Pixel.js: a web-based application for pixel classification and correction

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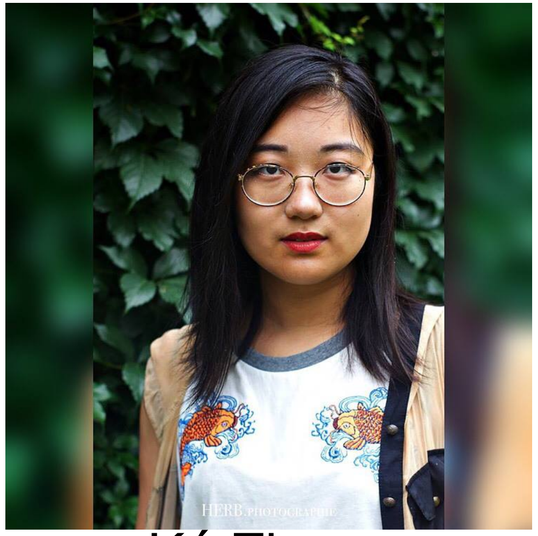
Conseil de recherches en sciences humaines du Canada
Canada

SIMSSA | Single Interface for Music Score Searching and Analysis
Schulich School of Music École de musique Schulich
McGill
CIRMMT Centre for Interdisciplinary Research in Music Media and Technology

