Deep Watching
Towards New Methods of Analyzing Visual Media in Cultural Studies

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1. Deep Watching

2. Bodies as/and Signs

3. Symbolic Contexts
Deep Watching
Bodies as/and Signs
Corpus & Methods

270 cigarette cards from the album “Bunte Filmbilder” (test corpus)

17,669 cigarette cards (https://www.virtual-history.com/movie/moviecard)

700 movie cards, digitized in cooperation with Filmmuseum Potsdam

*Facenet* (Sandberg 2018) for face recognition

*Detectron* (Girshik et al. 2018) and *RMPPE* (Cao et al. 2017) for pose estimation

*OpenFace* (Baltrušaitis et al. 2018) for facial behaviour analysis
Symbolic Contexts
Corpus & Methods

400 YouTube videos about Ukrainian nationalist Stepan Bandera (1909-1959)

Facebook’s Detectron framework

MaskRCNN (He, Gkioxari et al. 2017) as Regions-of-Interest localisator

ResNet101 (He, Zhang et al. 2015) for feature extraction
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<th>Ukrainian nationalist symbols</th>
<th>German fascist symbols</th>
<th>Polish nationalist symbols</th>
<th>Russian / Soviet nationalist symbols</th>
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<td>SS-Rune (106)</td>
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Training Results

$mAP_{\text{IoU}=0.5} = 0.72$

If proposed region and gold annotation match at least 50%, this region is correctly classified in 72% of the cases.

$\text{IoU} = \frac{\text{Intersection}}{\text{Union}}, \mathcal{W} = [0, 1]$

Measure for congruence of proposed region with gold annotation.

mean Average Precision

Relation of correctly classified regions to all classifications.

Typically $mAP_{\text{IoU}=0.5}$ or $mAP_{\text{IoU}=0.75}$ is used.
Symbols per Video
Cooccurrences (Adjusted for Symbol Frequency)
RCNN as a possibility to automatically extract complex symbolical information from visual media

Plethora of pre-trained models available, but applicability in the field of Cultural Studies may vary

Thus, training ‘special interest’ and/or ‘niche’ models becomes more and more important


Bonus
Train/Eval/Test separation 75:15:10 (per class)
mAP per symbol

Flag of Ukraine: 0.51
Flag of UPA: 0.49
Ukrainian Coat of Arms: 0.63
Swastika: 0.80
SS runes: 0.69
Ribbon of St. George: 0.70
Hammer & Sickle: 0.72
Polish Coat of Arms: 0.75
Wolfsangel: 0.94
Symbol of OUN: 0.75
Swoboda: 0.58
Falanga: 0.93
Bounding boxes of a symbol
Corpus map (Isomap)