Workshop on Machine Learning and Music, Vilnius, Lithuania (2024)

Can Patch Selection Heuristics Enhance Layout Analysis of Music Scores?

Funded by the European Union
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GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES
AGENCIA ESTATAL DE INVESTIGACIÓN

Plan de Recuperación, Transformación y Resiliencia

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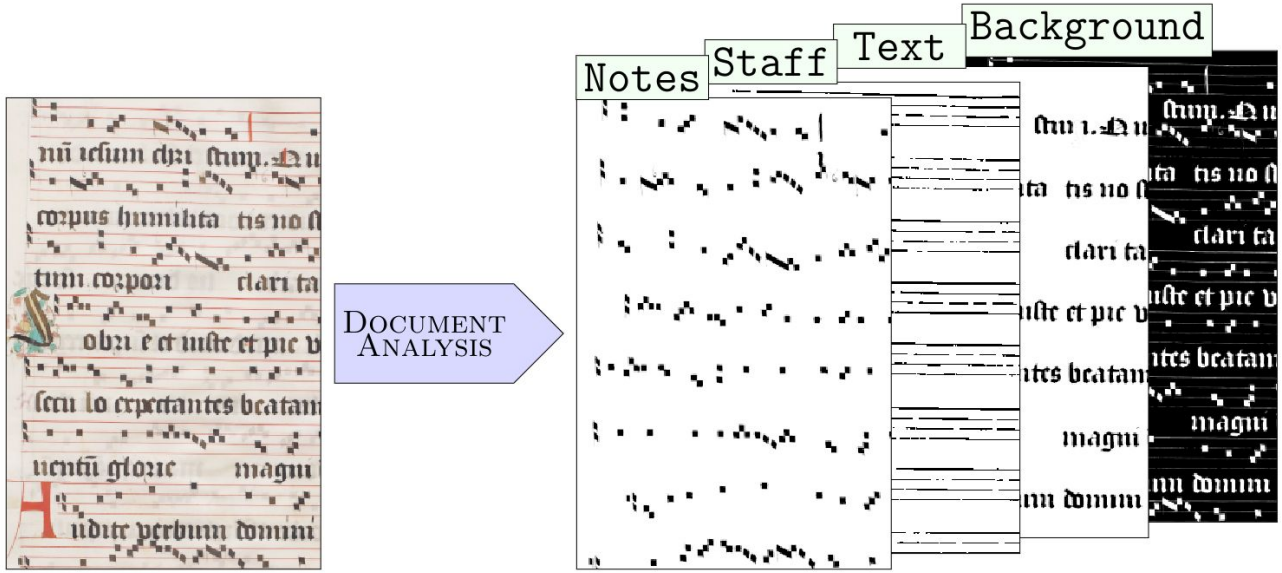
prig

Layout analysis

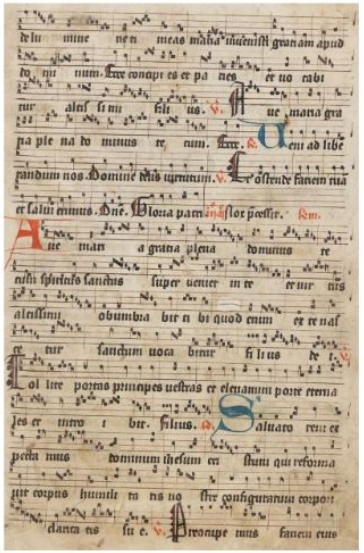
Introduction



Layout analysis

Motivation

EINSIEDELN (EIN)



10 pages of 5 550 × 3 650 px.

SALZINNES (SAL)

10 pages of 5 100 × 3 200 px.

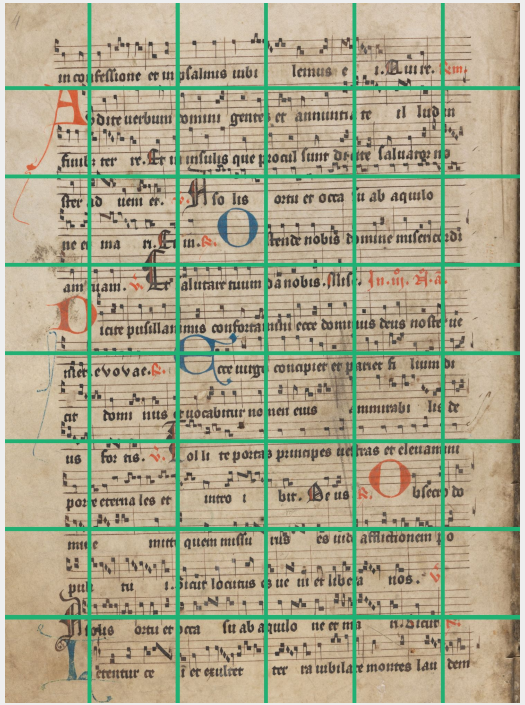
How obtaining ground truth for training a model?

😞 Annotating a lot of pages.

😐 Annotating a few pages.