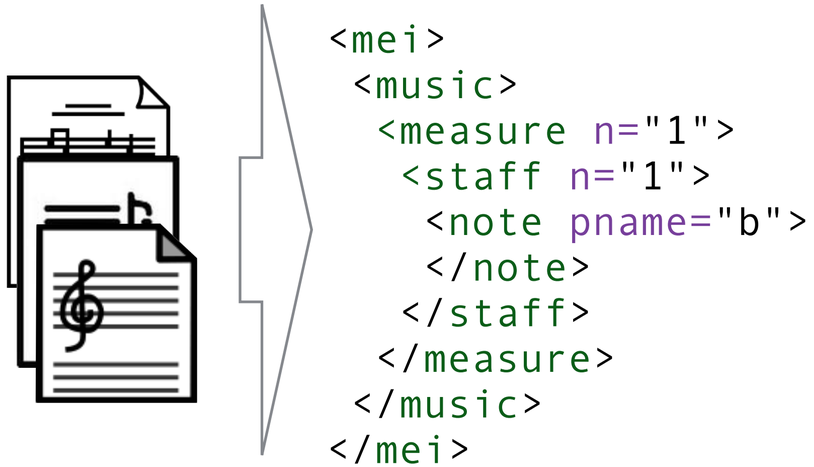
Zeyad Saleh
(2017)



Ké Zhang
(2017-8)

Eric Liu
(2018)

Optical music recognition (OMR) workflow



```
<mei>
 <music>
  <measure n="1">
   <staff n="1">
    <note pname="b">
    </note>
   </staff>
  </measure>
 </music>
</mei>
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Optical music recognition (OMR) workflow

Document segmentation

Music symbol recognition

