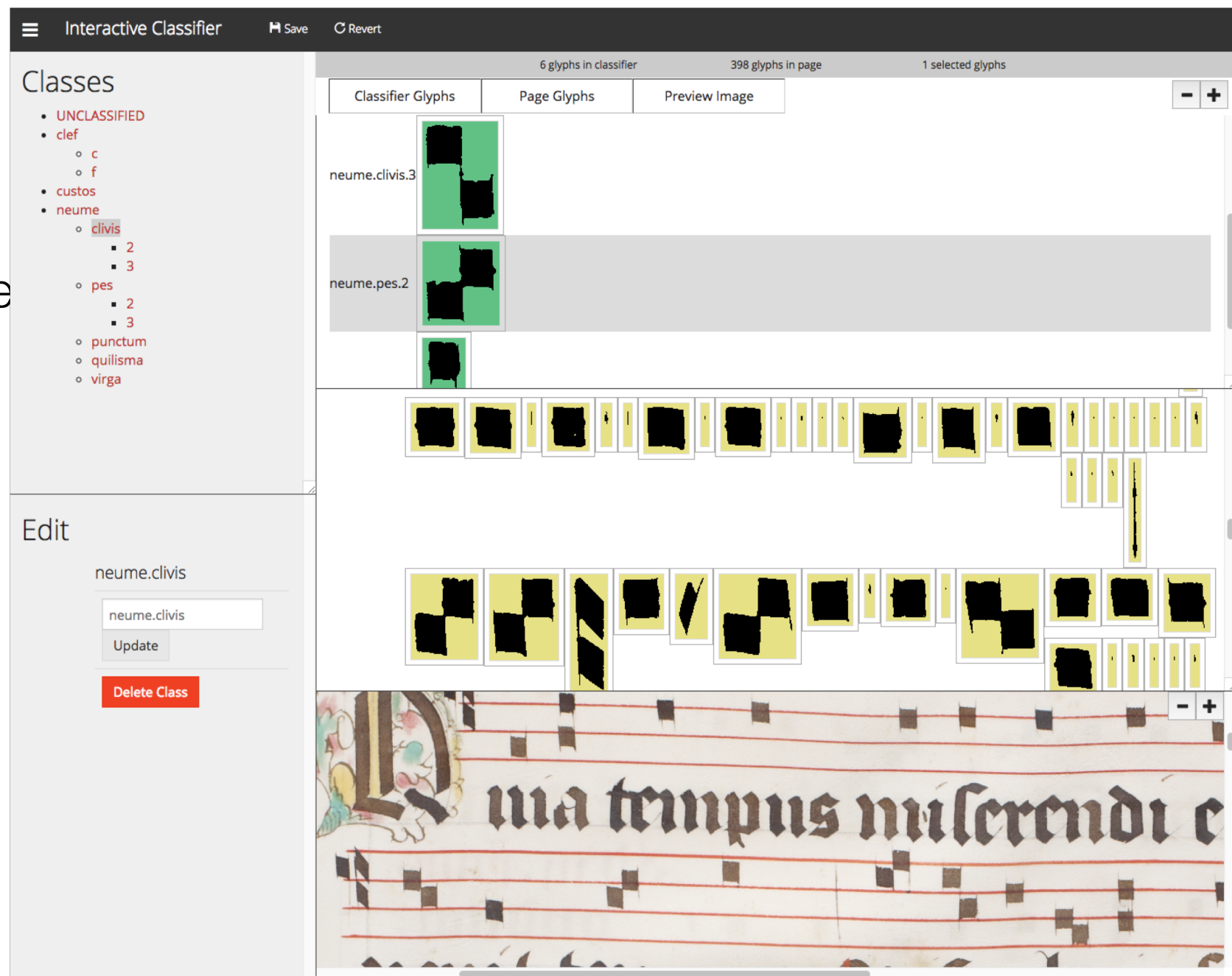
Classifier Glyphs											
neume.podatus											
neume.porrectus											
neume.punctum											
neume.podatus											
neume.porrectus											
											