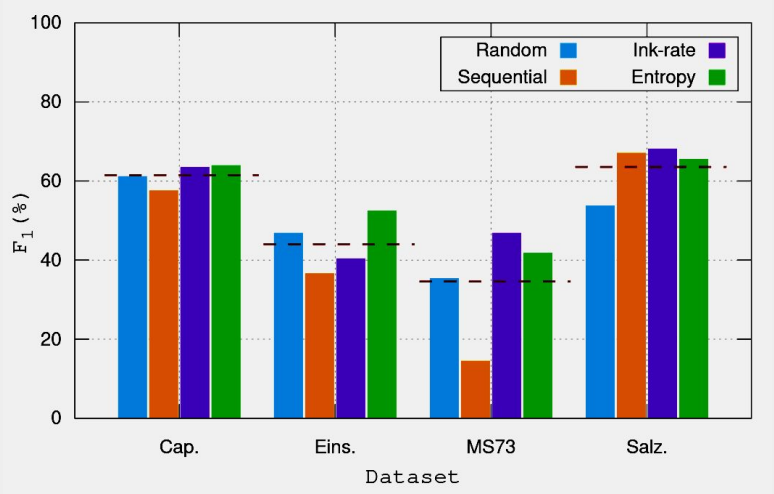
😍 **Annotating a few selected samples.**

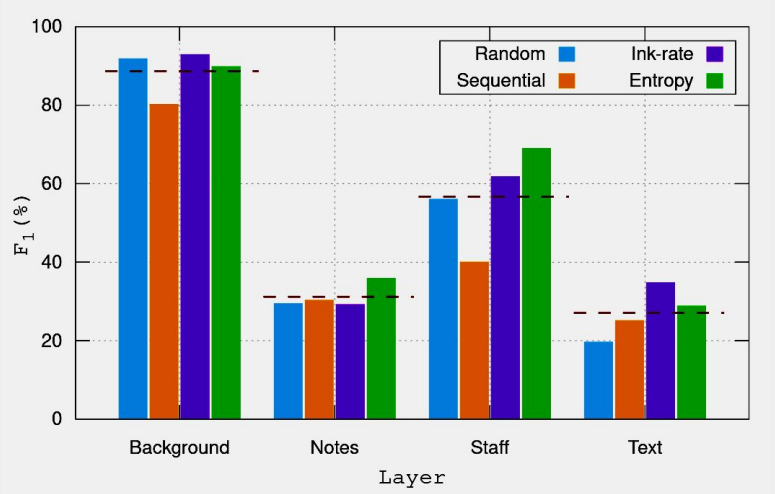
Methodology



- We divide the image in selectable patches.
- We annotate **one patch** for training.
- What patch should we select?
  - Entropy.
  - Amount of pixels for the layer of interest.
  - Randomly.
- This process would be iterative, until obtaining a robust model.

Experiments

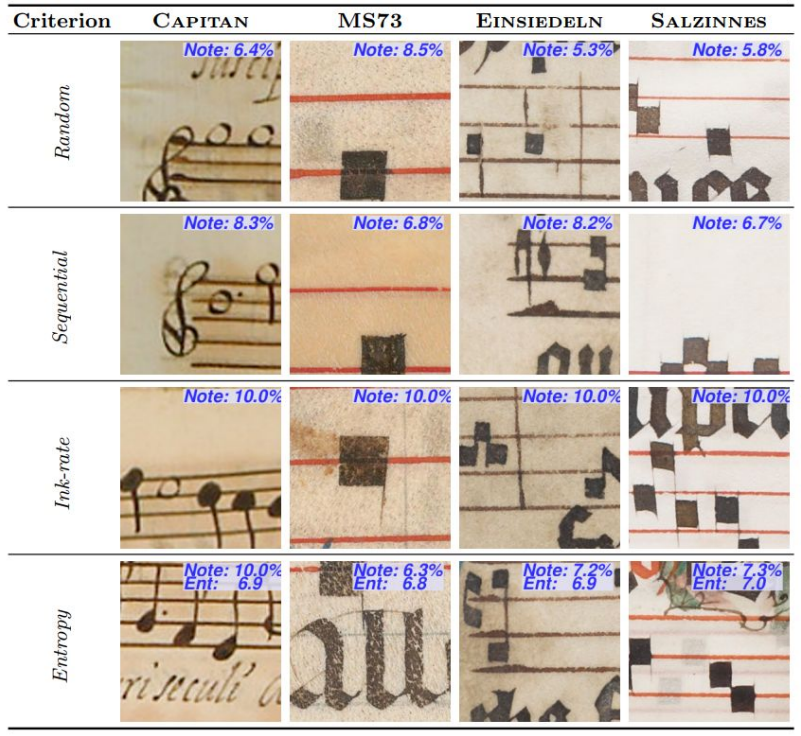




Metric	Random	Sequential	Ink-rate	Entropy
F_1 (%)	49.2	43.9 -5.3	54.6 +5.4	**55.9** +6.7

*Superscript values denote the improvement rate (%) with respect to the random method (baseline).

Conclusions



- Ink rate selection is not always the best option.
- The use of **entropy** seems to be adequate.
- We plan to extend the experiments with more complex approaches.

Thanks for your attention

Pattern Recognition and Artificial Intelligence Group

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