Musical notation recognition

Final representation construction

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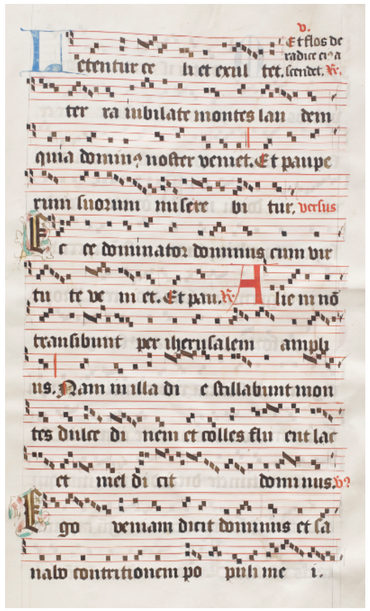
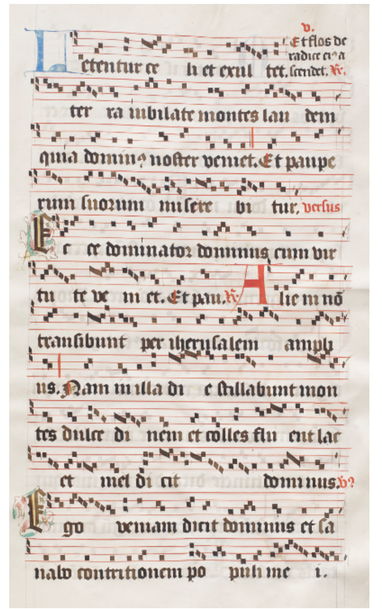


Optical music recognition (OMR) workflow

Document segmentation

- Binarization
- Enhancement
- De-skewing
- Morphological operations
- …
- Reference lengths
- Image segmentation



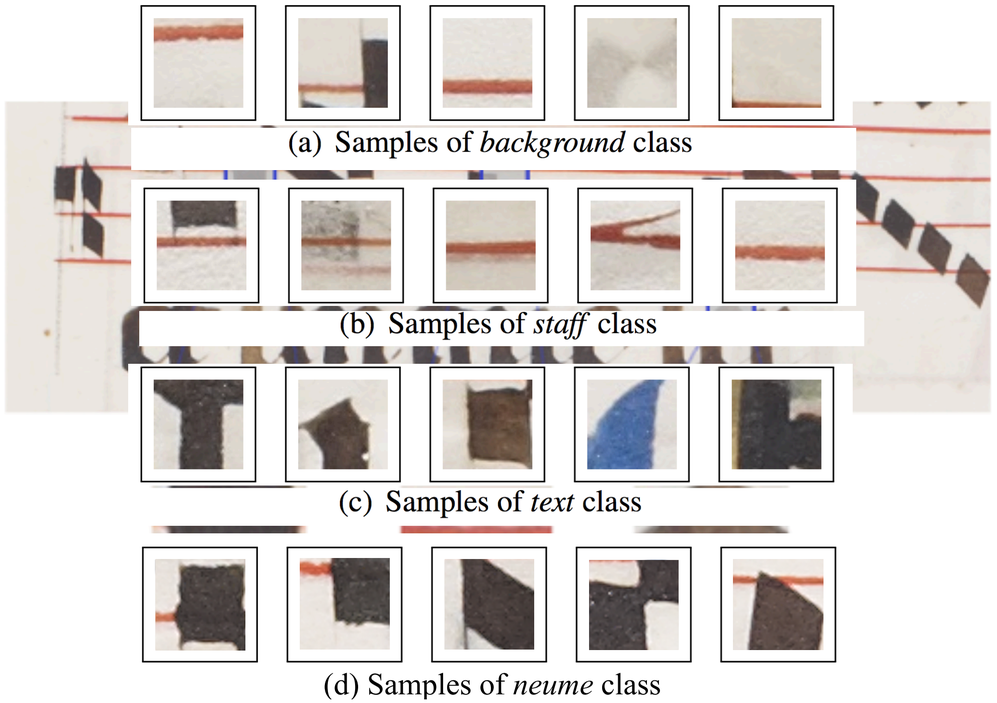