Advantages Over a Complete Manual Classification

- Faster than solely manual classification
- Results improve in each iteration
- Can classify any type of symbols

Recent Updates

- Delete & rename classes
- Import & export classes as a file
- Display preview image in color
- Save and revert
- Optimized zooming actions
- Collapsible panes
- Resize window





Classes

- UNCLASSIFIED
- clef
 - c
 - f
- custos
- neume
 - clivis
 - 2
 - pes
 - 2
 - 3
 - porrectus
 - punctum
 - quilisma
 - virga

Edit

Click on a Glyph to edit it.

0 glyphs in classifier

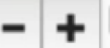
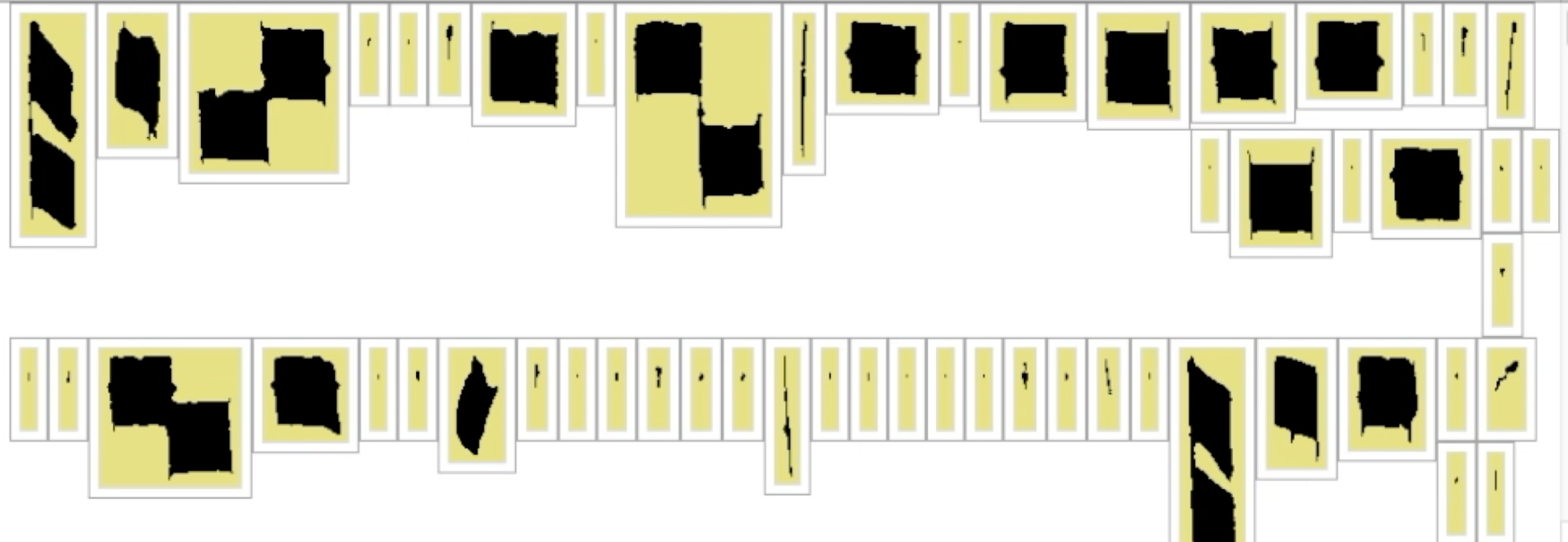
402 glyphs in page

0 selected glyphs

Classifier Glyphs

Page Glyphs

Preview Image



Future Enhancements

- Integrate Diva.js to render the preview image
- Increase compatibility with Safari
- Implement the classifier optimization as a RODAN job
- Implement more unit tests

Thank you



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