Optical music recognition (OMR) workflow

Document segmentation approach based on a convolutional neural network classifier (Calvo-Zaragoza, Vigliensoni, Fujinaga 2017)

Document segmentation

Classification Method

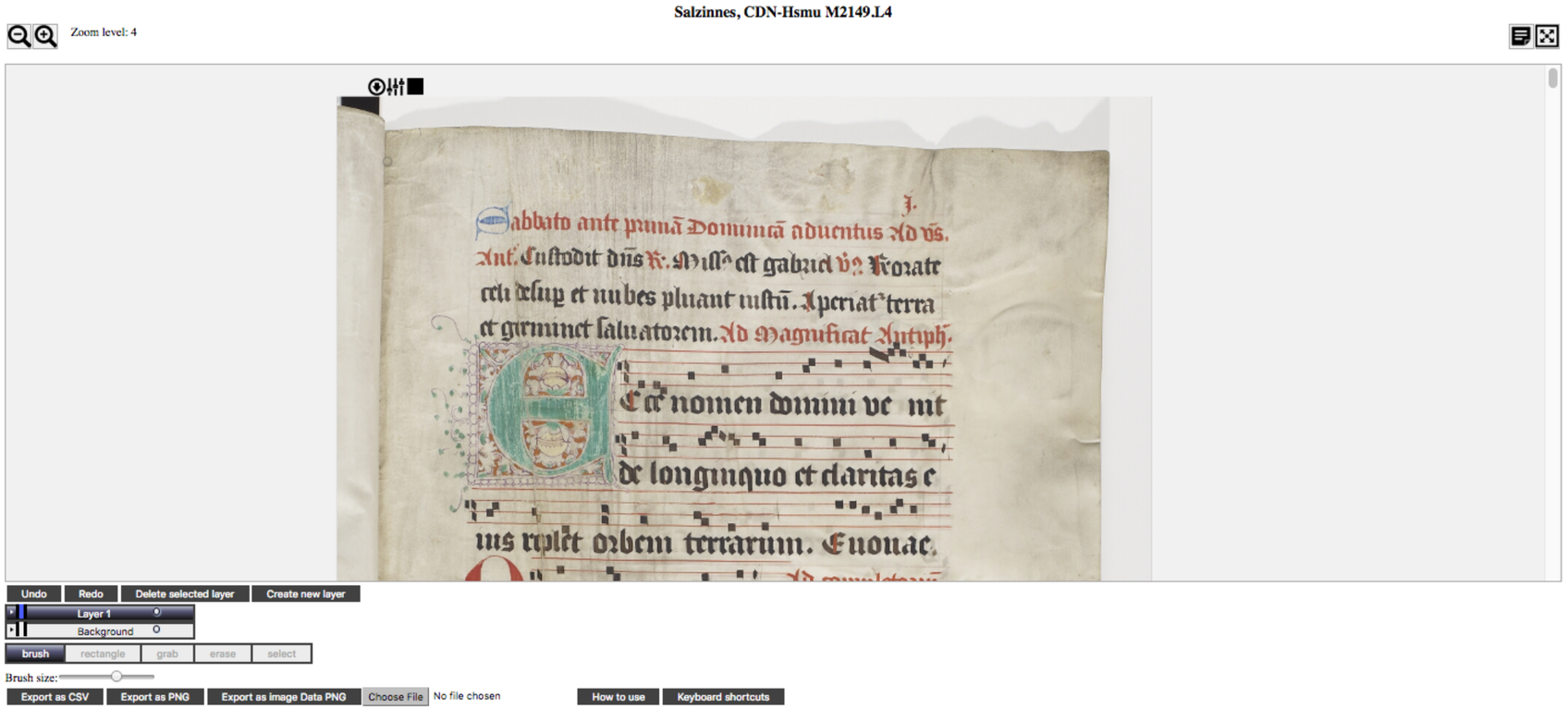
Pixel.js



Pixel.js

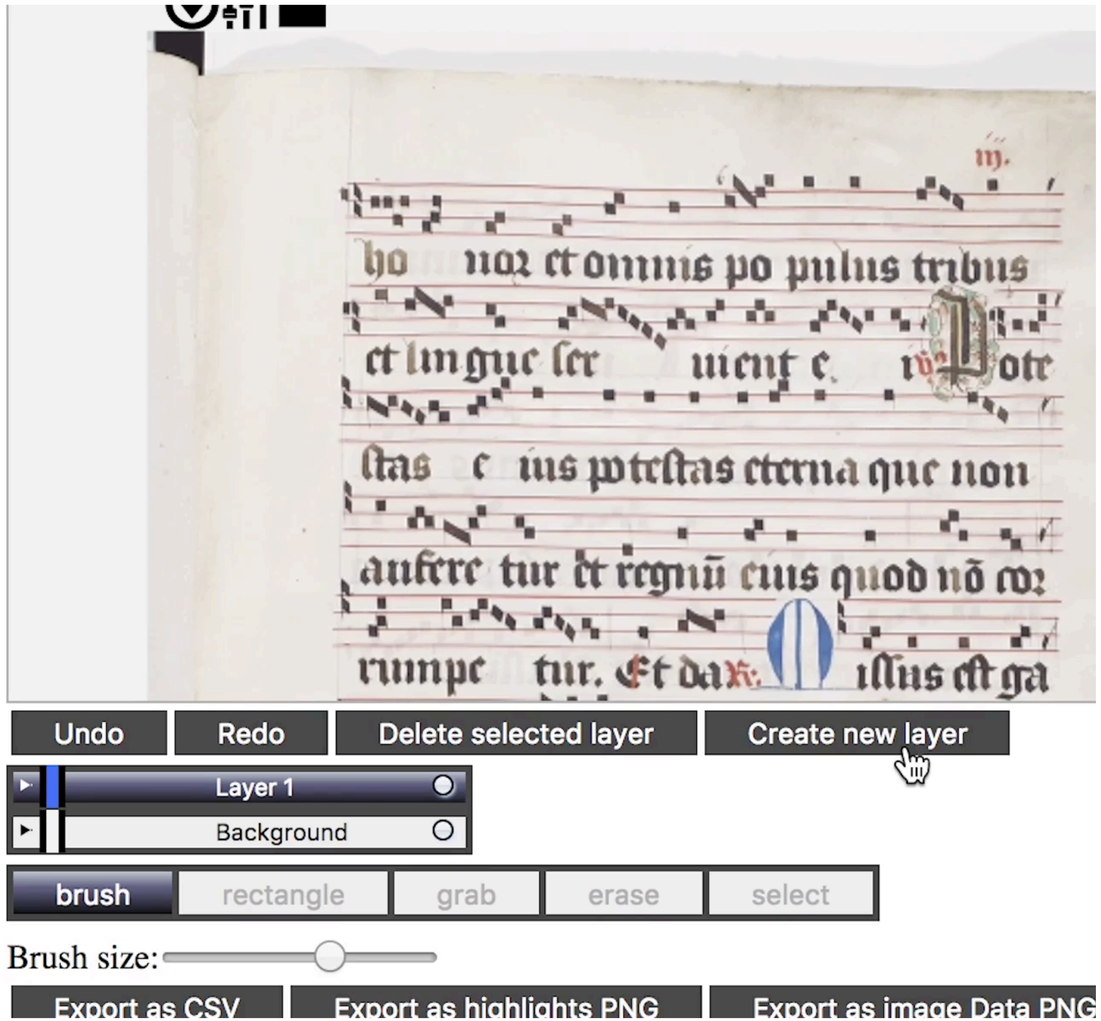
"Web-based pixel classification platform for ground truth creation"
(Saleh et al. 2017)

Built as a plugin for Diva.js, a web-based document viewer for high-resolution images
(Hankinson et al. 2012)



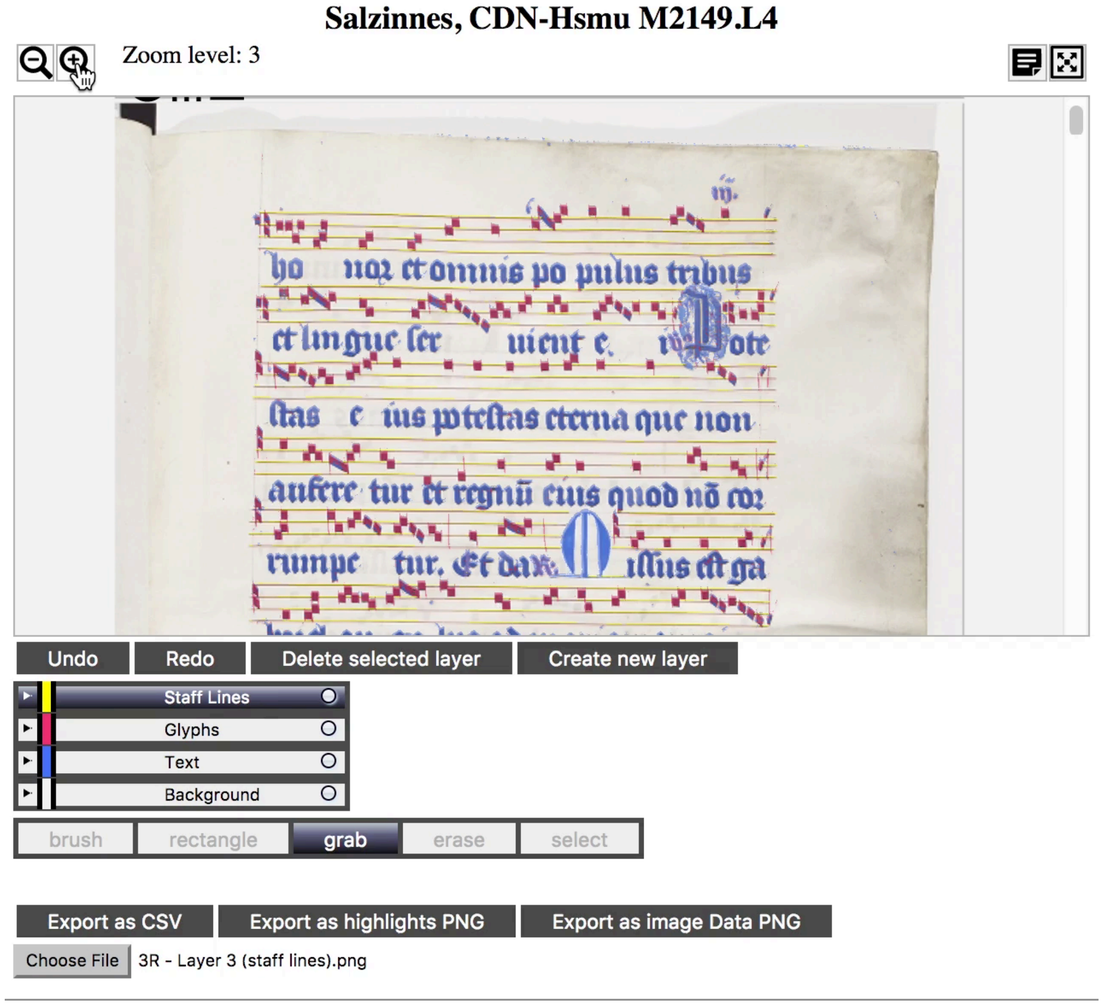
Pixel.js features
Colour-coded layers

Layer names can be changed!
For example:
“Staff lines”, “Glyphs”, “Text”

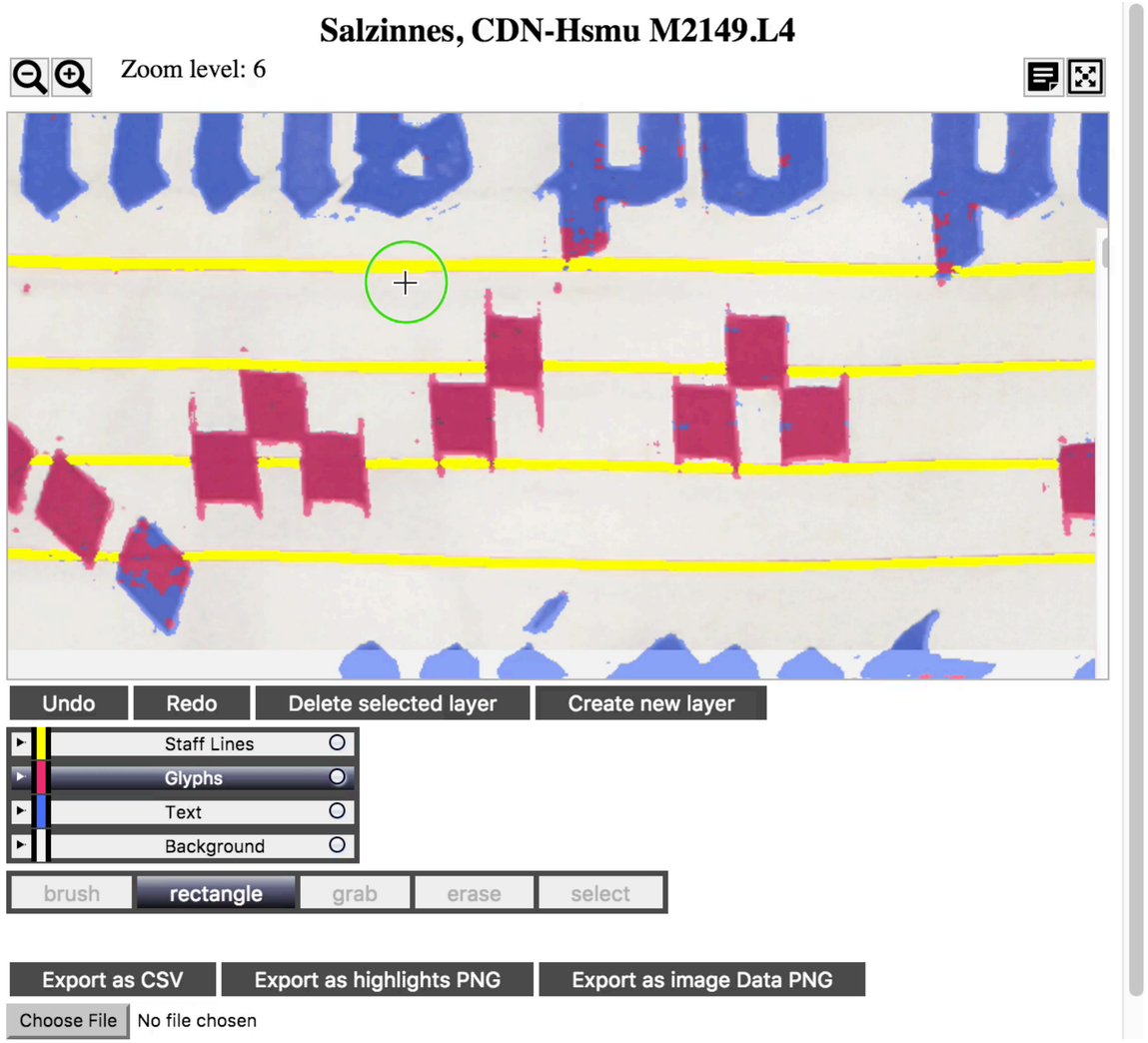


Pixel.js features
Zooming and navigation tools

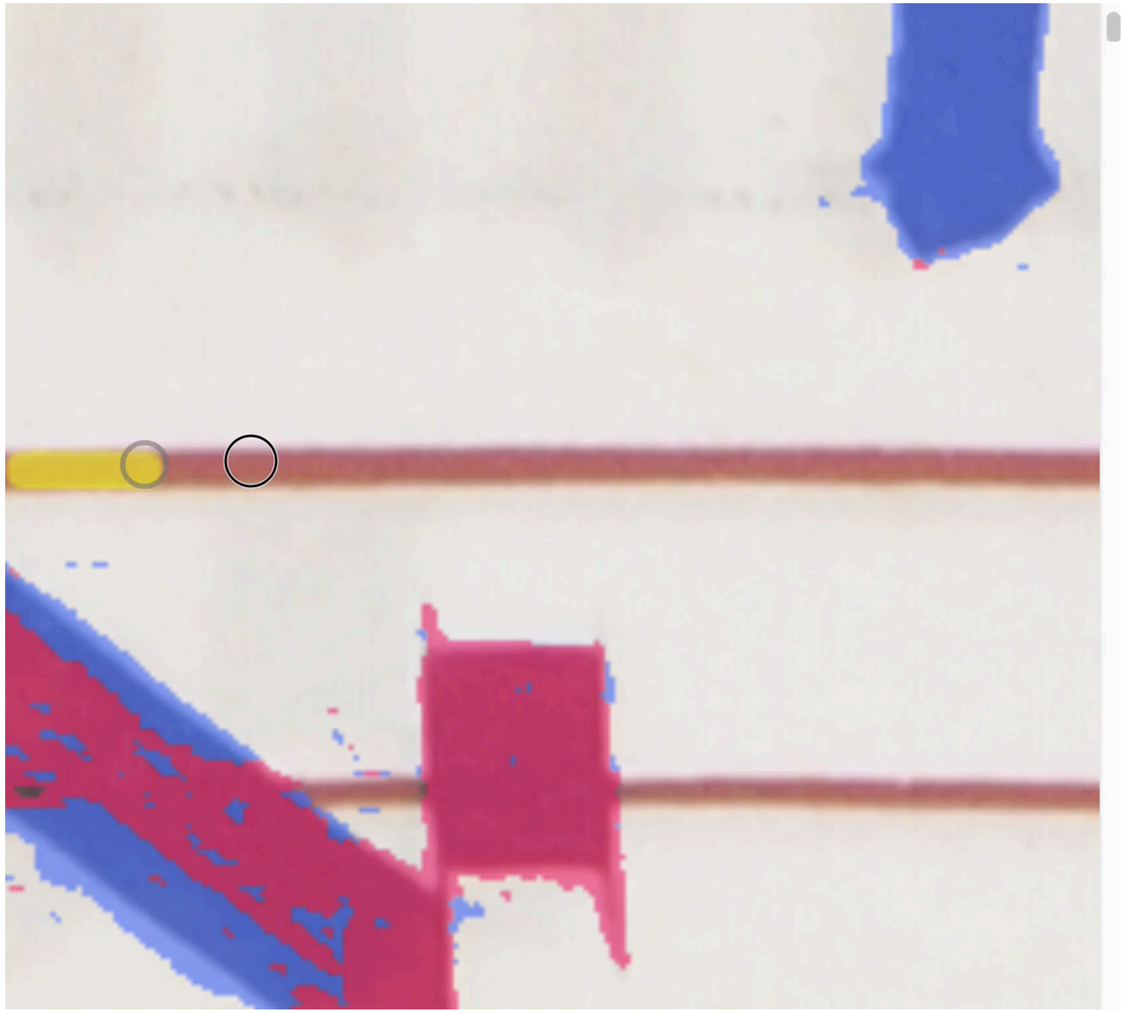
Zooming and navigation thanks to Diva!



Pixel.js
Brush and rectangle labeling



Pixel.js
Brush smart snapping

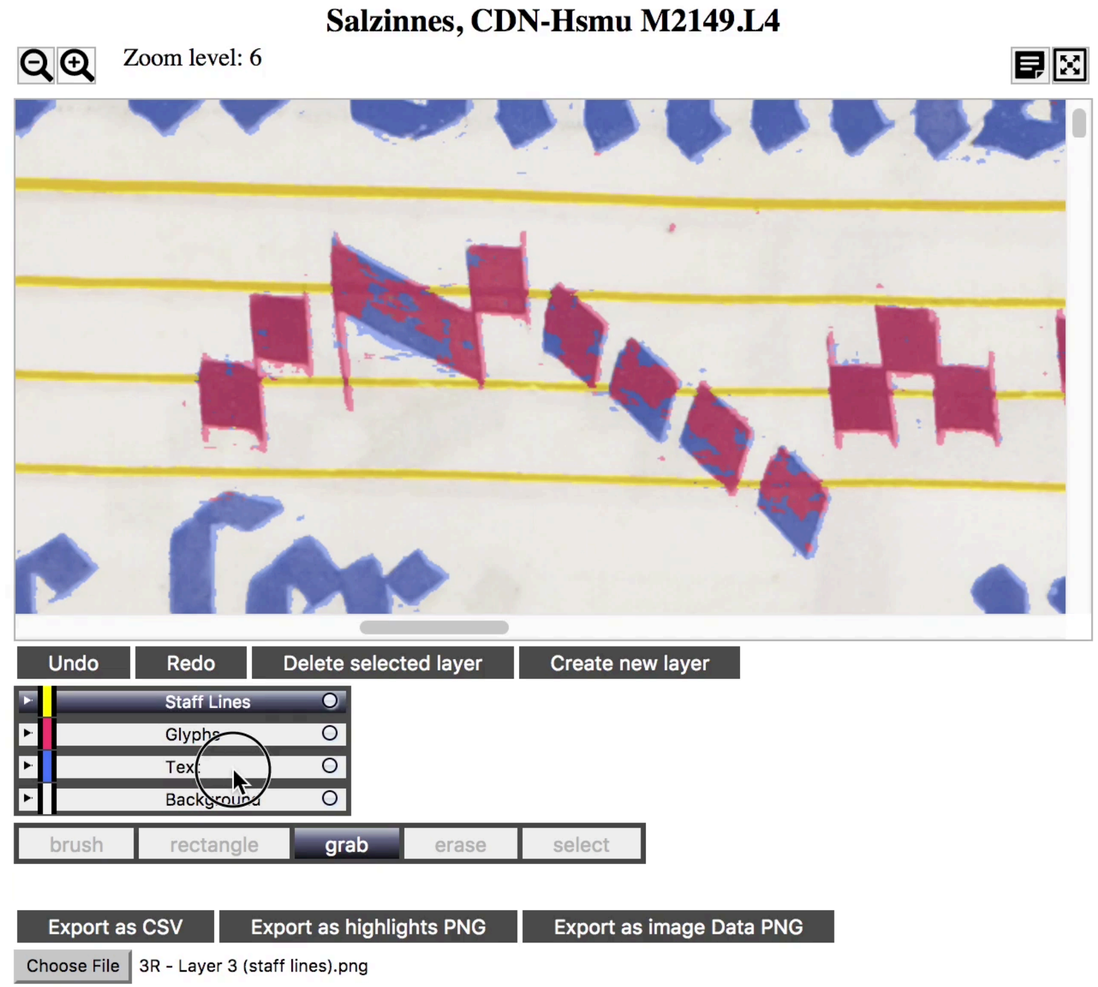


Pixel.js features
Adjustable layer opacity

Facilitates visualization, better usability!

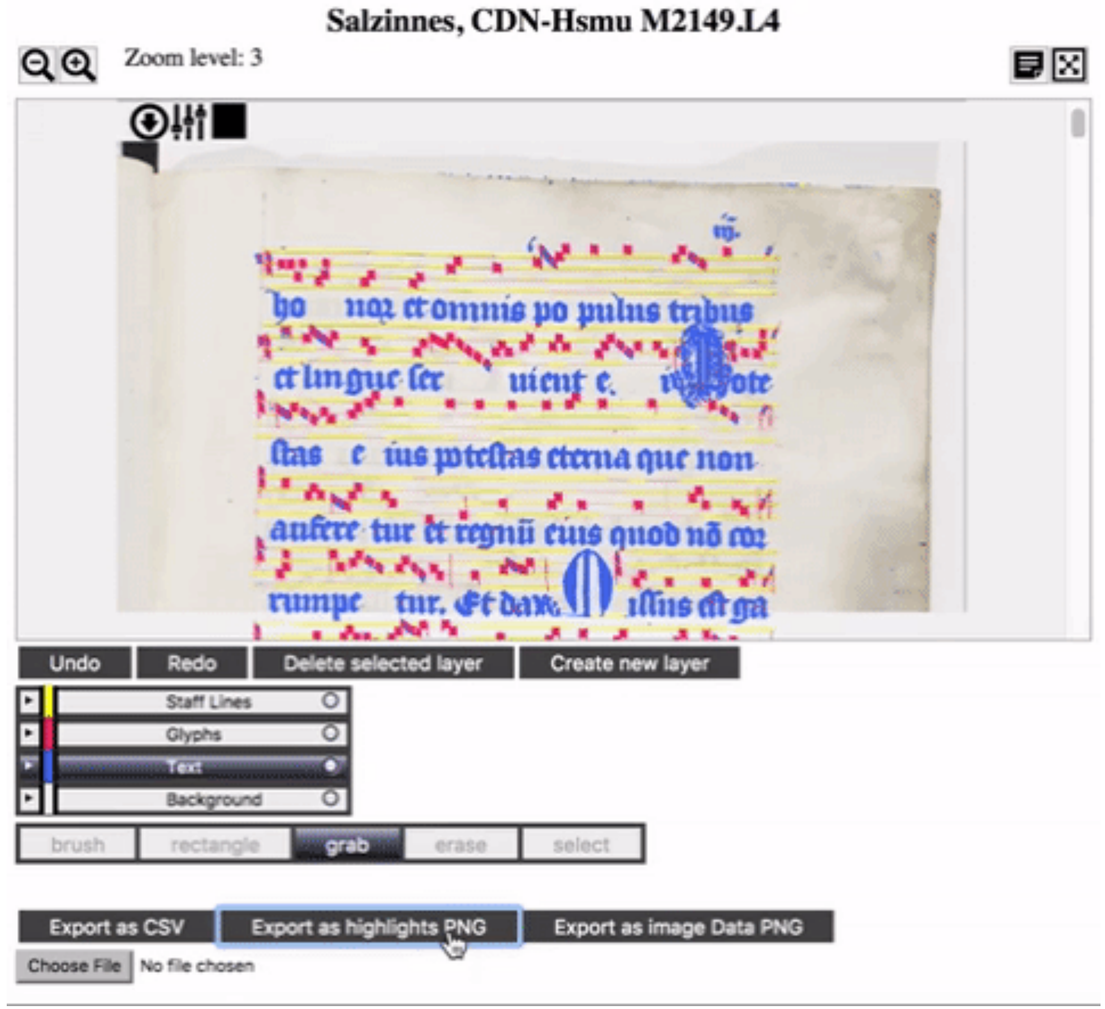
Pixel.js features
Layer editing tools

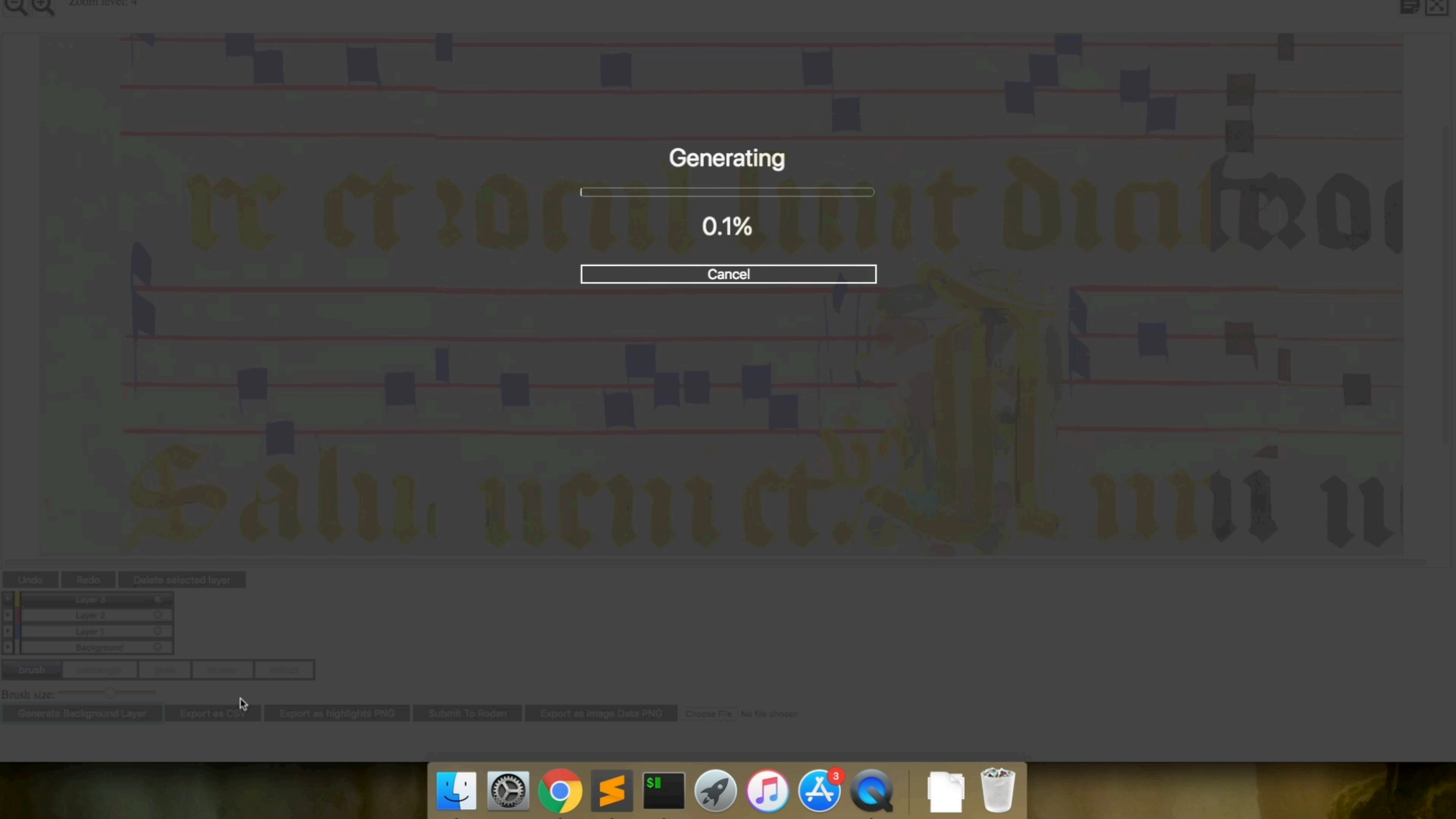
Quickly move regions of pixels from a layer to another!



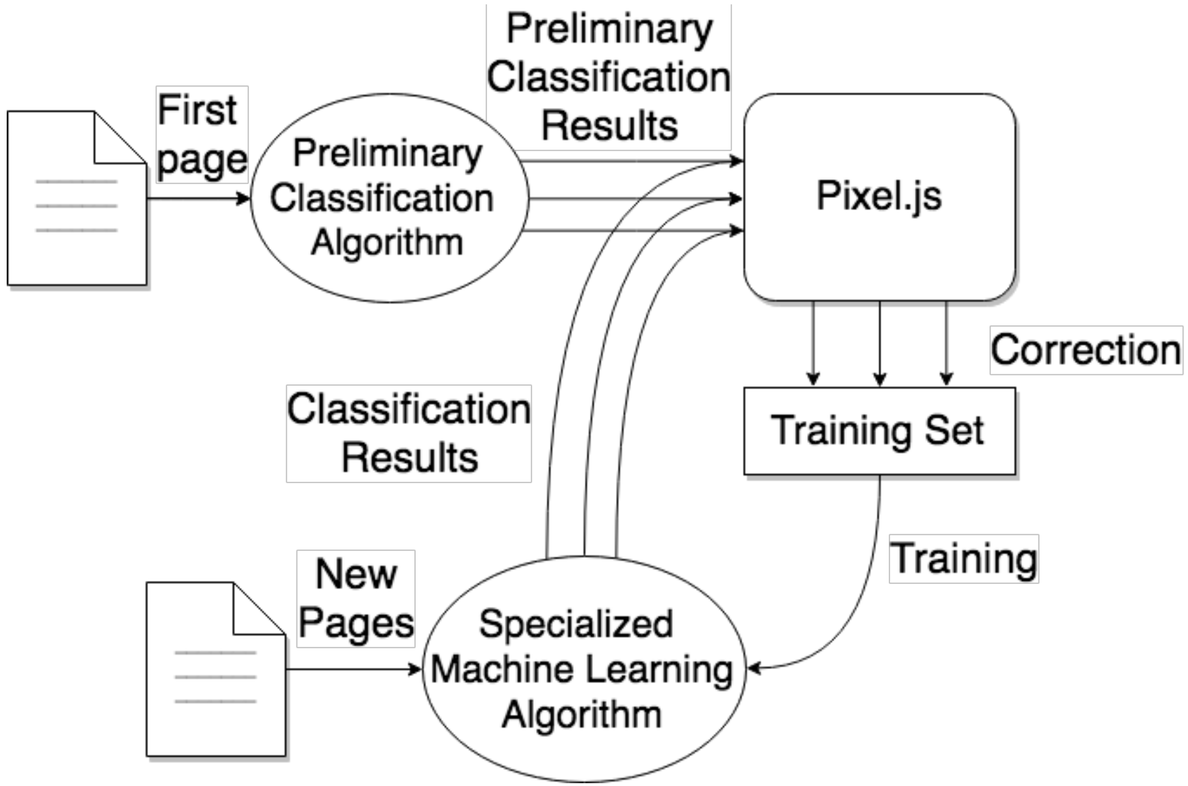
Pixel.js
Export/import functionality

Can re-import to continue work!




Generating
0.1%
Cancel
Undo
Redo
Delete selected layer
Layer 3
Layer 2
Layer 1
Background
brush
Brush size:
Generate Background Layer
Export as CSV
Export as highlights PNG
Submit To Rodan
Export as image Data PNG
Choose File
No file chosen

Human-aided document segmentation with ***Pixel.js***



Human-aided workflow using Pixel.js
(Calvo-Zaragoza et al. 2017)

Try ***Pixel.js !***

ddmal.github.io/Pixel.js

Thanks to Eric Liu, Ké Zhang, Martha Thomae, and Zeyad Saleh

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DDMAL DISTRIBUTED DIGITAL MUSIC ARCHIVES & LIBRARIES LAB

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